NOTIFICATION OF COMPLIANCE

Revision 0

Pursuant to

NESHAP: Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (40 CFR 63 Subpart EEE, Phase II)

Prepared by

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and

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September 01, 2010

EXECUTIVE SUMMARY

FutureFuel Chemical Company (FFCC) owns and operates an organic chemical manufacturing plant located southeast of Batesville, Arkansas, that was formerly owned and operated by Eastman Chemical Company. As part of plant operations, FFCC (EPA ID# ARD089234884) generates wastes regulated under the Resource Conservation and Recovery Act (RCRA) and burns some of this waste in its three coal-fired boilers for energy recovery. FFCC is currently operating these boilers under Arkansas Department of Environmental Quality (ADEQ) Hazardous Waste Permit Number 11H-RN1-M005. FFCC also destroys waste in its on-site incinerator currently operating under its Title V Permit (1085-AOP-R8).

The documentation of compliance (DOC) was developed in order to certify that the boilers are designed and will be operated in a manner that ensures compliance with the emission standards of 40 CFR 63.1216. This documentation of compliance was prepared in accordance with 40 CFR 63.1211(d) and was placed in the operating record on October 14, 2008. FFCC placed the DOC in its facility operating record as specified in the NESHAP: Final Standards for Hazardous Air Pollutants for Waste Combustors; Final Rule, effective October 12, 2005.

FFCC submitted the boiler Comprehensive Performance Test (CPT) plan for approval on April 11, 2008. The plan was conditionally approved by EPA Region 6 on April 13, 2010. FFCC began the CPT on April 14, 2010 and concluded the testing on June 4, 2010. The results of this test are being submitted as the Notice of Compliance (NOC) to the EPA and ADEQ. FFCC will begin complying with the operational parameters and limits established within this NOC immediately upon submittal.

CONCLUSIONS ON MEETING CPT OBJECTIVES

The overall objectives of the Comprehensive Performance Test were to demonstrate that the boilers are capable of meeting the solid fuel-fired emission standards established in the MACT Combustion Rule (40 CFR 63 Subpart EEE) and to establish operating parameter limits that are equivalent with that demonstration. Table ES-1 summarizes the specific objectives demonstrated during the CPT.

FFCC was successful in meeting the overall CPT objective, and this NOC establishes the operating conditions that reflect the results of this successful test.

Table ES-1

Specific Objective	CPT Result
Demonstrate 99.99 % DRE of the designated POHC Chlorobenzene	**≥ 99.9991 %**
Demonstrate control of hydrocarbon emissions to less than 10 parts per million dry volume (ppmv), corrected 7 percent oxygen, on a hourly rolling average.	**≤ 0.4 ppmv @ 7% O_2**
Conduct a one time emission test for Dioxin/Furan or submit adequate data in lieu of testing, and Demonstrate control of hydrocarbon emissions to less than 10 parts per million dry volume (ppmv), corrected 7 percent oxygen, on a hourly rolling average (as shown above)	**Agency approved data in lieu of D/F test located in Appendix F of the CPT Plan. One time D/F test results were 0.092 ng TEQ/dscm @ 7% O_2**
Demonstrate control of particulate emissions to less than 68 micrograms per dry standard cubic meter (ug/dscm) at to 7 percent oxygen.	**26.2 ug/dscm @ 7% O_2**
Demonstrate that control of HCl and free chlorine emissions are equal to or less than limit established using the health-based alternative compliance demonstration described in Appendix D of the CPT Plan (< 1,886.8 lb/hr chloride feed rate)	**494 lb/hr**
Demonstrate that control of mercury emissions are equal to or less than 11 micrograms per dry standard cubic meter (ug/dscm) corrected to 7 percent oxygen. During Test 2.	**3.9 ug/dscm @ 7% O_2**
Demonstrate that control of Semi-Volatile metals (SVM) emissions are equal to or less than 180 micrograms per dry standard cubic meter (ug/dscm) corrected to 7 percent oxygen during Test 2.	**158.8 ug/dscm @ 7% O_2**
Demonstrate that control of Low-Volatile metals (LVM) emissions are equal to or less than 380 micrograms per dry standard cubic meter (ug/dscm) corrected to 7 percent oxygen during Test 2.	**117.3 ug/dscm @ 7% O_2**
Gather data regarding waste feed characteristics and process operating conditions that will be used to develop operational permit limits that will ensure compliance with regulatory performance standards.	FFCC obtained all the necessary information to establish permit limits and demonstrate performance standards during the CPT.

DEVIATIONS FROM THE CPT PLAN

There were several operational related deviations from the approved CPT plan that were made prior to conducting the CPT. Table ES-2 details the changes made after formal EPA approval of the CPT plan.

Table ES-2

Change to the CPT Plan	Explanation of Change
Coal Sampling Location	The original plan called for FFCC to sample the coal and diatomaceous earth as fed; however, the Agency directed us to modify the original sampling plan to obtain the coal samples prior to the addition of the diatomaceous earth. The coal samples were then taken from a sample point at the exit of the coal silo which is approximately 8 feet before the area where the ash (diatomaceous earth) was spiked into the coal.
VOST Sampling Rate	The original plan called for FFCC to obtain 4 VOST tube pairs over 120 minute sampling period. The Agency directed us to obtain samples at a rate of 0.5 liters per minute, which increased the sampling time to 160 minutes.
Chloride Analysis	The CPT plan called for the commercial lab to use SW-846 Method 9076 or other approved method. The Laboratory used SW-846 Method 9057, which is an EPA approved method for measuring chloride. The Independent QA Reviewer examined this issue in detail (see Section 4) and determined that the use of Method 9057 rather than 9076 did not compromise the data.
Maximum Hazardous Waste Feed Rate Limit, Maximum Combustion Air Flow Rate Limit, and Maximum Percent Stack Gas Oxygen Limit	FFCC will set the maximum hazardous waste feed rate, the maximum combustion air flow rate limit, and the maximum percent stack gas oxygen limit based on the average of the test run averages, instead the average of the maximum hourly rolling averages as specified in the CPT plan. This is a more conservative approach.

Table ES-2, continued

Change to the CPT Plan	Explanation of Change
Maximum Mercury Feed Rate Limit	FFCC plans to use the Maximum Theoretical Emission Calculation (MTEC) to establish the maximum mercury feed rate limit. FFCC had planned to use the average of the test run averages to establish a maximum mercury feed rate limit; however the mercury present in the coal was uncharacteristically low. As seen in Table 2.0 of the CPT plan, the average mercury in FFCC's coal is 0.15 ppm. The mercury in the coal used during the CPT was 0.044 ppm. The MTEC assumes zero percent removal efficiency for mercury. To further alleviate concerns, FFCC will set the feed rate limit at just 90% of the MTEC Calculated limit to ensure it stays well below the MACT EEE standard for solid fuel-fired boilers.
Laboratory Analytical Methods	The CPT plan stated that certain analytical methods or other approved methods would be used by the laboratory. The laboratory used EPA approved scientific methods for all analytical results, but some of those methods were not specifically mentioned in the plan. The methods used, that were not specifically listed, were evaluated by the independent third party QA/QC officer and determined to be approved and viable EPA methods. This evaluation is discussed in section 4.0 of the NOC.

CPT ISSUES AND SOLUTIONS

The boilers met all CPT objectives; however, the following issues were encountered during the CPT:

1) THC CEMS Malfunction

2) VOST Audit Process

3) Coal Feed Rate

Issue 1 – THC CEMS Malfunction

We began stabilizing the boiler for Test 2, Run 1 at 05:00 am. At 06:11 am we encountered a mechanical malfunction on the THC CEMS which initiated an AWFCO. The control system mechanic for the CEMS did not arrive at the plant site until 08:00 am. He repaired the malfunction and we were back on line by 09:00 am stabilizing again. Test 2, Run 1 began at 10:04 am instead of the planned 07:00 am start.

Issue 2 – VOST Audit Process

The Agency did not ship the VOST audit materials with fittings that would work with the stack sampling crew's equipment, and did not provide a means to measure the temperature of the audit stack. FFCC initiated an extensive search for fittings at its plant site, but none were found that would provide leak free flow from the audit cylinder. In the end, the stack sampling crew was forced to break one of its sampling probes so that the VOST audit process could be completed.

Issue 3 – Coal Feed Rate

During Test 2, Run 3, the process operators failed to select the correct analytical data for waste tank WB01. FFCC was burning the test waste from WB01 but the computer was using analytical data entered for tank WB02. This did not impact the test results but it did cause the coal feed rate to read artificially low because the heating value for the waste in tank WB02 was higher than that of the test waste. They discovered this error at the end of Run 3 when they were switching the system back to burn from waste tank WB02. We informed agency oversight personnel of the mistake and demonstrated that that we were indeed burning from the CPT waste tank (WB01), during the test, by showing him the valve positions in the plant information system.
As shown in Section 1.2.1.1, the coal feed rate is not a direct measurement, but it is calculated indirectly based on various analytical and process data. It uses the heating value of the waste, the heating value of the coal, the feed rate of the waste, the steam production rate, various

temperature measurements, and the boiler efficiency to calculate the coal feed rate. Because the analytical for tank WB02 was selected, the computer used an artificially high heating value for the waste, which caused it to calculate an incorrect low coal feed rate. This explains the difference in the coal feed rate that was displayed on the computer screen between run 3 (Friday, June 4th) and runs 1 and 2 (Thursday, June 3rd).

In order to get a true and accurate coal feed rate, FFCC recalculated the coal feed rate based on the true Btu analysis of both the coal and the waste obtained from the sampling completed during the CPT. Appendix E-6 provides the process data for the coal feed rate correction that was used along with the correct Btu to obtain the true and accurate coal feed rate during the CPT.

PERMIT RELATED OPERATIONAL DATA

Table ES-3 provides a summary of the permit related operational data derived from the CPT.

Table ES-3

Parameter	Basis	Result
Maximum total hazardous waste feed (lb/hr-12HRA)	Average of the test run averages recorded during each run of Test 2	2,518 lb/hr
Maximum Chloride Feed Rate (lb/hr-12HRA)	Average of the test run average feed rates recorded during each run of Test 2	494 lb/hr
Maximum Ash Feed Rate (lb/hr-12HRA)	Average of the test run average feed rates recorded during each run of Test 2	791 lb/hr
Maximum Mercury Feed Rate (lb/hr-12HRA)	Based on 90% of the MACT Standard using the maximum theoretical emissions calculation (MTEC)	0.00083 lb/hr
Maximum Semi-Volatile Metal Feed Rate (lb/hr-12HRA)	Average of the test run average feed rates recorded during each run of Test 2 with extrapolation	0.64 lb/hr
Maximum Low-Volatile Metal Feed Rate (lb/hr-12 HRA)	Average of the test run average feed rates recorded during each run of Test 2 with extrapolation	4.58 lb/hr

Table ES-3, continued

Parameter	Basis	Result
Minimum Combustion temperature (degrees F)	Average of the test run averages of Test 1	1,061 deg F
Maximum Combustion Air Flow Rate (scfm)	Average of the test run averages recorded during each run of Test 2	21,130 scfm
Maximum Stack Gas Oxygen Content (%)	Average of the test run averages recorded during each run of Test 1	12.2 %
Maximum ESP Inlet Temperature	Average of the test run averages of Test 2	515 deg F
Minimum ESP Power (kW)	Average of the test run averages of Test 2	8 kW
Minimum Atomization Pressure (psig)	Manufacturer's Recommendation	30 psig
Maximum Combustion Chamber Pressure (in. w.c.)	Negative Pressure System	< 0

FINAL PERMIT LIMITS

The final limits adopted pursuant to this NOC are described in Table ES-3. All parameters will be continuously monitored process parameters that will be tied to automatic waste feed cutoffs (AWFCO).

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1.0 Notice of Compliance

The following notification of compliance summarizes the activities associated with the comprehensive performance test (CPT), documents the results of the CPT, and serves as the basis for the development of permit conditions. The CPT was generally conducted in accordance with the CPT plan as approved April 11, 2008 as revised May 14, 2010.

1.1 Facility Information and List of Key Project Personnel

The following section gives background facility information and provides a list of key project personnel.

1.1.1 Facility Information

Background facility information is listed below:

Facility Name:	FutureFuel Chemical Company
Contact:	Thomas L Floyd
Address:	P.O. Box 2357 2800 Gap Rd. Hwy 394-S Batesville, Arkansas 72503
Telephone Number:	(870) 698-1811
U.S. EPA Identification No.	ARD089234884
Permitting Agencies:	Environmental Protection Agency, Region 6 Arkansas Department of Environmental Quality, Air Division Arkansas Department of Environmental Quality, Hazardous Waste Division

1.1.2 List of Key Project Personnel

A list of key project personnel is shown below:

Project Manager	Name	Steve Case, P.E.
	Company	FutureFuel Chemical Company
	Title	Technical Associate
	Address	P.O. Box 2357 Batesville, Arkansas 72503
	Telephone No.	(870) 698-1811
	Responsibility:	Responsible for all aspects of the CPT

CPT Manager	Name	Thomas L Floyd
	Company	FutureFuel Chemical Company
	Title	Senior Environmental Biologist
	Address	P.O. Box 2357 Batesville, Arkansas 72503
	Telephone No.	(870) 698-1811
	Responsibility:	Responsible for implementing and coordinating the CPT

Independent Third Party Quality Assurance Auditor	Name	David Weeks
	Company	Risk Management & Engineering, LTD.
	Title	Senior Environmental Engineer
	Address	Dallas, TX
	Telephone No.	(972) 412-6819
	Responsibility:	Independent third party quality assurance auditor for all aspects of the CPT

Stack Sampling Project Director	Name	Jeremy Hutchens
	Company	Alliance Source Testing
	Title	Environmental Scientist
	Address	214 Central Circle SW Decatur, Alabama 25603
	Telephone No.	(256)260-3974
	Responsibility:	QA/QC assurance of stack gas sampling to ensure integrity of emissions data.

Process Spiking Coordinator	Name	Mike Gillihan
	Company	FutureFuel Chemical Company
	Title	Process Assistant
	Address	P.O. Box 2357 Batesville, Arkansas 72503
	Telephone No.	(870) 698-1811
	Responsibility:	Coordinating process spiking

Process Sampling Coordinator	Name	Marshel Bray
	Company	FutureFuel Chemical Company
	Title	Environmental Process Assistant
	Address	P.O. Box 2357 Batesville, Arkansas 72503
	Telephone No.	(870) 698-1811
	Responsibility:	Coordinating process sampling

Stack Sampling Field Supervisor	Name	Ryan O'Dea
	Company	Alliance Source Testing
	Title	
	Address	
	Telephone No.	
	Responsibility:	Coordinating the collection of stack gas emissions

Laboratory Coordinator & QA/QC Manager	Name	Michael D. Challis
	Company	Maxxam
	Title	Laboratory QA/QC Manager
	Address	P.O. Box 598 Addison, Texas 75001
	Telephone No.	(972) 931-7127
	Responsibility:	Coordinating the laboratory analysis of all samples and ensuring QA/QC procedures on sampling and analysis.

EPA Oversight Personnel	Name	Harry Shah
	Company	EPA, Region 6
	Title	Project Engineer
	Address	1445 Ross Ave, Dallas, TX
	Telephone No.	
	Responsibility:	EPA Oversight of the CPT

Agency Oversight Personnel	Name	Larissa Brown
	Agency	Arkansas Department of Environmental Quality
	Address	1141 E. Main St, Suite #315 Batesville, AR 72501
	Telephone No.	(870) 793-4762
	Responsibility:	ADEQ oversight of the CPT

1.2 Detailed Engineering Description of Boiler System

FFCC operates three hazardous-waste-burning coal-fired boilers (Nos. 1, 2 and 3) at its Batesville, Arkansas plant. These boilers generate steam for plant operations by burning coal, non-hazardous and hazardous liquid process wastes, biomass fuel, bio-sludge and non-hazardous solid waste for energy recovery.

The boilers and associated coal feeding systems, liquid waste feed systems, ash handling equipment, and air pollution control equipment are housed in FFCC's B-6M01 boiler area.

The three coal-fired boilers are Model MKB units built by E. Keeler Co. The boilers are identical in design, capacity, and operation. Preventive maintenance programs are also identical for each boiler. The boilers were installed at the FFCC site between October 1975 and December 1976. The practice of third party engineer construction certification was not prevalent at the time the boilers were installed. However, construction supervisors from E. Keeler were hired and present onsite as the boilers were installed and taken through start-up. At the time of construction, the E. Keeler construction supervisor ensured that the boilers were field erected within manufacturer design tolerances.

The boilers are balanced, draft, power generation, water-tube type units that have been fitted with atomizing nozzles to facilitate burning of liquid wastes. Each boiler consists of a combustion air fan, a traveling grate stoker, a steam drum, a mud drum, a super-heater, an economizer, an induced draft fan, an over-fire air fan, a soot blower system and a computerized boiler control system. The current design criteria for the boilers are as follows:

Design Criteria

- Pounds of Steam per Hour (continuous) — 50,000
- Pounds of Steam per Hour (4-hour peak) — 57,500
- Operating Pressure (psig) — 610
- Design Pressure (psig) — 675
- Steam Temperature (°F) — 700
- Feedwater Temperature (°F) — 270
- Total Heating Surface (ft^2) — 4,839

- Radiant Heating Surface (ft^2) — 689
- Convection Heating Surface (ft^2) — 4,150
- Furnace Volume (ft^3) — 3,390
- Fuel — coal, solid refuse, gas, liquid fuels and liquid waste fuels

Drawing 6M01-1A-021 and Drawing 6M01-4V-014 show equipment arrangements and a cut-away view of the Keeler boilers. The firebox dimensions are approximately 11 feet wide by 19 feet long by 45 feet tall. The boilers are rated for a maximum heat release of 76.6 million British thermal units (Btu) per hour each and a solid processing rate of 4.2 tons per hour. A simplified block flow diagram of the boiler system is provided on Figure-1.0.

The spreader-type stoker firebox combusts coal in both suspension and via mass burning. This combustion provides all of the heat needed to maintain steady flame characteristics in the boiler combustion chamber. Waste combustion is ancillary to this primary combustion. The suspension burning takes place as the coal exits the spreader. The coal ignites and burns as it travels to the grate, where the heavier coal particles continue to burn as a mass on the grate. Combustion air is routed to the firebox, both under the grates, (which supports the mass burning and overall combustion), and as overfire air, (which provides secondary air to complete the combustion process and to add turbulence in the firebox). The combustion of waste fuels and coal produces flame temperatures inside the firebox between 2000 and 2400 ºF.

Cleaning and Maintenance

Each boiler is equipped with a soot-blowing system, which blows high-pressure steam through the tubes to remove soot.

The boilers are also washed out once a year before the annual preventative maintenance is performed on the boiler. The boilers are normally shutdown one at a time during the months of June, July and August for preventative maintenance. The firebox, super heater, economizer, ash handling system and precipitator sections of the boilers are washed out. High pressure water is used during the cleaning process to ensure that the debris is removed from the grates, walls and tubes through out the boiler.

In addition, if the operators determine that boiler performance has significantly deteriorated during typical process run cycles, the unit is taken out of service, inspected, and cleaned if necessary.

1.2.1 Combustion and Fuel Feed Systems

Currently, approximately 13,000 tons per year of fuel-quality liquid waste are burned as fuels in FFCC's three coal-fired industrial boilers in addition to coal and other types of waste fuels. The fuels and waste streams that can be fed are summarized as follows:

Feed Stream		Feed System
Coal		2 Spreader Stokers per Boiler
Nonhazardous/Hazardous Liquid Waste		1 Steam-Atomized Nozzle per Boiler
Bio-Sludge		2 Air-Atomized Nozzles per Boiler
Biomass Fuels (e.g., Wood chips)		2 Spreader Stokers per Boiler

FFCC processes the feed streams described above as follows:

- The feeder stokers feed coal and biomass fuels into the boiler.
- All liquid wastes are atomized through waste nozzles by high-pressure steam into the boiler.
- The bio-sludge wastes are atomized through waste nozzles by high-pressure air into the boiler.

It is FFCC's understanding that successful performance of a CPT in accordance with this plan will constitute approval to burn the types of waste described in this section.

1.2.1.1 Primary Fuel Feed Systems

Stoker coal is the primary fuel used to maintain the Boilers at a steady state. Coal is fed to the boilers on a continuous basis (i.e., 24 hours/day, 7 days/week) to maintain the desired steam demand. The coal used by the boiler system is a solid material with a maximum particle size of 2 inches. Heating value and other characteristics are described in Tables-1.0 and 2.0.
Coal is delivered in rail cars or trucks, which are unloaded into track-hoppers. From the hoppers, the coal is conveyed on a belt conveyor system up to three separate coal bunkers inside the B-6M01 boiler area. The coal is gravity fed from the bunkers into the boilers. The coal is mechanically spread by stokers which flip it to the opposite side of the boiler, (the boilers are equipped with two spreader stokers, identical in design and operation). The coal falls onto a traveling grate that slowly moves the burning bed of coal across the boiler.

The feed rate of the coal is determined by measuring the steam flow rate, economizer water temperature outlet, waste feed rate, and the heat contents of the waste and coal. Coal feed rate is determined by the following equation:

$$Q = \frac{\left\{ \frac{\left[A \times \left(1{,}308 \frac{BTU}{lb} - 244 \frac{BTU}{lb} \right) \right] - \left[A \times \left(B - 274\,^{\circ}F \right) \times \left(0.525 \frac{BTU}{lb - ^{\circ}F} \right) \right]}{\left(\frac{E}{100} \right)} - \left(M \times F \right) \right\}}{G}$$

Where,

Q = Coal Feed Rate (lb/hr)

A = Steam Flow Rate (lb/hr)

B = Economizer Water Outlet Temperature (º F)

E = Boiler Efficiency (typically 70 to 80%)

F = Heat Content of Waste (BTU/lb)

G = Heat Content of Coal (BTU/lb)

M = Waste Feed Rate (lb/hr)

1.2.1.2 Liquid Waste Feed Systems

The characteristics of the FFCC wastes are described in Tables-1.0 and 2.0. The waste characteristics provided in the tables are typical of as-fired conditions; although FFCC may occasionally blend hazardous waste by moving material between tanks to meet desired waste feed characteristics and regulatory requirements. The liquid wastes burned in the boilers are normally supplied from either the No. 1 Tank Farm or the Sludge Tanks. The No. 2 Tank Farm normally does not send waste directly to the boilers, but vent gases from the No. 2 Farm are routed to the boilers. The No. 1 Tank Farm consists of three storage tanks. These tanks are permitted hazardous waste tanks referred to as WB-01, WB-02, and WB-03. Each of these tanks has a 10,000-gallon capacity and is equipped to hold liquid wastes for treatment at the RCRA facility. The tanks are equipped with high- and low-level alarms and level indicators, located in the Incinerator and Boiler Control Rooms.

The sludge tanks, WDT-01 (North Tank) and WDT-02 (South Tank), are RCRA-permitted hazardous waste tanks. Both tanks are 2,500-gallon in capacity, insulated, and externally lined

with 30 psig heat tracing. Both tanks are equipped with high- and low-level alarms and level indicators, located in the Incinerator and Boiler Control Rooms.

Liquid waste can also be burned directly in the boilers from containers. FFCC uses several 750-gallon portable containers to transfer wastes to the treatment facility. FFCC also has the ability to burn directly from a tank truck if necessary. The portable containers are used for special manufacturing situations and for waste that have the potential to be incompatible with the waste stored in FFCC storage tanks.

Centrifugal pumps are used to transfer waste from the storage tanks and containers to the boilers through a variety of lines. The flow rate of the liquid wastes is continuously monitored by mass flow meters and can be adjusted with a control valve located at each boiler. Two automatic block valves in the liquid waste line ensure proper shut-off when not burning. The liquid hazardous waste feed system has the capability of supplying up to 5,100 lb/hr of liquid waste to the boilers; however, typical waste feedrates are approximately 2,000 – 2,500 lbs/hour. The liquid waste feed line is controlled by atomizing the waste feed with 150 psig steam.

The boiler waste feed piping and instrumentation can be seen in drawing 6M09-9T-089.

1.2.1.3 Sludge Feed Systems

In addition to liquid hazardous waste, the boilers are also equipped to burn various types of sludges. Currently, only non-hazardous sludge from FFCC's biological waste water treatment plant is burned in the boilers via nozzles (separate from those used to burn liquid waste) which use high-pressure air to atomize the waste as it is introduced into the boilers. The bio-sludge feed system has a capacity of 7,000 lb/hr.

1.2.1.4 Alternative Solid Fuel Feed System

Alternative fuel is conveyed on a belt conveyor system along with the coal up to three separate coal bunkers inside the B-6M01 boiler area. It is then gravity fed from the bunkers with the coal into the boilers. The alternative fuel and coal is mechanically spread by stokers which flip it to the opposite side of the boiler, (the boilers are equipped with two spreader stokers, identical in design and operation). The alternative fuel falls onto a traveling grate that slowly moves with the burning bed of coal across the boiler.

1.2.1.5 Waste Vent Gases

Fugitive emissions from FFCC's hazardous waste storage tanks are routed to Boilers No. 1 and 2 for destruction. The P&ID diagram for the vent system is attached. Each tank vents through a detonation arrestor and pressure safety valve (PSV) into a common stainless steel header. The header is equipped with low point drains that are steam traced. The temperature of the steam tracing prevents the vapors from condensing in the header. The drains are checked periodically to ensure that vapor condensation is not occurring. The coal-fired boilers operated under negative pressure with an induced draft fan on the back end of the boiler system. This induced draft pulls the tank vapors into boiler combustion zone for destruction. The vapors pass through a flow meter, a double block and bleed valve arrangement, a manual valve, and a flame arrestor, before entering the liquid waste feed injection nozzle. The vent system is controlled by the boiler operators.

The vent system ductwork is constructed of 316L stainless steel from the tanks up to the point where the duct enters building 6M01. The ductwork construction material then changes to carbon steel. Carbon steel is used because the ductwork from the edge of building 6M01 to the boilers was present prior to installation of the vent gas feed system. This existing carbon steel ductwork was not being used for another purpose at the time the vent system was designed and constructed.

Detailed information about the vent system can be obtained from FFCC's Title V permit application. Emissions from each of the 11 tanks are included in the volatile organic compound emission estimates. EPA's TANKs program was used to derive the VOC emission rate estimates. These calculations resulted in an estimate of 3.9 lb/hr VOCs vented to the boilers (this amount of VOCs is negligible when compared to the trial burn liquid waste feed rates of 1,350 and 3,672 lb/hr). Although the waste vent gases are currently routed only to boilers 1 and 2, as noted above, the impact from these VOCs is negligible. Given this negligible impact, boiler 3 is representative of the operational conditions and performance of all units. Based on the 3.9 lb/hr emission rate, the worst case chlorine emission is 0.6 lb/hr chlorine assuming all the VOCs in the tanks is monochlorobenzene.

1.2.2 Prime Mover

The induced draft fan will provide motive force to transport the combustion gas through the unit where it is expected to exit the boilers at temperatures between 375 and 515 ºF. The fan is a Model 6,000 Radial Tip type assembly manufactured by Chicago Blower (see drawing 6M01-5-048). The flue gas flow rate is expected to range between 20,000 to 40,000 actual cubic feet per minute (acfm) when producing steam. The maximum flue gas flow rate capacity was set at 49,827 acfm during 1999 trial burn. We plan to target 42,000 acfm during the CPT. Specific design criteria for the prime mover are provided below and are based on a specific static pressure.

The forced draft fan will provide the majority of the combustion air to the boiler system (see drawing 6M01-5-049). The forced draft (FD) fan is the only variable combustion air input. Combustion air is also supplied by the overfire fan (shown in drawing 6M01-5-093) and waste chemical fan (shown in drawing 6M01-9T-089), but these two combustion air inputs are fixed at 3,050 scfm and 1,800 scfm respectively. These two fixed air supplies will be on when burning waste and their respective total combustion air input (4,850 scfm) will be added to the combustion air provided by the FD fans. The FD fans provide 21,456 scfm combustion air at 100% of design. The amount of combustion air provided by these identical fans is measured the same on all three boilers. The measurement is the square root of a differential pressure across an annular ring. This measurement is recorded as 0 to 100% of measured flow. The % measured flow will be converted to scfm based on the design of the FD Fans.

1.2.3 Waste Liquid Injection Nozzles

Each boiler has one waste liquid injection nozzle located above the coal fuel bed. Each nozzle is designed to atomize liquid waste using 150 pounds per square inch gauge (psig) high pressure steam for atomization which helps to prevent blockage. The waste liquid injection nozzle can be seen in drawing 6M01-4E-554. The steam atomization pressure is maintained at a minimum of 40 psig. The liquid waste pressure is maintained at a minimum of 20 psig when burning waste. The burner is also equipped with piping to facilitate burning of waste vent gases and a separate blower to provide combustion air that facilitates waste burning.

Even though the waste injection system is composed of traditional burner elements that combine fuel and air, the system does not function as a primary fuel burner. Rather, the liquid waste injection system is merely designed to facilitate the combustion of the waste by the primary coal fed combustion system. The temperature and turbulence needed to ensure waste combustion is provided by the coal fuel bed. The coal fuel bed supplies the flame stability for the system. For example, FFCC procedures establish a minimum steam production and minimum temperature before waste is introduced to the boiler. Hence, traditional burner design criteria are not totally applicable to the liquid waste injection system.

Design Criteria

- Size — 100 million BTU/hour

- Viscosity —The liquid waste injection nozzle does not function as a stand-alone burner that is solely responsible for waste combustion performance. Rather combustion inside the boiler firebox is controlled and effectuated by the combustion of the coal-fuel bed. The liquid waste injection nozzle serves only to introduce waste into the boiler firebox. Therefore, viscosity is not a design concern for this nozzle because the nozzle does not function as a burner and combustion stability is maintained by the coal fuel bed. For informational purposes, the nozzle as a burner is designed to maintain a stable flame with liquids ranging from No. 2 to No. 6 fuel oil. No. 6 fuel oil at 100°F has a viscosity of 310 centipoise. If the nozzle was used as a main waste burner, then a design viscosity to ensure stable flame conditions might be appropriate. However, the nozzle is not being used as a burner in this boiler design and thus, should not be a limiting parameter of the permit.

- Minimum Heating Value — None.

- Excess Air — The liquid waste injection nozzle and boiler forced draft fan jointly supply excess air to the boiler firebox.

- Burner Pressure — The pressure range for the liquid waste injection nozzle is 10 to 125 psig. The pressure range for the steam atomization pressure is 3 – 50 psig.

1.2.5 Automatic Waste Feed Cutoff System

The primary function of the AWFCO system is to prevent the feeding of hazardous waste if combustion conditions are outside notification of compliance (NOC) limits. The AWFCO system is implemented in the boiler distributive control system (DCS).

FFCC boilers are equipped with a central control system paired with a Data Acquisition System (DAS) to provide the necessary monitoring and control. The control system is comprised of a DCS (MOD 300), and the DAS is a separate, interfaced data historian (OSISoft PI System). The DCS is linked to the Continuous Emission Monitoring System (CEMS) and other process instrumentation necessary to properly control boiler combustion and the fuel feed systems and to monitor permit parameters.

The DCS is equipped with operator interfaces so that boiler operation can be monitored and modified, if necessary, by the operator when the boiler is in use. The DCS receives as inputs the operating variables from the CEMS and other system monitoring devices and transmits their values to the operator interfaces and the DAS system. The values are also stored within the DCS for short-term recordkeeping. The DCS receives new input readings of each required variable at least every 15 seconds and writes the value to the DAS. The DCS also computes a number of calculated values that are necessary to ensure permit compliance. Periodic and hourly rolling averages are also calculated in the DCS as required and where not already calculated in the CEMS. The DCS is capable of short-term recordkeeping and the PI system provides the long-term historical record. Industry standard data compression techniques are used to minimize the storage space required for the long-term historical data.

The 60-minute rolling averages for the CEMS (THC and O2) are computed by an ESC data logger. The ESC uses the data measured by the CEMS at least every 15 seconds to compute 1-minute periodic averages. The ESC then calculates hourly rolling averages once a minute based on the previous sixty 1-minute periodic averages for each parameter. The hourly rolling averages computed by the ESC data logger are sent directly to the DCS before being forwarded to the DAS. The DCS uses the hourly rolling average CEMS data to activate interlocks if necessary.

The DCS monitors the boiler operation including all the required permit operating parameters. If any parameter exceeds its regulatory limit, the DCS initiates an automatic waste feed cutoff by transmitting a digital signal which immediately closes the dual block valves that prohibit waste from entering the unit. Simultaneously, the DCS initiates an increase in the coal feed rate to maintain boiler load and temperature. The radiant heat in the boiler will not allow the chamber temperature to drop significantly during the cutoff of liquid hazardous waste. Therefore, any residual liquid hazardous waste fuel in the boiler will be burned. In accordance with regulatory requirements, FFCC will test the waste feed cutoff system, for each boiler, once each week during normal operation. This test includes all associated alarms.

In order to minimize the number of waste feed cutoffs, the DCS will annunciate the appropriate alarm when any of the monitored variables reach a high percentage of their limits. This early warning permits the boiler operator to take necessary corrective action before established limits are exceeded. The early alarm does not activate the AWFCO system. The AWFCO system is activated immediately whenever a permit related parameter reaches its limit. The DAS records all automatic waste feed cutoffs, either tests or actual.

The final AWFCO parameter values will be based on the operating limits established during the DPT and will be identified in the notification of compliance.

1.2.6 Description of Air Pollution Control Equipment

Combustion gases from the boilers are treated by individual electrostatic precipitators (ESPs) to remove the flyash and other contaminants. Drawing 6M01-4V-016 provides a cut out view of the boiler pollution control equipment arrangement. The design criteria for the ESP are as follows.

Design Criteria

- Manufacturer Name: Research-Cottrell, Inc.
- Model No: IP3280
- Removal Efficiency: 99.6% (based on 1999 Trial Burn)
- Performance Monitoring: Power Input (KW)
- Nuendorfer Precipitation Controls

Each section of the three ESPs has fifteen 9-inch wide ducts, formed by sixteen vertically aligned collecting plates, 15 feet high. The collecting plates are arranged in two banks of eight plates, and each bank of plates is supported at its upper leading and trailing edges by individual anvil beams. There are 48 collecting plates in each ESP. Suspended in the center of the ducts of each ESP section are 120 discharge electrode wires. These wires are formed by 0.1055" diameter, hard-drawn basic wire without coating, with a capped shroud at the top and bottom. Each wire supports a 15 or 25 pound cast iron weight, in plumb bob suspension, except four wire frames, which support the steadying bars. There are 360 discharge electrodes in each ESP. To provide for more uniform gas distribution, perforated distribution plates are located at the inlet end of each ESP. A 3/16” -thick, mild-steel shell encloses the collecting plates and discharge electrodes. Two pyramidal-type hoppers are located at the bottom of each ESP and three insulator compartments are located on the roof. Each insulator compartment serves one unit section in each ESP.

Transformer-Rectifier Sets

High voltage, uni-directional power for energizing wire supporting frames in each ESP is supplied by three, 45 kv and 250 ma transformer-rectifier sets (silicon). The three transformers on each ESP are located on the ESP roof. Connections to the interior of each unit section are made with one run of pipe and guard. Each transformer-rectifier energizes one wire frame in one unit section with full-wave voltage. The high voltage transformer and silicon rectifier of each set are submerged in an oil-filled tank, which is equipped with two high-voltage output bushings.

An advanced microprocessor energization system, designed to maintain maximum usable ESP power by monitoring and automatically controlling electrical variables, is provided. It continuously and automatically adjusts to conditions such as changing boiler loads, variable fuel supplies, and upset situations without readjustment.

The control units for the transformer rectifier sets (silicon) are free standing, metal cabinets for indoor installation. Manual and automatic controls are provided. Each control unit contains all of the components required to control and protect one transformer-rectifier set except for a resistor board, which is located in the rectifier ground switch enclosure.

Collecting Plate Rappers

The collecting plates of each ESP are cleaned of collected material by the action of seven magnetic-impulse, gravity impact (MIGI) rappers. There are two rappers in each unit section and one in the inlet flues.

Discharge Electrode Vibrator

The discharge electrode wires of each ESP are cleaned of collected material by the action of three vibrators. There is one vibrator in each unit section.

Collecting Plate Rapper Control

The control for the MIGI rappers is installed in a single cabinet for each ESP. The control for each ESP is a Neundorfer MicroRap microprocessor-based rapper control system. The system energizes a rapper on a custom frequency. The rappers can be managed controlled in groups or individually. This allows the rapping intensity of each group or rapper to be adjusted independently of the other groups.

Discharge Electrode Vibrator Controls

The controls for the vibrators are installed in a single cabinet for each ESP. Each control includes one vibration period controller and one cam timer. The cam timer has a synchronous gear-motor, cam shaft, cams and switches. The motor drives the camshaft at a constant speed and the rotating cams actuate eight load switches. A vibrator is energized each time a load switch closes. A multi-notch cam and switch on each cam timer is used to actuate the vibration period controller which limits the period of vibration of each vibrator to a maximum of six seconds. The cam timer is adjusted so that the vibrators are energized in consecutive order without overlapping. The cam timer has a time cycle of 30 minutes.

1.2.7 Ash Handling System

The ash handling system is composed of two subsystems; the bottom ash hopper sluicing system and the fly ash system. The bottom ash hopper sluicing system removes clinkers (bottom ash) from the three firebox bottom ash hoppers and flushes them out of the plant to an ash management area. Each bottom ash hopper is equipped with a clinker crusher and Jetpulsion pump. The crusher grinds the clinker material down to a size suitable for sluicing out of the plant by the Jetpulsion pump using high pressure ash service water. The Jetpulsion pumps are controlled by valves in the supply line to each pump. The three bottom ash hoppers are normally emptied one after the other in sequence manually or by an automatic control system. The control panel also contains controls to operate the sluice gate associated with the precipitator hopper washdown drain sump.

The fly ash system removes stored fly ash from six precipitator hoppers, three economizer hoppers and three siftings hoppers, mixes it with water and sluices it out of the plant to the ash management area. The hopper sections are equipped with self-feeding fly ash intakes, which control the flow of ash from the collecting hoppers to the ash transport lines. The ash is conveyed pneumatically through the transport lines to a Hydroveyor exhauster. The ash/air/water mixture then passes through an air separator where the air is bled off. The

ash/water slurry continues down the sluicing line to the management area under pressure from the Hydroveyor exhauster. The fly ash intakes are operated as a programmed sequence by an automatic control system. This automatic sequence is initiated by push-button from the fly ash system mimic control panel and proceeds to completion.

1.2.8 Boiler Stack

The three boilers share a common 200-foot tall by 108-inch (at exit) diameter stack. The stack interior is constructed of gunnite and red brick. The external part of the stack is made from 10-inch thick reinforced concrete. The base of the stack is 232 inches in diameter. During the trial burn, combustion gases will bypass the main stack and be sampled from a "stub" stack especially designed to facilitate sampling of stack gases. The main stack cannot be used for sampling because the emissions from Boiler No. 3 cannot be differentiated from the non-sampled coal fired boilers. The agency has approved use of the "stub" stack in all previous testing. The "stub" stack is constructed such that cyclonic flow is controlled.

1.2.9 Location and Description of Temperature, Pressure, and Flow Indicating and Control Devices

FFCC uses a variety of devices to control the operation of the boiler system. A list of the instruments important to the combustion of hazardous waste including their description and location can be seen in Tables-3.0 and 4.0.

1.2.10 Stack Gas Monitoring System

FFCC continuously monitors oxygen (O2) and total hydrocarbon (THC) levels in the combustion stack gases. The continuous emission monitoring system (CEMS) presently utilized by FFCC is an extractive system. The CEMS and other process instrumentation are summarized in Tables 3.0 and 4.0. The CEMS piping and instrumentation diagram can be seen in drawing 6M09-9T-005.

The CEMS is divided into three parts: a sample probe (installed directly on the dedicated breech to a common stack); a sampling gas conditioning and analysis cabinet (SGC&AC); and a heated sample line (HSL) connecting these two parts. The probe/primary filter assembly is a sample extractive device, which is placed in direct contact with the flue gas environment. It is used to draw in and filter a representative sample of the flue gas stream to be processed by the SGC&AC. A clam shell designed heating jacket, which surrounds the probe body, heats the sample probe.

A sample pump located in the SGC&AC, universal gas conditioning system, is used to draw in a continuous gas sample from the Extractive Probe Assembly via the HSL. The main function of the SGC&AC is to dry the sample gas by means of lowering the dew point of the gas sample, thus removing the moisture. Then, the dried gas sample is delivered to the O2 and THC analyzers. The SGC&AC conditions the sample for analysis by the analyzers. This SGC&AC system can be divided into four basic sections: the gas sample drying section, dried sample distribution sections, the analysis section and auto-calibration/data collection. The first point of contact for the gas sample after being transported via the HSL is the pre-cooler. From here, the partially dried gas sample and the condensed moisture flow into the secondary Condensate Collector. Next, the gas sample flows on to the Sample Conditioner to have the remaining moisture removed. From the sample conditioner (Universal), the dried gas sample flows through the Instrument Plate, through a set of rotometers which control the flows and into the Analyzer Solenoid Plates (ASPs) via a distribution manifold. From the ASPs, the gas sample is valved again and then flows into the analyzers for measurement. Lastly, the gas sample is dumped into an exhaust manifold and vented.

The Heated Sample Line (HSL) is the device used to transport the gas sample from the Extraction Probe to the SGC&AC. The HSL will also maintain the gas sample temperature to ensure that the moisture in the gas sample does not condense within the HSL. The sample temperature is set between 250 ºF to 300 ºF. The HSL consists of the following items: one 240 VAC heating cable, three 1/4" Teflon tubes, one twisted pair cable to be used for the RTD signal from the probe RTD, one RTD to sense the temperature of the sample line, and three 14 American Wire Gauge (AWG) wires for the probe power.

The CEMS system (sample conditioning equipment, analyzers, and data collection equipment) is located in a separate building just south of Boiler No. 3. When a malfunction occurs with this system, an AWFCO will occur, a local alarm light inside the building will be displayed, and an audible alarm will sound in the Boiler control room area. The Boiler Operator stationed in the

area will acknowledge the alarm and determine the why a problem occurred. Maintenance personnel will then be dispatched to fix the problem. The following conditions will cause the alarms mentions above.

- Sample probe/sample line temperature low
- Moisture in sample
- Sample flow low
- Sample pump off
- Condensate trap level high
- Total Hydrocarbon analyzer flame out condition

The O2 analyzer is a stack gas analyzer. The O2 analyzer has the following characteristics:

Principle Operation:	Paramagnetic
Range:	0-25% O2
Response Time:	90% of full scale, 20 seconds
Repeatability:	0.01% O2 or ± 1% of full scale, whichever is greater
Zero Drift:	± 1% full scale per day, ambient temperature does not change more than 20 degree F± 2% full scale per eek, ambient temperature change over entire range
Span Drift:	± 1% full scale per week

The THC analyzer is a standard stack gas analyzer and has the following characteristics:

Principle Operation:	Flame Ionization
Range:	Range switch has eight positions: 1, 2.5, 10, 25, 100, 250, 1000 and REMOTE. SPAN control provides continuously variable adjustment within a dynamic range of 1:4
Response Speed:	90% of full scale within 0.6 seconds with sample bypass flow at 3 liters/minutes
Repeatability:	1% of full scale for successive identical samples
Zero Drift:	± 1% of full scale per 24 hours
Span Drift:	± 1% of full scale per 24 hours

Raw data collected by the CEMS is delivered to the Odessa control unit and the DCS. The Odessa control unit also computes 60-minute rolling averages for each CEMS variable. The 60-minute rolling average is then delivered to the DCS and logged into the DAS. The Odessa control unit also initiates, through a timer, the daily calibration of the CEMS. This calibration is sequenced automatically.

1.3 Boiler Operator Training and Certification

All boiler operators receive initial training by completing the Utilities Operator Apprentice Program. This is a site-specific procedure based training program that has been reviewed and certified by the state Department of Labor. The training includes written materials, hands-on-labs, and on-the-job training. Once an apprentice operator has received training for a task or course and has completed that section of the Apprenticeship Program the operator is then allowed to do that task by their self.

A certified operator will instruct the apprentice until they have successfully completed the program and passed a written examination administered by the instructor. The completions are recorded in an on-site training management system called TEDS.

An annual review is administered to the operators and critical staff that include both Title V/MACT and RCRA updates along with pertinent operational training, including but not limited to the SSM plan. The Utilities Operator Apprentice Program, including the Boiler Operator Training, is reviewed and updated whenever changes have been made that could improve the training or make the existing training obsolete.

A certified control room operator will be on duty at the site when the boiler is operating.

2.0 Sampling and Analysis Program

This section summarizes the sampling and analysis programs conducted during the CPT.

2.1 Sampling Program

FFCC fed the following streams during the CPT:

1. Coal
2. Ash Spiking
3. Organic Waste
4. Metals Spiking Solution

The characteristics of the hazardous waste feed during the CPT are summarized in Table 5.0, and CPT spiking information is summarized in Table 6.0.

2.1.1 Waste Feed Preparation

Coal – Coal is the primary fuel used to produce steam at the coal-fired boilers. The coal is a high Btu fuel that contains no POHCs. Diatomaceous earth was spiked into the coal to maximize the ash feed rate during the CPT.

Organic Waste - The organic waste used in both Test 1 and Test 2 was prepared by using waste from FFCC's manufacturing units. Acetic Acid, chlorobenzene and perchloroethlyene were transferred from manufacturing to a permitted waste tank at Utilities. The stream used in Test 1 was prepared as a 96% Acetic Acid, and 4% chlorobenzene solution. The purpose of the stream was to provide a low Btu waste feed that contained a primary organic hazardous constituent (POHC) to demonstrate DRE at low temperatures. The stream used in Test 2 was prepared as an 87% Acetic Acid, 4% chlorobenzene, and 6% perchloroethlyene solution. The purpose of this stream was to provide a waste containing a POHC, as well as, chlorine to support the metals removal efficiency of the system with chlorine present.

Metals Spiking Solution – The metals spiking solution was prepared by Blue Ridge Chemicals, Inc. headquartered in Bala Cynwyd, Pennsylvania. This solution was prepared in order to establish MACT EEE feed limits for semi-volatile (cadmium and lead) and low-volatile (arsenic, beryllium, and chromium) metals. Lead was chosen to represent the semi-volatile metals and chromium was chosen to represent the low volatile metals. The solution was ordered to exact specifications and certified by Blue Ridge Chemicals as to its composition (certificate of analysis is located in Attachment E-1 The high volatile metal, mercury, was not spiked in to the feed

stream. Mercury is not expected to be in FFCC waste but is expected to be present in the coal feed.

2.1.2 Sampling and Monitoring Procedures

The CPT involved two different tests (Test 1 and Test 2) consisting of three replicate runs at the extreme range of normal conditions. Each test involved stack emission sampling for POHC destruction to ensure 99.99% DRE and to demonstrate compliance with THC emissions. Test 2 also involved stack sampling to ensure particulate matter, mercury, semi-volatile metal, and low-volatile metal emission standards. Waste feed and coal samples were obtained during each run of the CPT.

The procedures for collecting samples are summarized in Table 7.0. Sampling frequency and reference methods also are included in Table 7.0. Additional details regarding sampling frequencies and methods follow.

2.1.2.1 Solid Fuel Feed

2.1.2.1.1 Coal Samples

The coal feed was sampled at 30-minute intervals during each trial burn run under both test conditions. The original plan called for FFCC to sample the coal and diatomaceous earth as fed; however, the Agency directed us to modify the original sampling plan to obtain the coal samples prior to the addition of the diatomaceous earth. The coal samples were then taken from a sample point at the exit of the coal silo which is approximately 8 feet before the area where the ash (diatomaceous earth) was spiked into the coal.

2.1.2.1.2 Ash Spiking

The diatomaceous earth was added to the coal just before the bucket elevator takes the coal up the 100-ton coal bunker. The diatomaceous earth was added to the coal at a rate of 7.5 lbs of diatomaceous earth to every 100 lbs of coal. A summary of the ash spiking information can be found in Table 6.0 and the field spiking logs can be seen in Attachment E-3.

2.1.2.2 Organic Waste Feed

2.1.2.2.1 Volatile Organic Analysis Samples

The volatile organic analysis (VOA) samples where collected from a tap in the waste feed line prior to the metals solution injection point. Grab samples for the VOA were taken every 30 minutes, packaged separately in 40ml vials, and then placed in ice and cooled to 4 degrees C. These samples were composited by the laboratory immediately before analysis.

2.1.2.2.2 Organic Waste Samples

The organic waste samples were also collected from a tap in the waste feed line for analysis other than volatile organics. These grab samples were taken every 30 minutes and were composited into 4oz jars at the sampling sight in an ice cooled environment. The composites were maintained in an ice cooled environment and transported to the designated analytical laboratory for analysis.

2.1.2.3 Metals Spiking Solution

The metals spiking solution was not sampled as a separate waste stream. It was prepared off-site by a third party who certified the composition. Attachment E-1 contains a copy of that certification. The solution was fed to the liquid waste feed line upstream of the combustion chamber injection point, and downstream of where the hazardous waste samples were taken. The feed rate of the metals solution was controlled using a chemical metering pump and a scale. The feed rate was maintained by calculating the weight loss of the container holding the metals solution. The scale calibration documentation can be found in attachment E -2.

2.1.3 Combustion Gas

2.1.3.1 Combustion Gas Temperature

The combustion gas temperature was measured in the combustion chamber by thermocouple with an instrument range of 0 – 2200 degrees Fahrenheit. The exact location of the thermocouple can be seen in drawing 6M01-4V-016, and is described in drawing 6M01-9T-026.

2.1.3.2 Combustion Gas Monitoring

FFCC continuously monitors oxygen (O2) and total hydrocarbon (THC) levels in the combustion stack gases. The continuous emission monitoring system (CEMS) presently utilized by FFCC is an extractive system. (The CEMS and other process instrumentation are summarized in Tables-3.0 and 4.0). This system was calibrated and a RATA was performed on the system just prior to the CPT. The results of the RATA can be reviewed in Attachment E-4.

The CEMS is divided into three parts: a sample probe (installed directly on the dedicated breech to a common stack); a sampling gas conditioning and analysis cabinet (SGC&AC); and a heated sample line (HSL) connecting these two parts. The probe/primary filter assembly is a sample extractive device, which is placed in direct contact with the flue gas environment. It is used to draw in and filter a representative sample of the flue gas stream to be processed by the SGC&AC. A clam shell designed heating jacket, which surrounds the probe body, heats the sample probe.

A sample pump located in the SGC&AC, universal gas conditioning system, is used to draw in a continuous gas sample from the Extractive Probe Assembly via a heated sample line (HSL). The main function of the SGC&AC is to dry the sample gas by means of lowering the dew point of the gas sample, thus removing the moisture. Then, the dried gas sample is delivered to the O2 and THC analyzers. The SGC&AC conditions the sample for analysis by the analyzers. This SGC&AC system can be divided into four basic sections: the gas sample drying section, dried sample distribution sections, the analysis section and auto-calibration/data collection. The first point of contact for the gas sample after being transported via the HSL is the pre-cooler. From here, the partially dried gas sample and the condensed moisture flow into the secondary Condensate Collector. Next, the gas sample flows on to the Sample Conditioner to have the remaining moisture removed. From the sample conditioner (Universal), the dried gas sample flows through the Instrument Plate, through a set of rotometers which control the flows and into the Analyzer Solenoid Plates (ASPs) via a distribution manifold. From the ASPs, the gas sample then flows into the analyzers for measurement. Lastly, the gas sample is dumped into an exhaust manifold and vented.

The HSL transports the gas sample from the Extraction Probe to the SGC&AC. The HSL will also maintain the gas sample temperature to ensure that the moisture in the gas sample does not condense within the HSL. The sample temperature is set between 250 ºF to 300 ºF. The HSL consists of the following items: one 240 VAC heating cable, three 1/4" Teflon tubes, one twisted pair cable to be used for the RTD signal from the probe RTD, one RTD to sense the temperature of the sample line, and three 14 American Wire Gauge (AWG) wires for the probe power.

The CEMS system (sample conditioning equipment, analyzers, and data collection equipment) is located in a separate building just south of Boiler No. 3. When a malfunction occurs with this system, an AWFCO will occur, a local alarm light inside the building will be displayed, and an audible alarm will sound in the Boiler control room area. The Boiler Operator stationed in the area will acknowledge the alarm and determine the why a problem occurred. Maintenance personnel will then be dispatched to fix the problem. The following conditions will cause the alarms mentions above.

- Sample probe/sample line temperature low
- Moisture in sample
- Sample flow low
- Sample pump off
- Condensate trap level high
- Total Hydrocarbon analyzer flame out condition

The O2 analyzer is a stack gas analyzer. The O2 analyzer has the following characteristics:

Principle Operation:	Paramagnetic
Range:	0-25% O2
Response Time:	90% of full scale, 20 seconds
Repeatability:	0.01% O2 or ± 1% of full scale, whichever is greater
Zero Drift:	± 1% full scale per 24 hours, ambient temperature does not change more than 20 degree F± 2.5% full scale per 24 hours, ambient temperature change over entire range
Span Drift:	± 1% full scale per 24 hours ± 2.5% full scale per 24 hours

The THC analyzer is a standard stack gas analyzer and has the following characteristics:

Principle Operation:	Flame Ionization
Range:	Range switch has eight positions: 1, 2.5, 10, 25, 100, 250, 1000 and REMOTE. SPAN control provides continuously variable adjustment within a dynamic range of 1:4
Response Speed:	90% of full scale within 0.6 seconds with sample bypass flow at 3 liters/minutes
Repeatability:	1% of full scale for successive identical samples
Zero Drift:	± 1% of full scale per 24 hours
Span Drift:	± 1% of full scale per 24 hours

Raw data collected by the CEMS is delivered to the Odessa control unit and the DCS. The Odessa control unit also computes 60-minute rolling averages for each CEMS variable. The 60-minute rolling average is then delivered to the DCS and logged into the DAS. The Odessa control unit also initiates, through a timer, the daily calibration of the CEMS. This calibration is sequenced automatically.

2.1.4 Stack Gas

During the trial burn, combustion gases was diverted from the main stack and sampled from a "stub" stack especially designed to facilitate sampling of stack gases. The main stack cannot be used for sampling because the emissions from Boiler No. 3 cannot be differentiated from the other two identical coal fired boilers. The agency has approved use of the "stub" stack in all previous testing. The "stub" stack is constructed such that cyclonic flow is controlled.

2.1.4.1 Hydrogen Chloride and Chlorine Train (Method 26A)

FFCC demonstrated compliance with the alternative risk based standard for total chlorine by measuring the chlorine feed rate and using MTEC to determine stack emissions. The Alternative Risk Based Standard for Chlorine was provided in Appendix D of the FFCC CPT Plan.

2.1.4.2 Multi-Metals Train (Method 29)

An MMT (multi-metals train) (EPA Method 29) was used for collection of metals and particulate from the stack gas during the CPT. The sampling train impingers were be charged with a solution of 5 percent nitric acid and 10 percent hydrogen peroxide to capture metals (i.e., arsenic, beryllium, cadmium, chromium, lead, and mercury) and acidified potassium permanganate (composed of 4 percent potassium permanganate and 10 percent sulfuric acid) to capture any mercury that will not be captured by the nitric acid and hydrogen peroxide solution. The total sampling time was about 2 hours during each replicate sampling run. The MMT was operated concurrently with the other sampling train(s) and sampled approximately 3 cubic meters of stack gas. The MMT procedure included measurement of the stack gas flow rate and temperature according to EPA Methods 1 and 2. Total hydrocarbon and oxygen determinations were made by the FFCC CEMS and Method 3A. Stack gas moisture was sampled in accordance with EPA Method 4.

2.1.4.3 Volatile Organic Sampling Train (Method 0030)

A volatile organic sampling train (VOST) was used during the CPT to collect the POHC chlorobenzene from the stack gas on sorbent resin. The VOST was configured in accordance with SW-846 Method 0030 with two Tenax® resin tubes and one Anasorb® tube in series. Because the VOST was a non-isokinetic sampling train, it could share a sampling port with any of the isokinetic sampling trains with no impact to the operation of either sampling train. The VOST was operated concurrently with the other sampling trains to collect a total of four sets of VOST cartridges for each test run. Three sets were targeted for analysis. The fourth set served as a backup in the event of tube breakage or damage during shipment and laboratory handling. About 20 liters of stack gas were sampled per set of VOST cartridges at 0.5 liters per minute for 40 minutes (slow-VOST conditions). The VOST cartridges were capped immediately upon removal from the train, wrapped in aluminum foil, placed in glass tubes, and sealed. The Method 26A stack parameter measurements were used for the VOST calculations.

2.1.4.4 Dioxin/Furan Sampling Train (Method 23A)

FFCC demonstrated compliance with the dioxin and furan standard through the use of data "in lieu of" testing. The data used by FFCC and documentation of its quality was provided in Appendix F of the FFCC CPT Plan.

2.2 Analytical Program

Maxxam Analytics, Inc. is located in Mississauga, Ontario. This laboratory was used to perform the analytical testing on both the process feed samples and the stack gas samples collected during the CPT.

2.2.1 Analytical Methods

Analytical methods and procedures are summarized in Table 21.0. Detailed analytical methods and procedures can be found in Attachment A. Quality Assurance evaluation of methods used are discussed in section 4.0.

2.2.2 Analytical Results

A summary of analytical results are located in Table 5.0 and complete analytical reports can be seen in Attachment A.

3.0 Description of the Test Program

This section summarizes the comprehensive performance test. The CPT plan contains the detailed plans of the test that was conducted June 2 – 4, 2010. The Executive Summary in this NOC discusses those deviations from the plan that were necessary to address unexpected conditions.

3.1 CPT Objectives

The overall objective of this Comprehensive Performance Test is to demonstrate that the boilers are capable of meeting the emission standards for solid fuel-fired boilers that burn hazardous waste as established in the MACT Combustion Rule (40 CFR 63 Subpart EEE) and to establish operating conditions and parameters that are equivalent with that demonstration.

The specific objectives for the FFCC comprehensive performance test are listed below. Each emissions parameter was reported with concentration corrected to 7% Oxygen.

- Demonstrate 99.99 percent DRE of the designated POHC (chlorobenzene).
- Demonstrate control of particulate emissions to less than or equal to 68 milligram/dry standard cubic meter (mg/dscm) at maximum ash feed rates.
- Demonstrate that hydrogen chloride/chlorine emissions are less than or equal to than the health-based compliance alternative established in FFCC's eligibility demonstration.
- Demonstrate that mercury emissions are less than or equal to 11 micrograms per dry standard cubic meter (ug/dscm).
- Demonstrate that semi-volatile metal (cadmium and lead) emissions are less than or equal to 180 micrograms per dry standard cubic meter (ug/dscm at maximum semi-volatile metal feed rates.
- Demonstrate that low-volatile metal (arsenic, beryllium, and chromium) emissions are less than or equal to 380 micrograms per dry standard cubic meter (ug/dscm) at maximum low-volatile metal feed rates.
- Demonstrate that total hydrocarbon emissions are less than 10 ppmv (dry) on an hourly rolling average basis.

- Meet THC limits to demonstrate that dioxin/furan emissions are less than or equal to 0.20 nanograms total equivalent quotient per dry standard cubic meter (ng TEQ/dscm).

- Gather data regarding waste feed characteristics and process operating conditions to be used to develop operational permit limits that will ensure compliance with regulatory performance standard.

3.2 CPT Approach

The proposed CPT is based upon 40 CFR 63 Subpart EEE. 40 CFR 63.1207 establishes the requirements for conducting a comprehensive performance test. The universal approach establishes one set of permit conditions or limits applicable to all modes of operation. This approach, as proposed in the following section, will allow FFCC to treat the complete variety of hazardous wastes produced by the FFCC facility under one well-defined set of operating limits.

3.2.1 POHC Selection

FFCC has based its selection of POHC on two primary factors: (1) the University of Dayton thermal stability ranking, and (2) the composition of the actual wastes to be burned. Consistent with these factors, FFCC used the following criteria to select the POHC for this CPT:

- The POHC should be present as an Appendix VIII constituent in the actual wastes to the maximum extent practicable,

- The POHC should be considered an organic hazardous air pollutant under 42 U.S.C. 7412(b)(1), and

- The POHC should have a high ranking on the University of Dayton thermal stability-ranking list.

The constituents and hazardous air pollutants identified at 42 U.S.C. 7412(b)(1) that are likely to be found in FFCC's liquid waste based on testing and process knowledge are listed in Table-2.0 along with the historical ranges of these feed streams. Many of these compounds are included on the University of Dayton thermal stability ranking including acetonitrile, benzene, chlorobenzene, and toluene. Chlorobenzene was selected as the POHC because it is a Class I compound, it is typically present in greater quantities in the waste than the other Class 1 compounds, and it is readily available.

3.3 CPT Program

The CPT program consisted of one test of six runs. Three of the runs are identified as Test 1 and three of the runs are identified as Test 2. The target operating conditions from both tests were designed to establish operating limits for the boiler that would ensure all MACT combustion standards were met for one hazardous waste operating mode. Pursuant to Alternative Monitoring Request No. 1, all testing was done on Boiler No. 3 with data from this test to be used in lieu of testing Boilers Nos. 1 and 2 (as previously approved via letter from U.S. EPA Region 6 dated July 2, 1992). Boiler 3 was chosen because it affords better accessibility to the unit by the stack testing contractor. Alternative Monitoring Request No. 1 was provided as Appendix A of the FFCC CPT Plan.

3.3.1 Comprehensive Performance Test 1

The Test 1 operating conditions were designed to demonstrate worst case conditions for POHC destruction at the lower range of normal by testing the boiler's performance under minimum combustion chamber temperatures. The liquid hazardous waste feed was not maximized in order to keep operating temperatures less than typical operations. Specifically, liquid hazardous waste feed rates were not maximized during the low temperature test conditions (as opposed the approach typically used in incinerator performance tests) because the boilers can not operate at reduced temperatures when the waste feed rate is maximized. The operating temperature of the boiler is in direct relationship with the BTU input of the fuel. In addition, liquid hazardous waste feed rate cannot be maximized while the feed rate of coal is minimized because this condition would compromise the Bevill requirement to burn at least 50 percent coal when burning hazardous waste.

The Test 1 waste was a blend of acetic acid spiked with chlorobenzene (4 – 5 % of hazardous waste feed.) The justification for this waste feed selection has already been presented.

The following operating conditions were established during Test 1:

- Minimum Furnace Temperature
- Maximum % O2

3.3.2 Comprehensive Performance Test 2

Test 2 is designed to establish permit conditions for minimum residence time which occurs at maximum feed and flue gas flow rates. DRE was measured to demonstrate that DRE is not affected at combustion gas residence times that are less than those demonstrated in Test 1 (i.e. the stack gas flowrate will be greater due to higher temperatures, thus leading to shorter residence times in the combustion chamber). Test 2 was also used to demonstrate compliance with the MACT EEE standards for solid-fuel fired boilers except low combustion chamber temperature.

The following operating conditions were demonstrated during Test 2:

- Maximum metals feed rates
- Maximum chlorine feed rates (as an operating parameter limit for SVM)
- Maximum liquid waste feed rates
- Maximum ash feed rate
- Maximum ESP inlet temperature
- Minimum Power to the ESP
- Maximum combustion air flow rate

Test 2 represented worst-case conditions for metals removal efficiency. FFCC will maximize the liquid hazardous waste feed rate during Test 2 in order to maximize steam production, which maximizes combustion chamber temperature and flue gas flow rate. The waste used during the minimum residence time test was a solution (i.e., acetic acid, methanol, or other solvent) spiked with chlorobenzene (4% of total waste feed) and perchloroethylene (6% of total waste feed). The justification for this waste feed selection has already been presented.

3.4 CPT Sampling and Analytical Program

The CPT sampling and analysis program is summarized in Table 21.0 and can be seen in the Alliance Source Testing Report found in Attachment A. The structure of this CPT was based on the previously stated objectives.

The stack was sampled during the CPT as follows:

- The volatile POHC chlorobenzene was sampled using the VOST train (SW-846 Method 0030).
- Metals using multi-metals train (40 CFR Part 60, EPA Method 29).
- Particulate matter using Method 5 procedures in conjunction with the multi-metals train (40 CFR Part 60, Method 0029
- Total Hydrocarbon (THC) testing using in-house CEM (40 CFR Part 60, Method 25A).
- Total Oxygen (O2) testing using in-house CEM and Contractor Method 3A)

In addition to stack sampling, the feed materials (coal and liquid wastes) were sampled and analyzed for a number of physical and chemical parameters.

4.0 Comparison of Actual Test Conditions versus Planned Conditions and Independent QA Review

A comparison of the actual test conditions experienced during the CPT with the planned (target) test conditions documented in the CPT plan is provided below. Tables 8 through 15 provide a summary of the various operating parameter data with respect to the target conditions for each run. A detailed discussion of the operating parameter limits and the run-by-run data can be found in Section 6.0 of this report.

Comparisons were made on three sets of parameters:

- Combustion Device Parameters
- Feed Rate Parameters
- Constituent Feed Rate Parameters
- Stack Gas Parameters

4.1 Combustion Device Parameters

These parameters were used to establish limits for ensuring proper combustion and pollution control device operation. They include:

- Combustion chamber temperature – In general, the average combustion chamber temperature exceeded the target by approximately 10 °F.
- Combustion Air Flow Rate – The combustion air flow rate is a fairly new parameter. The flue gas flow rate was measured at the stack was consistent with the correlation equation discussed in Attachment E-5.
- ESP Power – The average kW of the ESP was in line with the target value of 8 kW. Just prior to Test 2, the CPT manager revised the original target from 7 kW to 8 kW.
- ESP Inlet Temperature – The average temperature to the inlet of the dry pollution control device was in line with the target temperature.
- Percent O2 – The Percent O2 measured in the stack was in line with expectations.
- Total Hydrocarbons – The THC concentration was in line with expectations.

- Atomization Pressure - The atomization pressure limit of 30 psig is based on manufacturer's recommendations.

4.2 Feed Rate Parameters

These parameters were used to establish constituent and POHC feed rates. They include:

- Total Waste Feed Rate – The waste feed rate during the CPT was in line with the target value.

- Total Coal Feed Rate – The coal feed rate is based on steam demand and waste feed characteristics. The process control logic determines how much coal is needed to make the steam production rate. The system did not need as much coal as estimated to meet the steam demand during the high temperature portion of the test.

4.3 Constituent Feed Rate Parameters

These parameters were calculated from the fuel feed rate parameters and the constituent concentrations in the fuel feed for the CPT Test. They include:

- Total Chloride Feed Rate – In general, the total chloride feed rate was 17% lower than the target value.

- Total Ash Feed Rate – In general, the total ash feed rate was 12% lower than the target value.

- Total Mercury Feed Rate – Mercury was not detected in the waste feed. The mercury in the coal was well below the normal concentration seen in coal.

- Total Semi-Volatile Metal Feed Rate – In general, the total SVM feed rate was in line with target value.

- Total Low-Volatile Metal Feed Rate – In general, the LVM feed rate was in line with the target value.

4.4 Stack Gas Parameters

These parameters were monitored by a continuous emission monitor. They include:

- Total Hydrocarbon Concentration – Emissions were well below the standard as expected.

- Oxygen Concentration – Oxygen concentrations were consistent with expectations.

4.5 Independent QA Review

Mr. David A. Weeks, P.E., BCEE, CIH (Risk Management and Engineering, Ltd.) provided independent oversight of the CPT and conducted an independent review of the quality assurance and quality control (QA/QC) performed by the stack testing company and laboratories during the test.

4.5.1 Stack Testing Equipment

Mr. Weeks was present during the entire CPT and inspected the stack sampling calibration records including the dry gas meter calibration records, pitot tube calibration records, and temperature indicator calibration records at the time of the test. Mr. Weeks observed the leak checks of the sampling equipment during the tests and found them to be in good order. The post calibration records were in order and showed that the stack gas sampling equipment functioned properly and provided data that were in accordance with the U.S. EPA methods used to collect the data.

4.5.2 Stack Gas - Particulate Analysis

Mr. Weeks conducted an independent review of the analytical data. The balance calibration data is summarized on page 339 of Attachment A. The results showed no deviation at a standard weight of 0.0000 grams, and deviations ranging from 0 to 0.0002 grams at a standard weight of 3,000 gram. The maximum deviation is less than 0.5 mg. Mr. Weeks' independent review of the data confirms the results reported by Alliance in their report.

4.5.3 Stack Gas - Metals Analysis

Mr. Weeks conducted an independent review of the analytical data. The stack sampling contractor's QA/QC summary is contained on pages 14 and 15 of Attachment A. The laboratory QC data is contained on pages 319 – 323 of Appendix C. The matrix spike and matrix spike duplicate recoveries were within the 70 – 130 % accuracy objective as defined in the QAPP. Matrix spikes were performed for mercury with recoveries that ranged from 93 to 103%, showing that metals were not lost during the digestion process. The recoveries for semi- and low-volatile metals ranged from 95 to 106%. The RPD between the matrix spike and matrix spike duplicate analyses were less than the 25% objective established in the QAPP, with results ranging between 0.3 to 3% RPD for all metals. Thus, laboratory analyses were not biased high or low. Mr. Weeks' independent review of the data confirms the results reported by Alliance.

4.5.4 Stack Gas - Volatile Organics Analysis

Mr. Weeks conducted an independent review of the analytical data. The laboratory's QC discussion is contained on pages 72 and 73 of Attachment A, the surrogate spike recoveries are reported with the analytical results on pages 63 - 65. Alliance reported, and Mr. Weeks confirmed by inspection of the laboratory data sheets, that surrogate recoveries ranged from 81 to 110 percent as compared to the target objective of 50 – 150%. The surrogate recovery for the spiked blanks and method blanks 99 to 102%. The RSD for the recoveries of the surrogate toluene-d8 ranged from 4 to 13 % as compared to the QAPP target of less than 35% RSD. Mr. Weeks' independent review of the data confirms the results reported by Alliance.

4.5.5 Stack Gas – Continuous Emissions Monitoring Data

Mr. Weeks conducted an independent review of the calibration data for continuous emissions monitoring (CEM) data contained in the Alliance report. The Alliance data was used to measure the oxygen and carbon monoxide concentration in the stack gas for the purpose of emission calculations. The calibration data is contained on pages 638 to 643. All of the calibration measurements for the oxygen analyzer were less than 2% of the span value, which is consistent with the calibration requirements contained in Section 13 of Method 3.

Mr. Weeks conducted an independent review of the calibration data for continuous emissions monitoring (CEM) data for the FFCC CEMs. The FFCC data was used to measure the oxygen and THC concentration in the stack gas for the purpose of THC emission calculations. For the FFCC THC analyzer, the mean difference between the CEMS and reference values for the daily calibrations ranged between 0.1 and 0.6 ppm for all runs, which is less than the 5 ppm requirement of Performance Specification 8A. The O2 daily calibrations reported a difference that ranged from 0.1 to 0.3 ppm for all runs, which is less than 2% of the span value, which is consistent with the calibration requirements contained in Section 13 of Method 3. The problem which resulted in a status of "out of control" on June 3 was corrected before the CPT runs were started.

The data from the April 14, 2010 RATA was also reviewed. The RATA data showed that the THC CEMs demonstrated a 3% difference between the reference method data and the FFCC CEMs, which is within the performance criterion of ≤ 10%. The O2 CEMs demonstrated a 0.1% difference, which is less than the performance criterion of ± 1%.

4.5.6 Waste-Volatile Organics

The QAPP does not identify specific QA/QC objectives for the wastes and spiking materials. However, the laboratory reported the results of the QC measurements collected during the analysis of these samples. Mr. Weeks reviewed this data in order to ensure the overall quality of the project. The laboratory's QC report for the waste analysis is contained on page 586 of

Attachment A. The spiked blank recovery for the organic waste was 108 %. This is consistent with standard QC limits of 70 – 130%.

Finally, the laboratory reported that it did not analyze the waste feed samples for volatile organics within the 14-day holding time because of the need to dilute the samples. As a result, it might be argued that the volatile organic analytical results for the waste feed samples are biased low. If this is the case, the DRE calculations presented in this CPT report are more conservative than actually reported because a lower mass of POHC into the combustion system biases the DRE calculation on the low side. Hence, the DRE values provided in the report may be greater than was reported.

4.5.7 Feed-Metals and Chloride

The QAPP does not identify specific QA/QC objectives for the wastes and spiking materials. However, the laboratory reported the results of the QC measurements collected during the analysis of these samples. Mr. Weeks reviewed this data in order to ensure the overall quality of the project data. The laboratory's QC discussion for semi- and low-volatile metals is contained on page 586; and page 593 provides the quality assurance discussion related to chloride and mercury.

The matrix spike recovery for semi- and low-volatile metals in the waste samples ranged between 102 to 108%; and the laboratory's QC standard recoveries ranged between 79 and 92%. Both QC measurements are consistent with the laboratory's recovery limits of 80 – 120. The mercury recoveries were 79 and 92% for the QC standard and the QC standard duplicate. The RPD between the standard and its duplicate was 15.4% compared to the laboratory criteria of 35%. The chloride QC standard recovery was 95% compared to the laboratory performance criterion of 90 – 100%, and the spiked blank recovery was 100% compared to the laboratory performance criterion of 80 – 120%.

Thus, the waste feed analytical results are not biased either high or low for metals and chloride.

4.5.8 Feed – General Chemistry

The analysis of certain process parameters such as heating value and ash do not have any specific QC requirements. Field duplicate samples were collected in order to evaluate the quality associated with this data. For higher heating value, the difference between the sample and its duplicate ranged between 0.02 and 0.3% for both the waste and coal. For ash content, the difference between the sample and its duplicate for coal was 4.9%. For the waste, the difference was found to be 50% (0.04% ash compared to 0.02% ash). However, the total ash content of the waste was very low (0.01 to 0.04% ash for all samples in all runs). Because the ash content of the waste is very low, the percent difference value of 50% does not materially affect the overall conclusions of this report.

4.5.9 Analytical Method Deviations

A review of the analytical reports provided in Attachment A revealed that the laboratory used methods that were equivalent to those identified in the CPT Plan, but were different in name. A summary of the differences and impacts follows.

CPT PLAN METHOD	METHOD USED	DISCUSSION OF IMPACTS
S.G. of Waste: ASTM D-891 or other approved method	ASTM D-1298	None; the two methods provide similar data.
Ash Content of Coal: ASTM D-482 or other approved method	ASTM D-3174	None; the method used by the laboratory is more appropriate for the matrix that was analyzed.
Chlorine Content of Waste and Coal: SW-846 9076 or other approved method	ASTM E776 / SW-846 9056	None; the two methods provide similar data.
Heat Content of Coal: ASTM-D-240 or other approved method	ASTM D-5865	None; the method used by the laboratory is more appropriate for the matrix that was analyzed.
LVM and SVM Concentration in Waste: ICP-AES (Method 200.7 or 200.8)	SW-846 6020	None; the two methods provide similar data.
LVM and SVM Concentration in Coal: ICP-AES (Method 200.7 or 200.8)	SW-846 6010B	None; the two methods provide similar data.
Mercury Concentration in Waste and Coal: EPA Method SW-7470A	ASTM D-3684-01	None; the two methods use the same technique and provide similar data.
Stack Gas Metals: SW-846 6010b and 7470a	SW-846 6020 and 7470a	None; the two methods provide similar data.

Specific Gravity of Waste

The two test methods are ASTM D891 - 09 Standard Test Methods for Specific Gravity, Apparent, of Liquid Industrial Chemicals; and ASTM D1298 - 99(2005) Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method. The two methods provide similar data for liquid substances in an organic matrix. No significant difference in results is expected between the two methods.

Ash Content of Coal

The two test methods are ASTM D482 - 07 Standard Test Method for Ash from Petroleum Products; and ASTM D3174 - 04 Standard Test Method for Ash in the Analysis Sample of Coal and Coke from Coal. The method used by the laboratory is more appropriate for the sample matrix that was analyzed, which is coal.

Chlorine Content of Waste and Coal

The CPT Plan specified SW-846 Method 9076 - Test Method for Total Chlorine in New and Used Petroleum Products by Oxidative Combustion and Microcoulometry. The laboratory used ASTM E776 - 87(2009) Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel, followed by SW-846 Method 9056A - Determination of Inorganic Anions by Ion Chromatography. The ASTM method is essentially an extraction method. The two analytical methods are essentially equivalent. This issue is not substantive because SW-846 Method 9057 is also an EPA approved method.

EPA SW-846 Method 9057 describes the use of liquid anion chromatography to separate the chloride anions from the sample matrix. The chloride ions are then detected by a conductivity detector that uses coulometry to measure the flow of electrons between two electrodes.

EPA SW-846 Method 9076 describes a process in which the material is heated, and the resulting gas is reacted with silver cations to form silver chloride. The chloride ions are determined quantitatively by the use of coulometry based on the stoichiometry of the reaction and the flow of silver cations that is detected by the electrodes. The detection method is the essentially the same between the two methods; it is the separation mechanism that is different.

SW-846 Method 9057 has a within-laboratory relative standard deviation of 6.2 percent and 3.2 percent at HCl concentrations of 3.9 and 15.3 ppm, respectively. Similar statistics are not provided for Method 9076, but the statistics that are provided in SW-846 state that the method is biased low by up to 9% for relatively low concentrations, reproducibility in the range of 1,400 ppm, and repeatability in the range of 400 ppm for higher concentrations. It is the conclusion of the independent QA reviewer that the two methods provide equal performance for chloride concentrations that are in the range of 50,000 ppm; such as this case.

Heat Content of Coal

The CPT Plan specified the use of ASTM D240 - 09 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, whereas the laboratory used ASTM D5865 - 10a Standard Test Method for Gross Calorific Value of Coal and Coke. The method used by the laboratory is more appropriate for analysis of coal than the method specified in the Plan.

LVM and SVM Concentration in Waste and Coal

The CPT Plan specified either EPA Method 200.7-Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Spectrometry, or EPA Method 200.8-Determination of Trace Elements in Waters and Wastes by ICP-MS.

The laboratory used SW-846 6010C-Inductively Coupled Plasma-Atomic Emission Spectrometry for the coal, and SW-846 6020A- Inductively Coupled Plasma-Mass Spectrometry for the waste. EPA Method 200.7 is essentially equivalent to SW-846 Method 6010 except that EPA Method 200.7 is more commonly used for aqueous materials (although it can also be used for waste materials.) EPA Method 200.8 is essentially equivalent to SW-846 Method 6020 although is more commonly used for aqueous materials. All of these methods provide equivalent results for metals in the range of concentrations that are indicative of the waste and coal.

Mercury Concentration in Waste and Coal

The CPT Plan specified EPA Method SW-846 Method 7470A - Mercury in Liquid Waste (Manual Cold-Vapor Atomic Absorption Technique) whereas the laboratory used ASTM D3684 - 01(2006) Standard Test Method for Total Mercury in Coal by the Oxygen Bomb Combustion/Atomic Absorption Method. Both methods are essentially equivalent because they both use cold vapor atomic absorption for the analysis.

Stack Gas Metals

The CPT Plan specified SW-846 6010C-Inductively Coupled Plasma-Atomic Emission Spectrometry whereas the laboratory used SW-846 6020A- Inductively Coupled Plasma-Mass Spectrometry. SW-846 Method 6020 has lower detection limits. However, detection limits were not an issue for this project and since Method 6020 has lower detection limits, it provides equivalent data to the specified method.

4.5.10 Conclusion

The Independent QA Review determined that the sampling and analysis was completed in accordance with the data quality objectives established for the project. Mr. Weeks opined that the data is of sufficient quality to demonstrate compliance with the standards and develop operating parameter limits.

5.0 Comparison of Test Results with Regulatory Compliance Limits

This section compares the test results of the CPT, conducted June 1 - 4, 2010, with regulatory compliance limits established by the MACT Combustion Rule for Solid Fuel-Fired boilers. Table 16.0 demonstrates that FFCC hazardous waste boiler is in full compliance with the emission standards of 40 CFR 63, Subpart EEE.

5.1 Regulatory Requirements for the CPT

The regulatory requirements to discuss from the CPT are:

- Destruction Removal Efficiency (DRE)
- Particulate Emissions
- HCl / Cl_2 Emissions
- Mercury Emissions
- Semi-Volatile Metals Emissions
- Low-Volatile Metals Emissions
- Dioxin/Furan Emissions
- Total Hydrocarbon Emissions

5.1.1 Destruction Removal Efficiency

40 CFR 63.1216(c) requires solid fuel boilers to achieve a destruction removal efficiency (DRE) of 99.99% during the CPT for each principal organic hazardous constituent (POHC) designated in the waste feed. FFCC was able to make this demonstration during the CPT. The average DRE measured during Test 1 was >99.9991%. The average DRE measured during Test 2 was >99.9995%.

5.1.2 Particulate Emissions

40 CFR 63.1216(a)(7) requires existing solid fuel boilers to not emit particulate matter in excess of 68 mg/dscm after correction to a stack gas concentration of 7% oxygen. FFCC's boiler emitted an average of 26.2 mg/dscm at 7% oxygen during Test 2.

5.1.3 HCl / Cl_2 Emissions

The hydrogen chloride/chlorine feed rate during the CPT was less than the health-based compliance alternative feed rate limit for total chlorine developed under the procedures prescribed in 40 CFR 63.1215. Appendix F of the CPT Plan calculates the HCl/Cl2 alternative feed rate limit as 1886.8 lb/hr. An average feed rate equivalent to 508 lb/hr HCl was demonstrated during the CPT.

5.1.4 Mercury Emissions

40 CFR 63.1216 (a)(2) requires existing solid fuel boilers to not emit mercury in excess of 11 micrograms per dry standard cubic meter (ug/dscm) after correction to a stack gas concentration of 7% oxygen. The average mercury emission during the CPT was 3.9 ug/dscm at 7% oxygen.

5.1.5 Semi-Volatile Metals Emissions

40 CFR 63.1216(a)(3) requires existing solid fuel boilers to not emit semi-volatile metals in excess of 180 micrograms per dry standard cubic meter (ug/dscm) after correction to a stack gas concentration of 7% oxygen. FFCC's boiler emitted an average of 158.8 ug/dscm at 7% oxygen during the CPT.

5.1.6 Low-Volatile Metals Emissions

40 CFR 63.1203(a)(4) requires existing solid fuel boilers to not emit low-volatile metals in excess of 380 micrograms per dry standard cubic meter (ug/dscm) after correction to a stack gas concentration of 7% oxygen. FFCC's boiler emitted an average of 117.3 ug/dscm at 7% oxygen during the CPT.

5.1.7 Dioxin/Furan Emissions

40 CFR 63.1216(a)(1)(ii) requires existing solid fuel boilers to not emit total hydrocarbons (THC) in excess of 10 parts per million by volume (ppmv) after correction to a stack gas concentration of 7% oxygen. FFCC's boiler emitted an average 0.4 ppmv at 7% oxygen during the Test 1 of the CPT, and emitted an average 0.3 ppmv at 7% oxygen during the Test 2 of the CPT. FFCC submitted data in lieu of Dioxin/Furan testing in Appendix F of the CPT Plan. This data in lieu of was obtained from a 1999 test were Dioxin/Furan emissions from FFCC boilers were 0.092 ng TEQ/dscm at 7% oxygen.

5.1.8 Total Hydrocarbon Emissions

40 CFR 63.1216(a)(5)(ii) requires existing solid fuel boilers to not emit total hydrocarbons (THC) in excess of 10 parts per million by volume (ppmv) after correction to a stack gas concentration of 7% oxygen. FFCC's boiler emitted an average 0.4 ppmv at 7% oxygen during the Test 1 of the CPT, and emitted an average 0.3 ppmv at 7% oxygen during the Test 2 of the CPT.

6.0 Procedures and Limitations for Operating Parameters

This section describes the operating parameter limits (OPL) and how they were established. This section also describes waste, chloride, ash and metal feed rate limits and how they are determined, including extrapolation.

6.1 Waste Feed Rate Limitations

The waste feed rate limits are summarized in Table 18.0. All feed rate limits are 12-hour HRAs. Tables 8 - 15 summarize the waste feed rate data by run. The process data upon which Tables 8 – 15 are based can be found in Attachment E-5.

6.1.1 Maximum Hazardous Waste Feed Rate Limit

FFCC established a maximum hazardous waste feed rate limit based on the average of the test run averages from Test 2.

6.1.2 Maximum Chloride Feed Rate Limit

The maximum chloride feed rate limit for LVM and SVM control was determined as average of the test run averages from Test 2. The concentration of chloride in both the waste and coal were used to determine the limit.

6.1.3 Maximum Ash Feed Rate Limit

The maximum ash feed rate limit was determined as average of the test run averages from Test 2. The amount of ash spiked (diatomaceous earth) and the ash content of the coal and waste was used to determine the limit.

6.1.4 Metals Feed Rate Limits

Metals feed rate limits were also determined during the CPT. A combination of methods was used to develop the metal feed rate limits. The final feed rate limits determined from the CPT are summarized in Table 18.0.

6.1.4.1 Maximum Mercury Feed Rate

The maximum mercury feed rate limit is based on the maximum theoretical emission concentration (MTEC). MTEC was chosen to develop this feed rate limit because mercury was not spiked into the system, and the concentration of mercury in the coal was significantly lower than anticipated based on historical analysis.

To develop the MTEC feed rate limit, FFCC used the combustion air correlation curve to determine the stack gas flow rate at the maximum combustion air flow rate demonstrated during the CPT. The MACT EEE mercury emission standard was used to calculate the maximum mercury feed rate limit. FFCC used only 90% of the feed rate calculated using MTEC in order to establish the maximum feed rate limit. This calculation is shown in Table 20.0.

6.1.4.2 Maximum Semi-Volatile Metals Feed Rate

The maximum SVM feed rate limit was determined using the average of the test run averages from Test 2. The amount of SVM spiked and the SVM content of the coal and waste was used to determine the limit. The limit was further extrapolated as described in Section 6.2.3.4 and shown in Table 19.0.

6.1.4.3 Maximum Low Volatile Metals Feed Rate

The maximum LVM feed rate limit was determined using the average of the test run averages from Test 2. The amount of LVM spiked and the LVM content of the coal and waste was used to determine the limit. The limit was further extrapolated as described in Section 6.2.3.4 and shown in Table 19.0.

6.1.4.4 Metals Feed Rate Extrapolation

FFCC used the analytical results from the process feed analysis to extrapolate up to higher metal feed rate limits. The extrapolation was minimized by using only 90% of the MACT Standard.

The extrapolation was done by a simple algebraic calculation:

$$\frac{\text{Metal feed – CPT}}{\text{Emission level - CPT}} = \frac{\text{Metal feed – Permit}}{\text{MACT Standard}}$$

- Metal feed – CPT refers to the metals feed rate derived from Table 9.0.

- Emission level – CPT: Refers to the average measured concentration, in ug/dscm corrected to 7% oxygen, of the metals from the three corresponding stack test runs of Test 2. This can be found in Table 16.0.

- Metal feed – Permit: This will be the calculated feed limit for the metals.

- MACT Standard: These are 180 ug/dscm for LVM and 380 ug/dscm for SVM at 7% oxygen.

The extrapolated metal feed rate calculations are shown below:

SVM feed rate (lb/hr) = [(0.633 lb/hr SVM) x (180 ug/dscm SVM) x (0.90)] / [158.8 ug/dscm]

Maximum SVM feed rate (lb/hr) = 0.65 lb/hr

LVM feed rate (lb/hr) = [(1.58 lb/hr LVM) x (380 ug/dscm LVM) x (0.90)] / [117.3 ug/dscm LVM]

Maximum LVM feed rate (lb/hr) = 4.61 lb/hr

6.2 Combustion Chamber Limitations

The operating parameter limits are summarized in Table 18.0. Tables 8 - 15 summarizes the OPL data by run. The limits are calculated as the average of the test run average measurements collected from each of the process monitoring instruments. The limits were established as either maximums or minimums depending on the parameter. The minimum temperature limit and maximum percent O2 was established from the Test 1 data. All other combustion chamber limits were established from the Test 2 data. The process data from each run are provided in Attachment E-5.

6.2.1 Minimum Combustion Chamber Temperature Limit

FFCC established a minimum combustion chamber temperature of 1,061 deg F. during the CPT while demonstrating satisfactory DRE. The minimum combustion chamber temperature was established as the average of the test run averages from Test 1.

6.2.2 Minimum Atomization Pressure Limit

The minimum atomization pressure is based on the manufacturer's specification of 30 psig as an instantaneous limit for the liquid hazardous waste feed system.

6.2.3 Maximum Furnace Pressure Limit

The boiler system is an induced draft system that operates under a constant negative pressure. A limit of 0 psig will be established and will be monitored on an instantaneous basis.

6.2.4 Maximum Combustion Air Flow Rate Limit

A maximum combustion air flow rate of 21,130 scfm was established during Test 2. This limit was an average of the test run average total combustion air flow measured during the three runs of Test 2. It will be established as an hourly rolling average limit.

6.3 Air Pollution Control Limitations

The operating parameter limits are summarized in Table 18.0. Tables 8 - 15 summarizes the OPL data by run. The limits are calculated as the average of the test run average measurements collected from each of the process monitoring instruments during Test 2. The limits were established as either maximums or minimums depending on the parameter. The process data from each run are provided in Attachment E-5.

6.3.1 Minimum ESP Power Limit

FFCC established a minimum electrostatic precipitator (ESP) power limit of 8 kilowatts (kW). This limit was established as the average of the test run averages recorded during Test 2. This limit will be monitored as an hourly rolling average limit.

6.3.2 Maximum Inlet Temperature to the ESP

FFCC established a maximum inlet temperature to the ESP of 515 deg F. This limit was established as the average of the test run averages recorded during Test 2. This limit will be monitored as an hourly rolling average limit.

6.4 Stack Gas Limitations

The only stack gas measurement data from which an OPL is derived is oxygen. (The THC OPL is a regulatory standard.) The stack gas OPL limits are summarized in Table 18.0. Tables 8 - 15 summarizes the OPL data by run. For O2, the limits are calculated as the average of the test run average measurements during Test 1. The process data from each run are provided in Attachment E-5.

6.4.1 Maximum Total Hydrocarbon Limit

FFCC demonstrated compliance with the total hydrocarbon (THC) limit standard of 10 ppmv established in the MACT EEE regulations. This limit will be continuously monitored as an hourly rolling average.

6.4.2 Maximum Percent Oxygen Limit

EPA Region 6 requested FFCC to establish a maximum percent oxygen limit in conjunction with their request to use combustion air flow rate as a surrogate for flue gas flow rate. This limit was set as 12.2 % oxygen in the stack gas during the CPT. The maximum percent oxygen in the stack gas limit was established as an average of the test run average percent oxygen recorded during the three runs of Test 1. This limit will be continuously monitored as an hourly rolling average.

7.0 Statement of Compliance

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete.

The information contained in the notification establishes the operating controls and limits that ensure that the solid fuel boilers located at the FutureFuel Chemical Company in Batesville, Arkansas is in compliance with all the applicable emission standards of 40 CFR 63, Subpart EEE for Phase II units.

Signed this 2nd day of September 2010.

Sam Dortch
Executive Vice President, General Manager, FutureFuel Chemical Company

Tables

Table 1.0 – Feed Stream Analysis Data

Table 2.0 – Feed Stream Characteristics

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Table 10.0 – CPT Comparison of Planned Conditions to Actual Conditions - Test 1, Run 1

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Table 16.0 – Demonstration of Compliance

Table 17.0 – Boiler Removal Efficiency

Table 18.0 – Summary of Operating Parameter Limits

Table 19.0 – Metal Extrapolation

Table 20.0 – Mercury MTEC Feed Rate Limit

Table 21.0 – Summary of Sampling and Analysis Program

TABLE 1.0

FEED STREAM ANALYSIS DATA

Feed Stream *	**Average Heat Value (Btu/lb)**	**Low-Volatile Metals (Avg)**			**Semi-Volatile Metals (Avg)**		**Mercury (Avg)**	**Other Metals (Avg)**				**Avg Cl %**	**Avg Ash %**	**Physical Form**
		As ppm	**Be ppm**	**Cr ppm**	**Cd ppm**	**Pb ppm**	**Hg ppm**	**Sb ppm**	**Ba ppm**	**Ag ppm**	**Tl ppm**			
Process Intermediate Waste	12,000	BDL	BDL	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4	< 1	Liquid
Fatty Acid Waste	12,000	BDL	BDL	106	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	< 2	Liquid
Organic Process Waste	9,000	BDL	BDL	2	BDL	BDL	< 0.1	BDL	< 0.5	BDL	BDL	< 1	< 3	Liquid
Spent Solvent Waste	11,000	BDL	BDL	1	BDL	1	BDL	BDL	BDL	BDL	BDL	< 1	< 2	Liquid
DIPB Auxiliary Fuel	18,600	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	< 1	Liquid
Biomass Fuel	11,800	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0	3	Solid
Vapor Recovery Vent Gas	< 1000	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<0.02	0	Gas
WWT Sludge	724	0.13	BDL	16	0.4	2.5	BDL	BDL	14	BDL	BDL	0	5.6	Semi-Solid
Coal	12,300	9	1	13	1	8	0.15	3	43	< 1	BDL	0.1	10	Solid

BDL = Below Detection Limit

TABLE 2.0

FEED STREAM CHARACTERISTICS

Feed Stream	Constituents and Other Characteristics	Avg %	Max %	Organic Hazardous Air Pollutants		Quantity Burned per Year (lbs)	Waste Codes
Organic Process Waste	Toluene	15	30	Acetonitrile	< 1 %	500,000 to 2,500,000	F003 D001, D021
	Water	8	15	Chlorobenzene	0 – 3 %		
	Methanol	15	50	Phenol	0 – 1 %		
	Heptane	10	40	Triethylamine	< 1%		
	TXIB	10	20	Toluene	0 –30 %		
	DMAP	2	5	Xylene	0 – 40 %		
	Acetone	10	40	Formaldehyde	< 1 %		
	Isopropanol	5	30	Methanol	0 – 50 %		
	Xylene	10	40	MIBK	0 – 5 %		
	MIBK	2	5	Ethyl Benzene	0 – 2%		
	Other Organics	13	20				
Spent Solvent Waste	Chlorobenzene	10	40	Acetonitrile	< 1 %	15,000,000 to 20,000,000	F002, F003, F005, D001, D002, D021
	Water	8	20	Chlorobenzene	0 – 40 %		
	Toluene	20	50	Triethylamine	< 1%		
	Methanol	10	40	Toluene	0 – 50 %		
	IFT Product	3	6	Formaldehyde	< 1 %		
	Tars from organic process	14	30	MIBK	0 – 5 %		
	Acetic Acid	25	50	Methanol	0 – 40 %		
	Triethylene Glycol	2	5	Xylene	0 – 5 %		
	o-Dichlorobenzene	5	20	Ethyl Benzene	0 – 1 %		
	Other Organics	8	20				

TABLE 2.0 (Continued)

FEED STREAM CHARACTERISTICS

Feed Stream	Constituents and Other Characteristics	Avg %	Max. %	Organic Hazardous Air Pollutants		Quantity Burned per Year (lbs)	Waste Codes
Process Intermediate Waste	Chlorobenzene Acetone Isopropanol Heptane Xylene Toluene Other organics	10 15 15 15 10 15 5	30 40 30 30 30 30 10	Chlorobenzene Toluene Xylene	0 – 30 % 0 – 30 % 0 – 30 %	1,500,000 to 2,500,000	F002, F003, F005, D001, D021
Fatty Acid Waste	Nonanoic Acid Octanoic Acid TXIB	98 0 0	100 1 1	None		1,000,000 to 1,500,000	D007
Biomass Fuels	Woody Biomass	100	100	None		0 to 100,000	None

TABLE 2.0 (Continued)

FEED STREAM CHARACTERISTICS

Feed Stream	Constituents and Other Characteristics	Avg %	Max. %	Organic Hazardous Air Pollutants		Quantity Burned per Year (lbs)	Waste Codes
Vapor Recovery Vent Gas	Nitrogen (Inert N2 Gas)	99.5	99.9	Methanol	0.062 %	1,500,000 to 2,000,000	None
	Acetone	0	0.1	Chlorobenzene	0.026 %		
	Methanol	0	0.08	Heptane	0.014 %		
	Water	0	0.05	Toluene	0.014 %		
	Chlorobenzene	0	0.04	Xylene	0.004 %		
	Heptane	0	.02	MIBK	0.001 %		
	Toluene	0	.02	Ethyl Benzene	0.0002 %		
	Acetic Acid	0	.02				
	Isopropanol	0	.01				
	Xylene	0	.01				
WWT Sludge	Water	70	90	None		0 to 500,000	None
	Organic Microorganisms	15	25				
	Inorganic Solids	00	5				
Coal	Bituminous Coal	100	100	None		70,000,000 to 100,000,000	None

Notes:

Btu = British Thermal Unit
Btu/lb = British Thermal Unit per pound
ppm = Parts per million
wt.% = Weight production

- Only those organic HAPs that may be potentially present in the waste are reported in Table D-5.3. All other organic HAPs are not present based on on-site material use and process chemistry evaluations.

TABLE 3.0

PROCESS MONITORING INSTRUMENTS

Parameter	Location	Instrument Number(s)	Type of Instrument	Instrument Range	Expected Operating Range	Accuracy	Drawing Location Reference
Liquid Waste Feed Flow Monitor	2nd floor liquid waste feed lines	FT-6M01-100 FT-6M01-200 FT-6M01-300	Micromotion Flow Meter	0 – 100 lb/min	0 – 65 lb/min	+/- 2 % rate	6M01-9T-031 6M01-9T-032 6M01-9T-089
Steam Atomization Pressure	2nd floor steam feed lines	PSL-6M01-WCB-112A PSL-6M01-WCB-124A PSL-6M01-WCB-1164	Low Pressure Switch	Set at 40 psig (Falling)	50 – 90 psig	Repeatability < 2.5% Full scale	6M01-9T-031 6M01-9T-032 6M01-9T-089
Boiler Combustion Temperature	4th floor superheater section	TE-6M01-9195 TE-6M01-9196 TE-6M01-9197	Type K Thermocouple	0 – 2200 degrees F	900 – 1500 degrees F	+/- 1 % Temperature	6M01-9T-024 6M01-9T-025 6M01-9T-026
ESP Power Input	3rd floor precipitator panel	AI- PPTR-1 AI-PPTR-2 AI-PPTR-3	Neundorfer Precipitator Controls	0 – 50 kW	10 – 24 kW	+/- 5 %	6M01-9T-024 6M01-9T-025 6M01-9T-026
ESP Inlet Temperature	Precipitator Inlet	TE-6M01-FAS-608 TE-6M01-FAS-616 TE-6M01-FAS-624	Type J Thermocouple	0 – 1000 degrees F	420 – 510 degrees F	+/- 1% of Temperature	6M01-9T-024 6M01-9T-025 6M01-9T-026
Air Control Flow	Forced Draft Fan Outlet	FT-6M01-FAS-713 FT-6M01-FAS-714 FT-6M01-FAS-715	Pressure Transmitter	-6 to 6 in. w.c.	-3 to 3 in. w.c.	+/- 1 %	6M01-9T-024 6M01-9T-025 6M01-9T-026
Total Hydrocarbon	ID fan outlet duct	AT-6M09-116 AT-6M09-216 AT-6M09-316	Rosemount Mod. 400A	0 – 100 ppm	0 – 10 ppm	+/- 3%	6M01-9T-005 6M01-9T-026
Oxygen	ID fan outlet duct	AT-6M09-118 AT-6M09-218 AT-6M09-318	Rosemount Mod. X-Stream X2GP	0 – 25 %	0 – 25 %	+/- 2%	6M01-9T-005 6M01-9T-026

TABLE 4.0

PROCESS MONITORING INSTRUMENTS, CALIBRATION, and MAINTENANCE

Parameter	Location	Instrument Number(s)	Inspection/ Calibration Procedure	Calibration Frequency	Preventive Maintenance Procedure	Preventive Maintenance Frequency
Liquid Waste Feed Rate	Liquid Waste Feed Flow Monitor	FT-6M01-100 FT-6M01-200 FT-6M01-300	Check against ISO 9000 Standard	Annual	Check against ISO 9000 Standard	Annual
Steam Atomization Pressure	Steam Line	PSL-6M01-WCB-112A PSL-6M01-WCB-124A PSL-6M01-WCB-1164	Operator reviews for inconsistency with other process parameters.	As necessary	Calibrate or Replace	Annual
Combustion Temperature	Boiler Combustion Temperature	TE-6M01-9195 TE-6M01-9196 TE-6M01-9197	Visual Inspection with a density test against known material.	Annual	Check Accuracy or Replace	Annual
ESP Power Input	3rd floor precipitator panel	AI- PPTR-1 AI-PPTR-2 AI-PPTR-3	Primary Current, Secondary Current and Voltage are checked for accuracy	Annual	Calibrate	Annual
ESP Inlet Temperature	Precipitator Inlet	TE-6M01-FAS-608 TE-6M01-FAS-616 TE-6M01-FAS-624	Visual Inspection with a density test against known material.	Annual	Check Accuracy or Replace	Annual
Air Flow Control	Forced Draft Fan Outlet	FT-6M01-FAS-713 FT-6M01-FAS-714 FT-6M01-FAS-715	Calibrate against a known standard	Annual	Check and blow clear the circular annular ring	Annual
Total Hydrocarbon	I.D. Fan Outlet Duct	AT-6M09-116 AT-6M09-216 AT-6M09-316	Calibrate with known calibration gas +/- 2 % accuracy	Daily	PM is on call From daily check clean and calibrate	Annual
Oxygen	I.D. Fan Outlet Duct	AT-6M09-118 AT-6M09-218 AT-6M09-318	Calibrate with known calibration gas +/- 2 % accuracy	Daily	PM is on call From daily check clean and calibrate	Annual

Table 5.0 - CPT Process Feed Analytical Results

Process Waste Analytical Results						
Constituent	**Test 1 Run 1**	**Test 1 Run 2**	**Test 1 Run 3**	**Test 2 Run 1**	**Test 2 Run 2**	**Test 2 Run 3**
Chlorobenzene (%)	4.83	5.05	4.89	4.38	4.74	4.86
Heating Value (btu/lb)	6460	6482	6622	6254	6319	6333
Specific Gravity	1.036	1.032	1.044	1.052	1.056	1.052
Chloride (%)	NA	NA	NA	5.4	5.4	5.5
Ash (%)	0.03	0.03	0.02	0.04	0.03	0.01
Mercury (ug/g)	NA	NA	NA	0.004	0.002	0.003
SVM (ug/g)	0.034	0.034	0.034	0.033	0.033	0.033
Cadmium	0.005	0.005	0.005	0.005	0.005	0.005
Lead	0.029	0.029	0.029	0.029	0.028	0.029
LVM (ug/g)	18.450	18.521	18.308	17.217	17.152	16.265
Arsenic	0.048	0.049	0.048	0.048	0.047	0.048
Beryllium	0.029	0.029	0.029	0.029	0.028	0.029
Chromium	18.372	18.443	18.232	17.141	17.076	16.188

Primary Fuel Analytical Results						
Constituent	**Test 1 Run 1**	**Test 1 Run 2**	**Test 1 Run 3**	**Test 2 Run 1**	**Test 2 Run 2**	**Test 2 Run 3**
Chlorobenzene (%)	0	0	0	0	0	0
Heating Value (btu/lb)	10890	11090	11070	10630	10630	10600
Specific Gravity	NA	NA	NA	NA	NA	NA
Chloride (%)	NA	NA	NA	0.08	0.08	0.07
Ash (%)	10.4	8.45	8.44	9.26	9.26	9.79
Mercury (ug/g)	0.063	0.037	0.042	0.048	0.048	0.040
SVM (ug/g)	NA	NA	NA	4.98	4.98	5.09
Cadmium	NA	NA	NA	1.01	1.01	1.28
Lead	NA	NA	NA	3.97	3.97	3.81
LVM (ug/g)	NA	NA	NA	23.663	23.663	22.432
Arsenic	NA	NA	NA	1.33	1.33	1.4
Beryllium	NA	NA	NA	0.933	0.933	0.832
Chromium	NA	NA	NA	21.4	21.4	20.2

Table 6.0 - CPT Spiking Information

Ash Spiking - Test 2			
Test 2 (Run #)	Coal Added (lbs)	Diatomaceous Earth Added (lbs)	Ash Spike (%)
Run 1	100000	7500	7.5%
Run 2	100000	7500	7.5%
Run 3	50000	3750	7.5%

Metals Spiking Information - Test 2					
6/3/2010					
Run 1					
Time	Scale Weight	Change	SolutionAvg lb/hr	Avg Pb lb/hr	Avg Cr lb/hr
10:00	312.30		64.8	0.60	1.41
10:19	283.90	28.40			
10:34	251.30	32.60			
10:49	240.60	10.70			
11:04	226.00	14.60			
11:19	211.30	14.70			
11:34	196.20	15.10			
11:49	183.50	12.70			
12:04	169.90	13.60			
12:19	155.00	14.90			
12:34	142.70	12.30			
12:49	128.40	14.30			
13:04	113.60	14.80			

Metals Spiking Information - Test 2					
6/3/2010					
Run 2				Spike Rate	
Time	Scale Weight	Change	Solution Avg lb/hr	Pb lb/hr	Cr lb/hr
14:12	466.0		62.1	0.58	1.35
14:27	444.6	21.4			
14:42	431.5	13.1			
14:57	416.5	15.0			
15:12	404.3	12.2			
15:27	391.5	12.8			
15:42	373.9	17.6			
15:57	355.5	18.4			
16:12	341.0	14.5			
16:27	326.0	15.0			
16:42	310.7	15.3			

Metals Spiking Information					
6/4/2010					
Run 3					
Time	Scale Weight	Change	Solution Avg lb/hr	Pb lb/hr	Cr lb/hr
7:00	335.7		68.5	0.64	1.49
7:15	322.9	12.8			
7:30	308.1	14.8			
7:45	288.8	19.3			
8:00	267.6	21.2			
8:15	255.2	12.4			
8:30	241.8	13.4			
8:45	228.2	13.6			
9:00	211.1	17.1			
9:15	197.2	13.9			
9:30	181.4	15.8			
9:45	163.9	17.5			
10:00	147.2	16.7			

Spike Solution Concentration = 0.933% Pb and 2.18% Cr

Table 7.0 - CPT Stack Gas Analytical Results

Test Run	Emission Constituent	Stack Flow DSCFM	Concentration ug/dscm	O2 %	Concentration @ 7% O2 ug/dscm	Emission Rate lb/hr
Test 1 Run 1	POHC	19728	7.76	12.1	NA	0.000478
Test 1 Run 2	POHC	19786	6.33	12.2	NA	0.000391
Test 1 Run 3	POHC	19575	7.69	12.3	NA	0.000470
Test 2 Run 1	POHC	22225	9.47	9.8	NA	0.000657
	Particulate	22222	14640	9.8	18300	1.015602
	Mercury	22222	4.08	9.8	5.1	0.000283
	SVM	22222	103.04	9.8	128.8	0.007148
	Cd	22222	0.8	9.8	1	0.000055
	Pb	22222	102.24	9.8	127.8	0.007093
	LVM	22222	63.68	9.8	79.6	0.004418
	As	22222	15.36	9.8	19.2	0.001066
	Be	22222	0.48	9.8	0.6	0.000033
	Cr	22222	47.84	9.8	59.8	0.003319
Test 2 Run 2	POHC	23078	7.83	9.8	NA	0.000564
	Particulate	23043	24160	9.8	30200	1.737942
	Mercury	23043	2.8	9.8	3.5	0.000201
	SVM	23043	141.36	9.8	176.7	0.010169
	Cd	23043	1.04	9.8	1.3	0.000075
	Pb	23043	140.32	9.8	175.4	0.010094
	LVM	23043	90.08	9.8	112.6	0.006480
	As	23043	16.32	9.8	20.4	0.001174
	Be	23043	0.48	9.8	0.6	0.000035
	Cr	23043	73.28	9.8	91.6	0.005271
Test 2 Run 3	POHC	21781	8.64	9.9	NA	0.000587
	Particulate	21749	23865	9.9	30100	1.620317
	Mercury	21749	2.54	9.9	3.2	0.000172
	SVM	21749	135.50	9.9	170.9	0.009200
	Cd	21749	1.98	9.9	2.5	0.000135
	Pb	21749	133.52	9.9	168.4	0.009065
	LVM	21749	126.70	9.9	159.8	0.008602
	As	21749	13.16	9.9	16.6	0.000894
	Be	21749	0.48	9.9	0.6	0.000032
	Cr	21749	113.06	9.9	142.6	0.007676

Table 8.0 - CPT Test 1 Averages

Test Parameters		Planned Conditions	Test 1	Test 1 Run Averages		
Description	**Units**	**Target**	**Average**	**Run 1**	**Run 2**	**Run 3**
Total Waste Feed Rate	lb/hr	1000	960	959	965	956
Total Coal Feed Rate	lb/hr	2500	3221	3266	3249	3148
Total POHC Feed Rate	lb/hr	25	47	46	49	47
Combustion Chamber Temperature	°F	1050	1061	1061	1059	1064
Combustion Chamber Pressure	psig	< 0	-0.3	-0.3	-0.3	-0.3
Combustion Air Flow Rate – FD Fan	scfm	NA	11270	11281	11253	11275
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	3050
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	1800
Total Combustion Air Flow Rate	scfm	NA	16120	16131	16103	16125
THC Concentration	ppmv	< 10	0.4	0.5	0.5	0.4
O2 Concentration	%	13	12.2	12.2	12.3	12.0
Gun Atomization Pressure	psig	30	30	30	30	30

Table 9.0 - CPT Test 2 Averages

Test Parameters		Planned Conditions	Test 2	Test 2 Run Averages		
Description	**Units**	**Target**	**Average**	**Run 1**	**Run 2**	**Run 3**
Total Waste Feed Rate	lb/hr	2500	2518	2509	2509	2535
Total Coal Feed Rate	lb/hr	6000	4664	4603	4603	4787
Total POHC Feed Rate	lb/hr	75	117	109.9	119.0	123.1
Total Chloride Feed Rate	lb/hr	150	494	504	504	474
Total Ash Feed Rate	lb/hr	1050	791	772	772	828
Total Mercury Feed Rate	lb/hr	0.0008	0.00019	0.00023	0.00013	0.00020
Total SVM Feed Rate	lb/hr	0.61	0.63	0.63	0.60	0.66
Total LVM Feed Rate	lb/hr	1.45	1.57	1.56	1.51	1.64
Combustion Chamber Temperature	°F	NA	1304	1304	1301	1308
Combustion Chamber Pressure	psig	< 0	-0.5	-0.5	-0.5	-0.4
Combustion Air Flow Rate – FD Fan	scfm	NA	16280	16190	16178	16471
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	3050
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	1800
Total Combustion Air Flow Rate	scfm	NA	21130	21040	21028	21321
ESP Power	kW	7	8	8	8	8
ESP Inlet Temperature	°F	510	515	514	518	514
THC Concentration	ppmv	< 10	0.3	0.3	0.4	0.4
O2 Concentration	%	NA	10.1	10.0	10.1	10.3
Gun Atomization Pressure	psig	30	30	30	30	30

Table 10.0 - CPT Comparison of Planned Conditions to Actual Conditions

Test 1 Run 1

Test Parameters		Planned Conditions	Acutal Conditions			Comparison*
Description	**Units**	**Target**	**Average**	**Minimum**	**Maximum**	**Comment**
Total Waste Feed Rate	lb/hr	1000	959	359	1470	
Total Coal Feed Rate	lb/hr	2500	3266	2950	3933	Decided to target higher temp requiring more coal
Total POHC Feed Rate	lb/hr	25	46	17	71	Waste was 4.83% POHC rather than 4% target
Total Chloride Feed Rate	lb/hr	NA	NA	NA	NA	
Total Ash Feed Rate	lb/hr	NA	NA	NA	NA	
Total Mercury Feed Rate	lb/hr	NA	NA	NA	NA	
Total SVM Feed Rate	lb/hr	NA	NA	NA	NA	
Total LVM Feed Rate	lb/hr	NA	NA	NA	NA	
Combustion Chamber Temperature	°F	1050	1061	1048	1071	
Combustion Chamber Pressure	psig	< 0	-0.3	-0.3	-0.3	
Combustion Air Flow Rate – FD Fan	scfm	NA	11281	10861	11803	
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	
Total Combustion Air Flow Rate	scfm	NA	16131	15711	16653	
ESP Power	kW	NA	20.4	16.9	24.0	
ESP Inlet Temperature	°F	NA	463	462	464	
THC Concentration	ppmv	< 10	0.5	0.2	0.7	
O2 Concentration	%	13	12.2	11.7	17.8	
Gun Atomization Pressure	psig	30	30	30	30	

** No comment means the difference between the planned and actual conditons were not significant (e.g., < 10%)*

Table 11.0 - CPT Comparison of Planned Conditions to Actual Conditions

Test 1 Run 2

Test Parameters		Planned Conditions	Acutal Conditions			Comparison*
Description	**Units**	**Target**	**Average**	**Minimum**	**Maximum**	**Comment**
Total Waste Feed Rate	lb/hr	1000	965	723	1265	
Total Coal Feed Rate	lb/hr	2500	3249	3006	3881	Decided to target higher temp requiring more coal
Total POHC Feed Rate	lb/hr	25	49	37	64	Waste was 5.05% POHC rather than 4% target
Total Chloride Feed Rate	lb/hr	NA	NA	NA	NA	
Total Ash Feed Rate	lb/hr	NA	NA	NA	NA	
Total Mercury Feed Rate	lb/hr	NA	NA	NA	NA	
Total SVM Feed Rate	lb/hr	NA	NA	NA	NA	
Total LVM Feed Rate	lb/hr	NA	NA	NA	NA	
Combustion Chamber Temperature	°F	1050	1059	1054	1073	
Combustion Chamber Pressure	psig	< 0	-0.3	-0.3	-0.3	
Combustion Air Flow Rate – FD Fan	scfm	NA	11253	10795	11705	
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	
Total Combustion Air Flow Rate	scfm	NA	16103	15645	16555	
ESP Power	kW	NA	22.8	21.0	24.4	
ESP Inlet Temperature	°F	NA	460	459	461	
THC Concentration	ppmv	< 10	0.5	0.3	0.6	
O2 Concentration	%	13	12.3	11.7	17.9	
Gun Atomization Pressure	psig	30	30	30	30	

** No comment means the difference between the planned and actual conditons were not significant (e.g., < 10%)*

Table 12.0 - CPT Comparison of Planned Conditions to Actual Conditions

Test 1 Run 3

Test Parameters		Planned Conditions	Acutal Conditions			Comparison*
Description	**Units**	**Target**	**Average**	**Minimum**	**Maximum**	**Comment**
Total Waste Feed Rate	lb/hr	1000	956	563	1319	
Total Coal Feed Rate	lb/hr	2500	3148	2849	3573	Decided to target higher temp requiring more coal
Total POHC Feed Rate	lb/hr	25	47	28	65	Waste was 4.89% POHC rather than 4% target
Total Chloride Feed Rate	lb/hr	NA	NA	NA	NA	
Total Ash Feed Rate	lb/hr	NA	NA	NA	NA	
Total Mercury Feed Rate	lb/hr	NA	NA	NA	NA	
Total SVM Feed Rate	lb/hr	NA	NA	NA	NA	
Total LVM Feed Rate	lb/hr	NA	NA	NA	NA	
Combustion Chamber Temperature	°F	1050	1064	1054	1075	
Combustion Chamber Pressure	psig	< 0	-0.3	-0.3	-0.3	
Combustion Air Flow Rate – FD Fan	scfm	NA	11275	10813	11788	
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	
Total Combustion Air Flow Rate	scfm	NA	16125	15663	16638	
ESP Power	kW	NA	22.7	20.7	24.8	
ESP Inlet Temperature	°F	NA	458	458	459	
THC Concentration	ppmv	< 10	0.4	0.3	0.7	
O2 Concentration	%	13	12.0	10.5	17.4	
Gun Atomization Pressure	psig	30	30	30	30	

** No comment means the difference between the planned and actual conditons were not significant (e.g., < 10%)*

Table 13.0 - CPT Comparison of Planned Conditions to Actual Conditions

Test 2 Run 1

Test Parameters		Planned Conditions	Acutal Conditions			Comparison
Description	**Units**	**Target**	**Average**	**Minimum**	**Maximum**	**Comment**
Total Waste Feed Rate	lb/hr	2500	2509	261	3054	
Total Coal Feed Rate	lb/hr	6000	4603	4236	5677	Less coal was need to make Steam Production Target
Total POHC Feed Rate	lb/hr	75	110	11	134	Waste was 4.38% POHC rather than 4% target
Total Chloride Feed Rate	lb/hr	150	504	353	619	Chloride concentration was 5.4% and target was 6%
Total Ash Feed Rate	lb/hr	1050	772	710	953	Less coal was need to make Steam Production Target
Total Mercury Feed Rate	lb/hr	0.0008	0.00023	NA	NA	Mercury content in coal was much less than normal
Total SVM Feed Rate	lb/hr	0.61	0.62753	NA	NA	
Total LVM Feed Rate	lb/hr	1.45	1.56461	NA	NA	
Combustion Chamber Temperature	°F	NA	1304	1237	1318	
Combustion Chamber Pressure	psig	< 0	-0.5	-0.5	-0.4	
Combustion Air Flow Rate – FD Fan	scfm	NA	16190	15671	17349	
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	
Total Combustion Air Flow Rate	scfm	NA	21040	20521	22199	
ESP Power	kW	8	8.4	7.3	8.6	
ESP Inlet Temperature	°F	510	514	511	516	
THC Concentration	ppmv	< 10	0.3	0.0	1.1	
O2 Concentration	%	NA	10.0	9.2	16.5	
Gun Atomization Pressure	psig	30				

** No comment means the difference between the planned and actual conditons were not significant (e.g., < 10%)*

Table 14.0 - CPT Comparison of Planned Conditions to Actual Conditions

Test 2 Run 2

Test Parameters		Planned Conditions	Acutal Conditions			Comparison*
Description	**Units**	**Target**	**Average**	**Minimum**	**Maximum**	**Comment**
Total Waste Feed Rate	lb/hr	2500	2509	2502	2518	
Total Coal Feed Rate	lb/hr	6000	4603	4507	5619	Less coal was need to make Steam Production Target
Total POHC Feed Rate	lb/hr	75	119	119	119	Waste was 4.74% POHC rather than 4% target
Total Chloride Feed Rate	lb/hr	150	504	496	586	Chloride concentration was 5.4% and target was 6%
Total Ash Feed Rate	lb/hr	1050	772	756	943	Less coal was need to make Steam Production Target
Total Mercury Feed Rate	lb/hr	0.0008	0.00013	NA	NA	Mercury content in coal was much less than normal
Total SVM Feed Rate	lb/hr	0.61	0.60	NA	NA	
Total LVM Feed Rate	lb/hr	1.45	1.51	NA	NA	
Combustion Chamber Temperature	°F	NA	1301	1284	1318	
Combustion Chamber Pressure	psig	< 0	-0.5	-0.5	-0.5	
Combustion Air Flow Rate – FD Fan	scfm	NA	16178	15793	16582	
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	
Total Combustion Air Flow Rate	scfm	NA	21028	20643	21432	
ESP Power	kW	8	8.2	7.5	8.3	
ESP Inlet Temperature	°F	510	518	516	519	
THC Concentration	ppmv	< 10	0.4	0.2	0.5	
O2 Concentration	%	NA	10.1	9.7	16.8	
Gun Atomization Pressure	psig	30	30	30	30	

** No comment means the difference between the planned and actual conditons were not significant (e.g., < 10%)*

Table 15.0 - CPT Comparison of Planned Conditions to Actual Conditions

Test 2 Run 3

Test Parameters		Planned Conditions	Acutal Conditions			Comparison
Description	**Units**	**Target**	**Average**	**Minimum**	**Maximum**	**Comment**
Total Waste Feed Rate	lb/hr	2500	2535	2521	2548	
Total Coal Feed Rate	lb/hr	6000	4787	4605	6047	Less coal was need to make Steam Production Target
Total POHC Feed Rate	lb/hr	75	123	122	124	Waste was 4.74% POHC rather than 4% target
Total Chloride Feed Rate	lb/hr	150	474	461	563	Chloride concentration was 5.4% and target was 6%
Total Ash Feed Rate	lb/hr	1050	828	796	1046	Less coal was need to make Steam Production Target
Total Mercury Feed Rate	lb/hr	0.0008	0.00020	NA	NA	Mercury content in coal was much less than normal
Total SVM Feed Rate	lb/hr	0.61	0.66	NA	NA	
Total LVM Feed Rate	lb/hr	1.45	1.64	NA	NA	Spike team fed a little more than planned
Combustion Chamber Temperature	°F	NA	1308	1291	1315	
Combustion Chamber Pressure	psig	< 0	-0.4	-0.4	-0.4	
Combustion Air Flow Rate – FD Fan	scfm	NA	16471	16127	16940	
Combustion Air Flow Rate – Overfire	scfm	3050	3050	3050	3050	
Combustion Air Flow Rate – Atomizing	scfm	1800	1800	1800	1800	
Total Combustion Air Flow Rate	scfm	NA	21321	20977	21790	
ESP Power	kW	8	7.9	7.3	8.2	
ESP Inlet Temperature	°F	510	514	514	514	
THC Concentration	ppmv	< 10	0.4	0.3	1.0	
O2 Concentration	%	NA	10.3	9.8	17.2	
Gun Atomization Pressure	psig	30	30	30	30	

** No comment means the difference between the planned and actual conditons were not significant (e.g., < 10%)*

Table 16.0 - Demonstration of Compliance

Emission Results Compared to MACT EEE Standards for Solid Fuel-Fired Boilers			
Test	**Units**	**Standard**	**CPT Result**
Test 1 - Minimum Temperature Test			
Destruction Removal Efficiency	%	≥ 99.99%	99.9991%
Total Hydrocarbon Emissions[3]	ppmv	≤ 10	0.4
Test 2 - Minimum Residence Time Test			
Destruction Removal Efficiency	%	≥ 99.99%	99.9995%
Particulate Emission[3]	mg/dscm	≤ 68	26.2
HCl/Chlorine Emissions[1]	lb/hr	1886.8	508
Mercury Emissions[3]	ug/dscm	≤ 11	3.9
Semi-Volatile Metal Emissions[3]	ug/dscm	≤ 180	158.8
Low-Volatile Metal Emissions[3]	ug/dscm	≤ 380	117.3
Dioxin/Furan[2 and 3] (as demonstrated by THC emissions)	ppmv	≤ 10	0.3
Total Hydrocarbon Emissions[3]	ppmv	≤ 10	0.3

[1] *Limit established using Health-based Alternative Compliance Demonstration described in Appendix D of the CPT Plan*

[2] *Requirement to conduct one time D/F test fufilled by submittal of data in lieu of test. See Appendix F of CPT Plan.*

[3] *Results corrected to 7% O_2*

Table 17.0 - Boiler Removal Efficiency

Test Run	DRE POHC	SRE Particulate	SRE SVM	SRE LVM
Test 1 Run 1	99.9990%	NA	NA	NA
Test 1 Run 2	99.9992%	NA	NA	NA
Test 1 Run3	99.9990%	NA	NA	NA
Test 1 Average	**99.9991%**	**NA**	**NA**	**NA**
Test 2 Run 1	99.9994%	99.8685%	98.8609%	99.7177%
Test 2 Run 2	99.9995%	99.8685%	98.8138%	99.7067%
Test 2 Run 3	99.9995%	99.8773%	98.9235%	99.7311%
Test 2 Average	**99.9995%**	**99.8714%**	**98.8660%**	**99.7185%**

Table 18.0 - Summary of Operating Parameter Limits

Operating Parameters		Final Operating Limit	Comment
Waste Feed Limitations			
Maximum Hazardous Waste Feed Rate	lb/hr	2518	Obtained as the Average of the Test Run Average from Test 2
Maximum Chloride Feed Rate	lb/hr	494	Obtained as the Average of the Test Run Average from Test 2
Maximum Ash Feed Rate	lb/hr	791	Obtained as the Average of the Test Run Average from Test 2
Maximum Mercury Feed Rate	lb/hr	0.00083	Obtained as the Average of the Test Run Average from Test 2
Maximum Semi-Volatile Feed Rate	lb/hr	0.64	Obtained as the Average of the Test Run Average from Test 2
Maximum Low-Volatile Feed Rate	lb/hr	4.58	Obtained as the Average of the Test Run Average from Test 2
Combustion Chamber Limitations			
Minimum Combustion Chamber Temperature	°F	1061	Obtained as the Average of the Test Run Average from Test 1
Minimum Atomization Pressure	psig	30	Manufacturer's recommendation
Maximum Furnace Pressure	in.wc.	< 0	Induced draft system, must maintain negative furnace pressure
Maximum Combustion Air Flow Rate	scfm	21130	Obtained as the Average of the Test Run Average from Test 2
Air Pollution Control Limitaions			
Minimum ESP Power	kW	8	Obtained as the Average of the Test Run Average from Test 2
Maximum ESP Inlet Temperature	°F	515	Obtained as the Average of the Test Run Average from Test 2
Stack Gas Limitations			
Maximum THC Concentration	ppmv	10	MACT Emission Standard
Maximum O_2 Concentration	%	12.2	Obtained as the Average of the Test Run Average from Test 1

Table 19.0 - Metal Extrapolation

Metal Group	CPT Feed Rate (lb/hr)	CPT Emisson Concentration @ 7% O2 (ug/DSCM)	90% of MACT Standard (ug/DSCM)	Extrapolated Operating Limit (lb/hr)
SVM	0.631	158.8	162	0.64
LVM	1.571	117.3	342	4.58

Table 20.0 - Mercury MTEC Feed Rate Limit

Hg Feed Rate Limit =	(MACT Limit ug/dscm) x (2.204586E-9 lb/ug) x (Stack Flow dscm/min) x (60 min/hr) / (1-SRE)
Hg Feed Rate Limit =	(11 ug/dscm) x (2.204586E-9 lb/ug) x (22499 dscf/min / 35.31 dscf/dscm) x (60 min/hr) / (1-0)
Hg Feed Rate Limit =	0.00093
90% Hg Feed Rate Limit =	0.00083

TABLE 21.0

SUMMARY OF SAMPLING AND ANALYSIS PROGRAM

Sample Type	Parameters	Sampling Method	Sample Frequency	Field QA/QC Samples	Analytical Methods
1) Liquid Organic Waste	Specific Gravity	Grab, 4 oz. collected at each sample interval (Two composites prepared for each run)	Initially and every 30 minutes; each run	None	ASTM D-1298
	Ash			None	ASTM D-482
	Chlorine			None	ASTM E776 / SW-846 9056
	Heat Value			None	ASTM D-240
	SVM			None	SW-846 6020
	LVM			None	SW-846 6020
	Mercury			None	ASTM D-3684-01
	POHC	Grab, 40ml collected at each sample interval	Every 30 minutes; each run	None	SW-846, 8260
2) Coal Feed	Ash	Grab, 4 oz. collected at each sample interval (Two composites prepared for each run)	Initially and every 30 minutes; each run	None	ASTM D-3174
	Chlorine			None	ASTM E776 / SW-846 9056
	Heat Value			None	ASTM D-5865
	SVM			None	SW-846 6010B
	LVM			None	SW-846 6010B
	Mercury			None	ASTM D-3684-01

TABLE 21.0 (Continued)

SUMMARY OF SAMPLING AND ANALYSIS PROGRAM

Sample Type	Parameters	Sampling Method	Sample Frequency	Field QA/QC Samples	Analytical Methods
3) Stack gas metals and particulate	As, Be, Cd, Cr, Hg, and Pb	Method 5 and 29, MMT, isokinetic sample	120 minutes each run	Reagent Blanks	SW-846 6020 and 7470a
4) Stack gas hydrogen chloride and Chlorine	Compliance with Alternative Chloride Limit based on feed rate and zero removal efficiency. No stack testing will be performed.				
6) Stack gas volatile organics - VOST	Volatile Organics	Method 0030, VOST train, 4 tube pairs	120 minutes each run	One condensate trip blank One pair VOST tube trip blank One set field blank tubes (four pairs each) per test condition	SW-0030, 5041
7) Stack gas PCDDs/PCDFs – MM5	Compliance will be demonstrated as data in lieu of testing based on trial burn completed in 1999.				

TABLE 21.0

SUMMARY OF SAMPLING AND ANALYSIS PROGRAM

Sample No./Type	Parameters	Sampling Method	Sample Frequency	Field QA/QC Samples	Analytical Methods
	Carbon Dioxide	ORSAT (EPA Method 3)	Each run	None	ORSAT Analyzer
	Total Hydrocarbon (from in-house CEMS)	EPA Method 25A	Each Run	None	Continuous, Extractive, Flame Ionization Analyzer
	Oxygen (from in-house CEMS & Stack Team)	Continuous, extractive, 3B	Each run	None	Continuous Extractive; 3B
	Stack Moisture	EPA Method 4	Each run	None	Measure volume to 0.5 ml
	Stack Velocity and Flowrate	EPA Method 2	Each run	None	Measure temperature, pressure, and volume

Notes to Table 5.0:

PAH	=	Polynuclear aromatic hydrocarbon	LVM	=	Low-Volatile Metals	As	=	Arsenic
ASTM	=	American Society for Testing and Materials	ML	=	Milliliter	Be	=	Beryllium
POHC	=	Principal organic hazardous constituents	M0011	=	EPA Method 0011	Cd	=	Cadmium
CVAA	=	Cold vapor atomic absorption	MM5	=	Modified Method 5	Cr	=	Chromium
QA/QC	=	Quality assurance and quality control	MMT	=	Multi-metals train	Hg	=	Mercury
GC/MS	=	Gas chromatography and mass spectroscopy	NaOH	=	Sodium hydroxide	H2SO4	=	Sulfuric acid
GC/FID	=	Gas chromatography and flame ionization detector	NDIR	=	Nondispersive infrared	KOH	=	Potassium hydroxide
VOST	=	Volatile organic sampling train	SVM	=	Semi-Volatile Metals	gpm	=	Gallons per minute
ICP	=	Inductively coupled argon plasma spectroscopy	PCDD	=	Dioxin	Btu	=	British thermal units
ICP-AES	=	Inductively coupled plasma-atomic emission spectrometry	PCDF	=	Furan	Pb	=	Lead

NOTIFICATION OF COMPLIANCE

Attachment A

Comprehensive Performance Test Report

Revision 0

Pursuant to

NESHAP: Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (40 CFR 63 Subpart EEE, Phase II)

Prepared by

Alliance Source Testing, LLC
214 Central Circle SW
Decatur, Alabama 35603

For

FutureFuel Chemical Company
Batesville, Arkansas

September 01, 2010

Comprehensive Performance Test Report

Test Date(s) June 2-4, 2010

Test Location FutureFuel Chemical Company
2800 Gap Road
Batesville, AR 72501

Source(s) Tested Boiler No. 3

Project Number 2010-0071

Report Prepared by Alliance Source Testing, LLC
214 Central Circle SW
Decatur, Alabama 35603

Report Submittal Date August 26, 2010

Certification Statement

Alliance Source Testing, LLC (AST) of Decatur, AL has completed the source testing as described in this report. Results apply only to the source(s) tested and operating condition(s) for the specific test date(s) and time(s) identified within this report. All results are intended to be considered in their entirety, and AST is not responsible for use of less than the complete test report without written consent.

To the best of my knowledge and abilities, all information, facts and test data are correct. Data presented in this report has been checked for completeness and is accurate, error-free and legible. Onsite testing was conducted in accordance with approved internal Standard Operating Procedures. Any deviations or problems are detailed in the relevant sections on the test report.

Jeremy Hutchens, QSTI
Project Manager
Alliance Source Testing, LLC

August 26, 2010
Date

This document was prepared in portable document format (.pdf) and contains pages as identified in the bottom footer of this document.

Questions or comments regarding this report should be directed to the persons identified below.

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APPENDICES

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Introduction

1.0 Introduction

Alliance Source Testing (AST) was retained by FutureFuel Chemical Company (FFCC) to conduct emissions testing in support of a Comprehensive Performance Test (CPT) at the Batesville, Arkansas facility. FutureFuel owns and operates an organic chemical manufacturing plant and is subject to provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors as detailed in 40 CFR 63, Subpart EEE – Hazardous Waste Combustor Maximum Achievable Control Technology (MACT). As part of plant operations, FFCC generates wastes regulated under the Resource Conservation and Recovery Act (RCRA) and either destroys the waste in a MACT compliance incinerator or burns the waste for energy recovery in three (3) coal-fired boilers. FFCC operates under Arkansas Department of Environmental Quality (ADEQ) Permits as identified below

- Title V Operating Permit – 1085-AOP-R8 and
- Waste Permit No. 11H-RN1-M005.

A CPT Plan and Quality Assurance Project Plan (QAPP) were prepared by Rick Management & Engineering, LTD (RME) of Garland TX and initially submitted on April 11, 2008. This test program was conducted in accordance with the original CPT Plan and QAPP except when these submittals were superseded by additional correspondence with the U.S. EPA and ADEQ. A full and complete description of the process and control equipment in operation at FFCC was provided in the CPT Plan previously submitted.

Emissions testing was conducted on the exhaust stack from Boiler No. 3. The testing program was conducted under two (2) conditions:

- Condition 1 – Minimum Temperature Test and
- Condition 2 – Minimum Residence Time Test.

The Condition 1 operating conditions were designed to demonstrate the worst case conditions for destruction of the principal organic hazardous constituent (POHC) by testing the boiler's performance under minimum combustion chamber temperatures. Condition 2 was designed to establish permit conditions for minimum residence time which occurs at maximum feed and flue gas flow rates. Air emissions tested by AST during each test condition are identified below:

- Condition 1 – chlorobenzene and
- Condition 2 – chlorobenzene, particulate matter, arsenic, beryllium, cadmium, chromium, lead and mercury.

Results of the air emissions testing are provided in summary tables in Section 2.0 while the laboratory analysis and relevant quality assurance and quality control (QA/QC) criteria are provided in Appendix C – Laboratory Data. Laboratory analysis of the coal feed samples and liquid waste samples collected by FFCC personnel and analyzed during this test program are also provided in Appendix C along with the relevant QA/QC criteria.

1.1 Project Team

Personnel involved in this project are identified in the following table.

Table 1-2
Project Team

AST Personnel	FFCC & Subcontract Personnel	Regulatory Personnel
Jeremy Hutchens – Project Manager Brandy Hughes – Report Coordinator Ryan O'Dea – Onsite Team Leader Davis Fite – Technician Dave Biewer – Technician Christa Moore – Technician	Thomas Floyd – CPT Manager Johnny Johnson - EA Specialist - Metals Spiking Philip Antici - Chemical Engineer - Engineering Support Marshel Bray - Env Process Assistant - Process Sampling Mike Gillihan - Process Assistant - CPT Support Eddie Brown - Boiler Supervisor - CPT Support Eddie Bradley - Boiler Operator - CPT Support Mark Hatfield - EA Specialist - CPT Support Everett Shands - EA Specialist - CPT Support Mike Collins - EA Technologist - Agency Escort	ADEQ – Larissa Brown U.S. EPA – Harry Shah
	David A. Weeks (RME) - QA/QC and CPT Support	

Summary of Results

2.0 Summary of Results

AST conducted emissions testing in support of a CPT at the FFCC facility in Batesville, AR. Testing was conducted on June 2-4, 2010. Tables 2-1 and 2-2 provide a summary of the emission testing results. Any difference between the summary results listed in the following tables and the detailed results contained in Appendix B is due to rounding for presentation.

Table 2-1
Summary of Testing Results – Condition No. 1

Parameter	Run 1	Run 2	Run 3	Average
Test Date	**6/2/10**	**6/2/10**	**6/2/10**	**--**
Chlorobenzene Data				
Concentration, ug/dscm	7.8	6.3	7.7	7.3
Concentration, ppm	1.7E-03	1.4E-03	1.6E-03	1.6E-03
Emission Rate, lb/hr	5.7E-04	4.7E-04	5.6E-04	5.3E-04

Table 2-2
Summary of Testing Results – Condition No. 2

Parameter	Run 1	Run 2	Run 3	Average
Test Date	**6/3/10**	**6/3/10**	**6/4/10**	**--**
Chlorobenzene Data				
Concentration, ug/dscm	9.5	7.8	8.6	8.6
Concentration, ppm	2.0E-03	1.7E-03	1.8E-03	1.8E-03
Emission Rate, lb/hr	7.9E-04	6.8E-04	7.0E-04	7.2E-04
Filterable PM Data				
Concentration, mg/dscm @ 7% O_2	18.3	30.2	30.1	26.2
Metals Data				
Arsenic Concentration, ug/dscm @ 7% O_2	19.2	20.4	16.6	18.7
Beryllium Concentration, ug/dscm @ 7% O_2	0.6	0.6	0.6	0.6
Cadmium Concentration, ug/dscm @ 7% O_2	1.0	1.3	2.5	1.6
Chromium Concentration, ug/dscm @ 7% O_2	59.8	91.6	142.6	98.0
Lead Concentration, ug/dscm @ 7% O_2	127.8	175.4	168.4	157.2
Mercury Concentration, ug/dscm @ 7% O_2	5.1	3.5	3.2	3.9

Testing Methodology

3.0 Testing Methodology

The emission testing program was conducted in accordance with the Test Methods listed in Table 3-1. Method descriptions are provided below while quality assurance/quality control (QA/QC) data is provided in Appendix D and a QA/QC Summary is provided in Section 4.0.

Table 3-1
Source Testing Methodology

Parameter	Test Methods	Notes/Remarks
Volumetric Flow Rate (VFR)	U.S. EPA Reference Test Methods 1 & 2	Full Velocity Traverses
Oxygen/Carbon Dioxide (O_2/CO_2)	U.S. EPA Reference Test Method 3/3A	Integrated Bag/Analyzer
Moisture Content (BWS)	U.S. EPA Reference Test Method 4	Volumetric / Gravimetric Analysis
Particulate Matter (PM)	U.S. EPA Reference Test Method 5	Isokinetic Sampling
Metals / Mercury (Hg)	U.S. EPA Reference Test Method 29	Isokinetic Sampling
Chlorobenzene (CB)	SW-846 Method 0030	4 tube sets / 1 condensate

3.1 U.S. EPA Reference Test Methods 1 & 2 – Volumetric Flow Rate

The sampling location and number of traverse (sampling) points were selected in accordance with U.S. EPA Reference Test Method 1. A full velocity traverse was conducted in accordance with U.S. EPA Reference Test Method 2 to determine the average stack gas velocity pressure, static pressure and temperature. The velocity and static pressure measurement system consisted of an S-type pitot tube and inclined manometer while the stack gas temperature was measured with a K-type thermocouple and pyrometer.

3.2 U.S. EPA Reference Test Method 3/3A – Oxygen/Carbon Dioxide

The oxygen and carbon dioxide concentrations were determined in accordance with U.S. EPA Reference Test Method 3/3A. One (1) integrated Tedlar bag sample was collected during each test run. The bag samples were analyzed on site with a California Analytical Instruments Model 200P O_2/CO_2 analyzer. The remaining stack gas constituent was assumed to be nitrogen for the stack gas molecular weight determination.

3.3 U.S. EPA Reference Test Method 4 – Moisture Content

The stack gas moisture content was determined in accordance with U.S. EPA Reference Test Method 4. The gas conditioning train consisted of a series of chilled impingers as further described in Section 3.4. The impinger contents were pre and post-measured to determine the amount of moisture condensed during each test run.

3.4 U.S. EPA Reference Test Methods 5 & 29 – Particulate Matter, Mercury & Metals

The particulate matter, mercury and metals testing was conducted in accordance with U.S. EPA Reference Test Methods 5 and 29. The complete sampling system consisted of a glass nozzle, heated glass-lined probe, pre-weighed glass-fiber filter, gas conditioning system, pump and calibrated dry gas meter. The gas conditioning train consisted of six (6) chilled impingers. The first and second impingers contained 100 milliliters (mL) of HNO_3/H_2O_2,

the third was initially empty, the fourth and fifth contained 100 mL of acidic $KMnO_4$, and the sixth contained approximately 200 grams of silica gel.

Pretest sample train cleaning procedures consisted of rinsing all glassware with hot tap water and then in hot soapy water. The glassware was then triple-rinsed with tap water, followed by three additional rinses with de-ionized (DI) water. Next the glassware was soaked in a 10% HNO_3 for a minimum of four (4) hours, rinsed three (3) times with DI water, a single acetone rinse and then air-dried. All glassware open-ends were covered with Teflon tape until the sample train was ready for onsite assembly.

Following the completion of each test run, the sample train was leak checked at a vacuum pressure equal to or greater than the highest vacuum pressure observed during the run. The alternative post-test calibration procedure outlined in Alternative Method 5 Post-Test Calibration (Y_{qa}) was used for the in-field post test calibration check.

The filter was placed into a labeled Petri dish (Container 1). The nozzle, probe liner and front-half of the filter holder were cleaned with a non-metallic probe brush and triple-rinsed with Acetone. These rinses were recovered in Container 2. The nozzle, probe liner and front-half of the filter holder were cleaned again with a non-metallic probe brush and triple-rinsed with 0.1 HNO_3. These rinses were recovered in Container 3. The contents of impingers 1 and 2 were placed in Container 4. Impingers 1 and 2 along with the filter support, back half of the filter holder and all connecting glassware were triple-rinsed with 0.1 N HNO_3. These rinses were recovered in Container 4. The contents of impinger 3 were placed in Container 5. Impinger 3 and all connecting glassware were triple-rinsed with HNO_3, and this rinse was added to Container 5. The contents of impingers 4 and 5 were placed in Container 6. The impingers and all connecting glassware were triple-rinsed with acidified $KMNO_4$ and then with DI water. These rinses were added to Container 6. If needed, impingers 4 and 5 were rinsed with 25 mL of 8N HCl. This rinse was added to 200 mL of DI water in Container 7. All samples were sealed, clearly labeled, stored on ice and shipped to Maxxam Analytics, Inc. in Mississauga, Ontario, Canada via a Maxxam courier.

3.5 SW-846 Method 0030 – Chlorobenzene

The chlorobenzene testing was conducted in accordance with U.S. EPA SW-846 Method 0030. The complete sampling system consisted of a heated glass-lined probe, glass wool packed probe tip, two (2) coil condensers, two (2) sorbent cartridges, a condensate flask, connecting glassware/Teflon tubing, dry gas meter and pump. The first sorbent cartridge contained Tenax GC resin, and the second cartridge was packed with Tenax GC resin in the front half and petroleum-based charcoal in the back half. The condensate flask was placed between cartridges 1 and 2, and a coil condenser was placed before each cartridge.

The heated sample probe was maintained above 130 ^{o}C and the gas stream was cooled to 20 ^{o}C prior to the first sorbent cartridge. Four (4) sets of cartridges were collected per test run. Approximately 20 liters of stack gas was sampled during a 40 minute sample period per set of cartridges. Three (3) sets of cartridges were analyzed while the fourth set served as a backup in the event of tube breakage, damage during shipment or damage due to laboratory handling. The sample train pretest leak check was performed from the probe tip. The posttest leak checks (following each tube set change) were conducted from the sample bypass valve located between the probe and the first condenser. Each time a leak check was performed, the vacuum was released by opening the bypass valve that was connected to a charcoal tube. The cartridges were sealed immediately after each post leak check, placed on ice,

transported to the mobile laboratory, labeled, sealed in glass tubes and stored on ice. The samples were shipped to Maxxam Analytics, Inc. in Mississauga, Ontario, Canada via a Maxxam courier. The samples were desorbed thermally to an analytical trap and analyzed by GC/MS according to the protocol detailed in Method 5041.

QA/QC Summary

4.0 Quality Assurance/Quality Control

All of the air samples were analyzed within the applicable holding time, and 100% completeness was achieved for all sampling parameters.

Trap sets 2 and 3 for each VOST test run were diluted by 20X due to high concentrations of non-target compounds. The detection limits were adjusted accordingly.

The audit sample chlorobenzene concentration for the first and second trap sets exceeded the calibration range. The reported results should be considered estimates. The third trap set of the audit sample was diluted by 10X, and the detection limit adjusted accordingly.

The back half metals (Impingers 1-3 Catch) was diluted by 20X for all test runs due to the sample matrix (extremely high sulfur levels). The front half metals (Filter + Rinses) sample was diluted by 5X for all test runs due to the sample matrix.

Table 4-1
QA/QC Summary Table – Stack Sampling

Parameter	QC Objective	Measurement	Objective Measured	Criteria
Pitot Tube	Calibration	Visual Inspection	0.84 Coefficient[d]	EPA Method 2 - Geometry
Barometer	Calibration	National Weather Service Station	Each Test Run[b]	Within 0.1 in. Hg
Stack Gas Thermocouple	Calibration	ASTM Reference Thermometer	0.3% - 0.7%[d]	Within 1.5%
O2/CO2 Analyzer	Calibration	EPA Protocol 1 Gas	Daily <2% of Span[d]	< 2% of Span
Probe Nozzle	Calibration	Digital Micrometer	0.000 – 0.001 in.[d]	Maximum 0.004 in. difference
Dry Gas Meter (Yqa)	Calibration	Calculated for Each Test Run	-0.1% - -4.5%[b]	± 5%
Dry Gas Meter Thermocouples	Calibration	ASTM Reference Thermometer	0.4%[d]	Within 1.5%
Chlorobenzene	Accuracy	Surrogate Recovery toluene-d8	81% - 110 %[c]	50% - 150%
	Precision	Surrogate Recovery toluene-d8	4% - 13%[e]	<35% RSD of Recovery
	Field Blank	Chlorobenzene	ND[c]	N/A
	Trip Blank	Chlorobenzene	Not Analyzed[d]	N/A
	Pre Leak Check	Sample Train	Pass[b]	<0.01 LPM @ 10 in. of H2O
	Post Leak Check	Sample Train	Pass[b]	<0.01 LPM @ Max Vacuum
Particulate Matter	Accuracy	Class S Weights	0.1 mg	0.5 mg
	Precision	Consecutive Weighings	<0.5 mg[c]	0.5 mg
	Blank	Particulate Matter	<0.5 mg[c]	N/A

Metals	Accuracy	Matrix Spike	95% - 106%[c]	70% - 130%
	Precision	MS/MSD	1% - 3%[c]	<25% RSD of Recovery
	Blank	As, Be, Cd, Cr, Pb	As (ND), Be (ND), Cd (ND), Cr (0.96 ug), Pb (1.90 ug)[c]	N/A
Mercury	Accuracy	Matrix Spike	93% - 103%[c]	70% - 130%
	Precision	MS/MSD	0.3 – 2.7 %[c]	<25% RPD of Recovery
	Blank	Mercury	ND[c]	N/A
M5/29 Sample Train	Post Leak Check	Sample Train	<0.02[b]	<0.02 CFM @ Max Vacuum
	Isokinetic	Calculated	96.8% – 99.3%[b]	90% - 110%

[b] Documentation attached in Appendix B
[c] Documentation attached in Appendix C
[d] Documentation attached in Appendix D
[e] Hand calculated from the lab report in Appendix C. RSD is calculated using the three surrogate recoveries for each test run.

All of the process samples were analyzed within the applicable holding time except for the VOC analysis. This analysis was performed after the 14 day holding time specified by the method. The condition 2, run 1 process waste field duplicate sample was not analyzed for metals or VOC.

Due to high concentrations of target VOC analytes, the process waste samples required dilution. Detection limits were adjusted accordingly.

Due to the sample matrix, the process waste samples required dilution for metals analysis. Detection limits were adjusted accordingly.

Table 4-2
QA/QC Summary Table – Solid and Liquid Feed/Process Waste Steams

Parameter	QC Objective	Measurement	Objective Measured	Criteria
Process Waste	Field Duplicate	Specific Gravity	0.8%[c]	5%
		Higher Heating Value	0.02%[c]	5%
		Metals	Matrix Spike = 102% - 108%[c]	80% - 120%
		Mercury	Below RDL[c]	25%
		Chlorine	0.0%[c]	20%
		Ash	50%[c]	N/A
		Volatile Organic Compounds	Spiked Blank = 108%[c]	70% - 130%
Coal	Field Duplicate	Higher Heating Value	0.3%[c]	5%
		Metals	7.1%[c]	25%
		Mercury	23%[c]	25%
		Chlorine	12%[c]	20%
		Ash	4.9%[c]	N/A

[c] Documentation attached in Appendix C

Appendix A

Example calculations are provided for Condition 2, Method 5/29, Run 1

Meter Pressure (Pm), in. Hg

$$Pm = Pb + \frac{\Delta H}{13.6}$$

where,
Pb = barometric pressure, in. Hg
ΔH = pressure differential of orifice in. H_2O

$$Pm = 29.43\ in.Hg + \frac{2.894\ in.H_2O}{13.6\ in.H_2O/in.Hg} = 29.64\ in.Hg$$

Absolute Stack Gas Pressure (Ps), in. Hg

$$Ps = Pb + \frac{Pg}{13.6}$$

where,
Pb = barometric pressure, in. Hg
Pg = static pressure, in. H_2O

$$Ps = 29.43\ in.Hg + \frac{-0.80\ in.H_2O}{13.6\ in.H_2O/in.Hg} = 29.37\ in.Hg$$

Standard Meter Volume (Vmstd), dscf

$$Vmstd = \frac{17.647 \times Y \times Vm \times Pm}{Tm}$$

where,
Y = meter correction factor
Vm = meter volume, cf
Pm = meter pressure, in. Hg
Tm = meter temperature, ^{o}R

$$Vmstd = \frac{17.647\,°R/in.Hg \times 0.999 \times 116.466\ cf \times 29.64\ in.Hg}{539.0\,°R} = 112.910\ dscf$$

Standard Wet Volume (Vwstd), scf

$$Vwstd = 0.04707 \times Vlc$$

where,
Vlc = volume of H_2O collected, ml

$$Vwstd = 0.04707\ ft^3/mL \times 253.4\,mL = 11.928\ scf$$

Measured Moisture Fraction (BWS_{msd}), dimensionless

$$BWS_{msd} = \frac{Vwstd}{(Vwstd + Vmstd)}$$

where,
Vwstd = standard wet volume, scf
Vmstd = standard meter volume, dscf

$$BWS_{msd} = \frac{11.928\ scf}{11.928\ scf + 112.910\ dscf} = 0.096$$

Moisture Fraction @ saturation (BWSsat), dimensionless

$$BWSsat = \frac{10^{6.37-\left(\frac{2827}{Ts+365}\right)}}{Ps}$$

where,
Ts = stack temperature, ^{o}F
Ps = absolute stack gas pressure, in. Hg

$$BWSsat = \frac{10^{6.37-\left(\frac{2827}{446.6\ F+365}\right)}}{29.37\ in.Hg} = 26.170$$

Moisture Fraction (BWS), dimensionless

$$BWS = BWsat < BWSmsd = BWSsat\ or\ \ BWsat > BWSmsd = BWSmsd$$

where,
BWS = moisture fraction (BWSmsd or BWSsat whichever is less), dimensionless

$$BWS = 26.170 > 0.096 = 0.096$$

Molecular Weight (DRY) (Md), lb/lb-mole

$$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28(100 - \%CO_2 - \%O_2))$$

where,
CO_2 = carbon dioxide concentration, %
O_2 = oxygen concentration, %

$$Md = (0.44 \times 10.3) + (0.32 \times 9.8) + (0.28(100 - 10.3 - 9.8)) = 30.04\ lb/lb\text{-}mole$$

Molecular Weight (WET) (Ms), lb/lb-mole

$$Ms = Md\ (1 - BWS) + 18\,(BWS)$$

where,

Md = molecular weight (DRY), lb/lb-mole
BWS = moisture fraction, dimensionless

$$Ms = 30.04\ \ lb/lb\text{-}mole\ (1 - 0.096) + 18\,(0.096) = \ 28.89\ lb/lb\text{-}mole$$

Average Velocity (Vs), ft/sec

$$Vs = 85.49 \times Cp \times \sqrt{\Delta P}\ avg. \times \sqrt{\frac{Ts}{Ps\ x\ Ms}}$$

where,

Cp = pitot tube coefficient
$(\Delta P)^{1/2}$ = velocity head of stack gas, (in. $H_2O)^{1/2}$
Ts = absolute stack temperature, ^oR
Ps = absolute stack gas pressure, in. Hg
Ms = molecular weight of stack gas, lb/lb-mole

$$Vs = 85.49\,\frac{ft}{sec}\sqrt{\frac{(lb/lb\text{-}mole)(in.Hg)}{(°R)(in.H_2O)}} \times 0.84 \times 1.233\sqrt{in.H_2O} \times \sqrt{\frac{906.6\,°R}{29.37\ in.Hg \times 28.89\ lb/lb\text{-}mole}} = 91.5\ \ ft/sec$$

Average Stack Gas Flow at Stack Conditions (Qa), acfm

$$Qa = 60 \times Vs \times As$$

where,

Vs = stack gas velocity, ft/sec
As = cross-sectional area of stack, ft^2

$$Qa = 60\ sec/min \times 91.5\ ft/sec \times 7.83\ ft^2 = 4.3E+04\ acfm$$

Average Stack Gas Flow at Standard Conditions (Qs), dscfm

$$Qs = 17.647 \times Qa \times (1 - BWS) \times \frac{Ps}{Ts}$$

where,

Qa = average stack gas flow at stack conditions, ft^3/min
BWS = moisture fraction, dimensionless
Ps = absolute stack gas pressure, in. Hg
Ts = absolute stack temperature, ^oR

$$Qs = 17.647\,\frac{°R}{in.Hg} \times 4.3E+04\ \frac{acf}{min} \times (1 - 0.096) \times \frac{29.37\ \ in.Hg}{906.6\,°R} = \ 2.2E+04\ \ dscfm$$

Filterable Particulate Emission Factor (C_{FPMc}), mg/dscm @ 7% O_2

$$C_{FPMc} = \frac{M_n \times 35.313}{Vmstd} \times \frac{20.9 - 7}{20.9 - O_2}$$

where,

M_{FPM} = particulate mass, mg
Vmstd = standard meter volume, dscf
O_2 = oxygen concentration, %

$$C_{FPMc} = \frac{46.9\ mg \times 35.313\ cf/cm}{112.910\ dscf} \times \frac{20.9 - 7}{20.9 - 9.8} = 18.3\ \ mg/dscm @ 7\%\ O_2$$

Arsenic Emission Factor (C_{Asc}), ug/dscm @ 7% O_2

$$C_{Asc} = \frac{M_{As} \times 35.313}{Vmstd} \times \frac{20.9 - 7}{20.9 - O_2}$$

where,

M_{As} = arsenic mass, ug
Vmstd = standard meter volume, dscf
O_2 = oxygen concentration, %

$$C_{Asc} = \frac{49.10\ ug \times 35.313\ cf/cm}{112.910\ dscf} \times \frac{20.9 - 7}{20.9 - 9.8} = 19.2\ \ ug/dscm\ @\ 7\%\ O_2$$

Example calculations are provided for Condition 2, SW-846 Method 0030, Run 1, Trap 13

Chlorobenzene Concentration (C_{CB}), ug/dscm

$$C_{CB} = \frac{M_{CB}}{Vmstd \times 1.0E\text{-}03}$$

where,

M_{CB} = chlorobenzene mass, ug
Vmstd = standard meter volume, dsL

$$C_{CB} = \frac{0.05\ ug}{19.630\ dsL \times 1.0E-03\ cm/L} = \ \ 2.6\ ug/dscm$$

Chlorobenzene Concentration (C_{CB}), ppmvd

$$C_{CB} = \frac{M_{CB} \times 24.04}{MW \times Vmstd}$$

where,

M_{CB} = chlorobenzene mass, ug
MW = molecular weight of chlorobenzene, 112.56 g/g·mole
Vmstd = standard meter volume, dsL

$$C_{CB} = \frac{0.05\ ug \times 24.04\ L/g \cdot mol}{112.56\ g/g \cdot mol \times 19.630\ dsL} = 5.4E-04\ ppm$$

Example calculations are provided for Condition 2, SW-846 Method 0030, Run 1

Total Chlorobenzene Concentration (TC_{CB}), ppmvd

$$TC_{CB} = \frac{C_{T13} + C_{T14} + C_{T15}}{3} + C_{Cond}$$

where,

$C_{T13,\ T14,\ T15}$ = chlorobenzene concentration per tube, ppmvd
C_{Cond} = chlorobenzene concentration in condensate, ppmvd

$$TC_{CB} = \frac{5.4E-04\ ppmvd + 3.3E-03\ ppmvd + 2.2E-03\ ppmvd}{3} + 2.2E-05\ ppmvd = 2.0E-03\ ppmvd$$

Chlorobenzene Emission Rate (ER_{CB}), lbs/hr

$$ER_{CB} = \frac{TC_{CB} \times MW \times Qs \times 60 \times 28.32}{24.04 \times 1.0E+06 \times 4.54}$$

where,

TC_{CB} = total chlorobenzene concentration, ppmvd (uL/L)
Vmstd = standard meter volume, dsL
Qs = stack gas flow rate at standard conditions, dscfm

$$ER_{CB} = \frac{2.0E-03\ uL/L \times 112.56\ g/g \cdot mol \times 2.2E+04\ dscfm \times 60\ \text{min}/hr \times 28.32\ L/cf}{24.04\ L/g \cdot mol \times 1.0E+06\ uL/L \times 454\ g/lb} = 7.9E-04\ lbs/hr$$

Appendix B

Appendix B – Table of Contents

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Condition 1

Alliance SOURCE TESTING

Emisson Calculations

Location:
FutureFuel Chemical Company

Source: **Boiler 3 - Condition 1 - Run 1**
Project No.: **10-0071**

Trap Set Number	8	7	6	5	Condensate	Run Totals
Date	6/2/10	6/2/10	6/2/10	6/2/10	6/2/10	-
Start Time	8:00 AM	8:57 AM	9:58 AM	10:47 AM	8:00 AM	-
Stop Time	8:40 AM	9:37 AM	10:38 AM	11:27 AM	11:27 AM	-
Input Data						
Volumetric Flow Rate, dscfm	--	--	--	--	--	19,728
O2 Concentration, % dry	--	--	--	--	--	12.1
Standard Meter Volume, dsL	24.891	23.989	24.147	24.133	97.161	--
Chlorobenzene, ug	0.16	*0.2*	*0.2*	N/A	*0.008*	--
Calculated Data						
Chlorobenzene Concentration, ug/dscm	6.43	8.34	8.28	--	0.08	7.76
Chlorobenzene Concentration, ppm	1.4E-03	1.8E-03	1.8E-03	--	1.8E-05	1.7E-03
Chlorobenzene Emision Rate, lbs/hr	--	--	--	--	--	5.7E-04

Notes: *Data Inputs in Italics = Results < RDL; DL Used for Concentration/Emission Rate Calculations*

Alliance SOURCE TESTING

Emisson Calculations

Location:
FutureFuel Chemical Company

Source: **Boiler 3 - Condition 1 - Run 2**
Project No.: **10-0071**

Trap Set Number	1	2	3	4	Condensate	Run Totals
Date	6/2/10	6/2/10	6/2/10	6/2/10	6/2/10	-
Start Time	12:00 PM	12:47 PM	1:33 PM	2:19 PM	12:00 PM	-
Stop Time	12:40 PM	1:27 PM	2:13 PM	2:59 PM	2:59 PM	-
Input Data						
Volumetric Flow Rate, dscfm	--	--	--	--	--	19,786
O2 Concentration, % dry	--	--	--	--	--	12.2
Standard Meter Volume, dsL	24.140	24.065	23.911	23.908	96.023	--
Chlorobenzene, ug	0.05	*0.2*	*0.2*	N/A	*0.008*	--
Calculated Data						
Chlorobenzene Concentration, ug/dscm	2.07	8.31	8.36	--	0.08	6.33
Chlorobenzene Concentration, ppm	4.4E-04	1.8E-03	1.8E-03	--	1.8E-05	1.4E-03
Chlorobenzene Emision Rate, lbs/hr	--	--	--	--	--	4.7E-04

Notes: *Data Inputs in Italics = Results < RDL: DL Used for Concentration/Emission Rate Calculations*

Alliance SOURCE TESTING

Emisson Calculations

Location:
FutureFuel Chemical Company

Source: Boiler 3 - Condition 1 - Run 3
Project No.: 10-0071

Trap Set Number	9	10	11	12	Condensate	Run Totals
Date	6/2/10	6/2/10	6/2/10	6/2/10	6/2/10	-
Start Time	3:35 PM	4:22 PM	5:12 PM	5:59 PM	3:35 PM	-
Stop Time	4:15 PM	5:02 PM	5:52 PM	6:39 PM	6:39 PM	-
Input Data						
Volumetric Flow Rate, dscfm	--	--	--	--	--	19,575
O2 Concentration, % dry	--	--	--	--	--	12.3
Standard Meter Volume, dsL	19.915	19.786	19.693	19.751	79.145	--
Chlorobenzene, ug	0.05	*0.2*	*0.2*	N/A	*0.008*	--
Calculated Data						
Chlorobenzene Concentration, ug/dscm	2.51	10.11	10.16	--	0.10	7.69
Chlorobenzene Concentration, ppm	5.4E-04	2.2E-03	2.2E-03	--	2.2E-05	1.6E-03
Chlorobenzene Emision Rate, lbs/hr	--	--	--	--	--	5.6E-04

Notes: *Data Inputs in Italics = Results < RDL. DL Used for Concentration/Emission Rate Calculations*

Alliance SOURCE TESTING

Low-Flow DGM Data

Location: FutureFuel Chemical Company

Source: Boiler 3 - Condition 1 - Run 1
Project No.: 10-0071

Meter Correction Factor (Y): 1.219 Meter ID: 1576

Trap Set No.	8			7			6			5		
Date	6/2/10			6/2/10			6/2/10			6/2/10		
Start Time	8:00 AM			8:57 AM			9:58 AM			10:47 AM		
End Time	8:40 AM			9:37 AM			10:38 AM			11:27 AM		
Run Time (θ), min	40			40			40			40		
Max Vacuum, in. Hg	7.0			9.0			11.0			12.0		
Pre Leak Check, L (at > 10 in WC)	0.00			0.00			0.00			0.00		
Post Leak Check, L (at max vac.)	0.00			0.00			0.00			0.00		
Meter Volume, L	Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM		
Time	0.5			0.5			0.5			0.5		
0	2433.88			2454.65			2475.02			2495.31		
5	2436.51			2457.40			2477.45			2497.82		
10	2439.12			2459.95			2480.21			2499.98		
15	2441.69			2462.53			2482.74			2502.43		
20	2444.45			2464.85			2485.17			2505.28		
25	2447.00			2467.39			2487.53			2508.12		
30	2449.65			2469.79			2490.01			2510.49		
35	2452.11			2472.21			2492.56			2512.76		
40	2454.51			2474.70			2495.11			2515.43		
Total Meter Volume (Vm), L	20.64			20.05			20.09			20.12		
Temperatures, °F												
Time	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap
0	61.0	270.0	54.0	73.0	267.0	52.0	72.0	268.0	51.0	74.0	268.0	52.0
5	70.0	268.0	53.0	74.0	268.0	54.0	73.0	268.0	51.0	75.0	267.0	53.0
10	73.0	267.0	55.0	75.0	268.0	53.0	72.0	268.0	52.0	75.0	269.0	52.0
15	73.0	267.0	54.0	75.0	269.0	54.0	73.0	268.0	53.0	75.0	269.0	53.0
20	73.0	267.0	53.0	76.0	268.0	55.0	74.0	268.0	54.0	75.0	268.0	53.0
25	74.0	267.0	52.0	77.0	268.0	54.0	75.0	269.0	54.0	75.0	269.0	52.0
30	74.0	267.0	53.0	77.0	268.0	52.0	75.0	268.0	53.0	75.0	268.0	52.0
35	74.0	267.0	53.0	79.0	269.0	52.0	75.0	269.0	54.0	75.0	269.0	52.0
40	75.0	267.0	54.0	80.0	268.0	53.0	75.0	269.0	52.0	75.0	268.0	54.0
Average Meter Temperature (Tm), °F	71.9			76.2			73.8			74.9		
Average Meter Temperature (Tm), °R	531.9			536.2			533.8			534.9		
Barometeric Pressure (Pb), in. Hg	29.79			29.79			29.79			29.79		
Meter Orifice Pressure (ΔH), in. WC	0.500			0.500			0.500			0.500		
Meter Pressure (Pm), in. Hg	29.83			29.83			29.83			29.83		
Standard Meter Volume (Vmstd), dsL	24.891			23.989			24.147			24.133		

Jeremy Hutchens
QA/QC Reviewer

DE: DF
TL: RPO

V2010.0

Alliance SOURCE TESTING

Low-Flow DGM Data

Location: FutureFuel Chemical Company

Source: Boiler 3 - Condition 1 - Run 2

Project No.: 10-0071

Meter Correction Factor (Y): 1.219

Meter ID: 1576

Trap Set No.	1			2			3			4		
Date	6/2/10			6/2/10			6/2/10			6/2/10		
Start Time	12:00 PM			12:47 PM			1:33 PM			2:19 PM		
End Time	12:40 PM			1:27 PM			2:13 PM			2:59 PM		
Run Time (θ), min	40			40			40			40		
Max Vacuum, in. Hg	8.0			10.0			12.0			14.0		
Pre Leak Check, L (at > 10 in WC)	0.0			0.0			0.0			0.0		
Post Leak Check, L (at max vac.)	0.000			0.000			0.000			0.000		
Meter Volume, L	Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM		
Time	0.5			0.5			0.5			0.5		
0	2515.80			2536.59			2557.34			2577.67		
5	2518.14			2539.53			2560.03			2580.20		
10	2520.76			2542.04			2562.37			2582.74		
15	2523.46			2544.12			2564.50			2585.40		
20	2525.53			2546.38			2567.42			2588.11		
25	2528.17			2549.16			2569.87			2590.80		
30	2531.11			2551.73			2572.16			2593.08		
35	2533.91			2554.52			2574.52			2595.51		
40	2535.93			2556.74			2577.49			2597.83		
Total Meter Volume (Vm), L	20.13			20.15			20.15			20.16		
Temperatures, °F												
Time	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap
0	73.0	268.0	53.0	76.0	268.0	55.0	79.0	271.0	56.0	80.0	267.0	53.0
5	73.0	268.0	52.0	76.0	269.0	55.0	79.0	268.0	53.0	80.0	268.0	52.0
10	74.0	269.0	51.0	76.0	269.0	53.0	80.0	270.0	53.0	80.0	269.0	51.0
15	75.0	268.0	53.0	77.0	268.0	53.0	80.0	271.0	54.0	81.0	270.0	51.0
20	75.0	268.0	52.0	77.0	269.0	52.0	81.0	269.0	53.0	81.0	268.0	53.0
25	76.0	269.0	51.0	78.0	270.0	51.0	81.0	268.0	54.0	81.0	271.0	54.0
30	76.0	268.0	51.0	78.0	269.0	51.0	82.0	268.0	55.0	82.0	271.0	53.0
35	76.0	268.0	52.0	78.0	269.0	51.0	82.0	269.0	56.0	82.0	269.0	53.0
40	77.0	268.0	52.0	79.0	270.0	52.0	82.0	267.0	54.0	82.0	270.0	54.0
Average Meter Temperature (Tm), °F	75.0			77.2			80.7			81.0		
Average Meter Temperature (Tm), °R	535.0			537.2			540.7			541.0		
Barometeric Pressure (Pb), in. Hg	29.79			29.79			29.79			29.79		
Meter Orifice Pressure (ΔH), in. WC	0.500			0.500			0.500			0.500		
Meter Pressure (Pm), in. Hg	29.83			29.83			29.83			29.83		
Standard Meter Volume (Vmstd), dsL	24.140			24.065			23.911			23.908		

Jeremy Hutchens
QA/QC Reviewer

DE: DF
TL: RPO

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Alliance SOURCE TESTING

Low-Flow DGM Data

Location: FutureFuel Chemical Company

Source: Boiler 3 - Condition 1 - Run 3
Project No.: 10-0071

Meter Correction Factor (Y): 1.010 Meter ID: 080903-B

Trap Set No.	9			10			11			12		
Date	6/2/10			6/2/10			6/2/10			6/2/10		
Start Time	3:35 PM			4:22 PM			5:12 PM			5:59 PM		
End Time	4:15 PM			5:02 PM			5:52 PM			6:39 PM		
Run Time (θ), min	40			40			40			40		
Max Vacuum, in. Hg	6.0			10.0			12.0			12.0		
Pre Leak Check, L (at > 10 in WC)	0.00			0.00			0.00			0.00		
Post Leak Check, L (at max vac.)	0.00			0.00			0.00			0.00		
Meter Volume, L	Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM		
Time	0.5			0.5			0.5			0.5		
0	0.00			0.00			0.00			0.00		
5	2.57			2.41			2.34			2.62		
10	5.08			5.09			4.76			4.92		
15	7.42			7.39			7.43			7.49		
20	9.99			9.78			9.94			10.01		
25	12.43			12.34			12.45			12.68		
30	15.11			14.76			15.07			14.83		
35	17.62			17.73			17.55			17.38		
40	20.11			20.14			20.09			20.12		
Total Meter Volume (Vm), L	20.11			20.14			20.09			20.12		
Temperatures, °F												
Time	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap
0	78.0	272.0	55.0	80.0	270.0	53.0	84.0	270.0	54.0	85.0	268.0	55.0
5	79.0	271.0	56.0	82.0	270.0	53.0	84.0	271.0	54.0	85.0	269.0	55.0
10	80.0	271.0	57.0	83.0	271.0	54.0	85.0	272.0	54.0	85.0	270.0	50.0
15	80.0	272.0	62.0	84.0	269.0	55.0	86.0	271.0	55.0	85.0	270.0	50.0
20	80.0	267.0	62.0	85.0	269.0	56.0	86.0	269.0	56.0	85.0	271.0	51.0
25	80.0	269.0	63.0	85.0	268.0	55.0	86.0	269.0	56.0	85.0	270.0	51.0
30	80.0	270.0	62.0	86.0	270.0	52.0	86.0	270.0	56.0	84.0	269.0	52.0
35	81.0	271.0	61.0	86.0	270.0	52.0	86.0	271.0	56.0	84.0	268.0	52.0
40	81.0	271.0	61.0	87.0	271.0	53.0	86.0	271.0	56.0	84.0	269.0	52.0
Average Meter Temperature (Tm), °F	79.9			84.2			85.4			84.7		
Average Meter Temperature (Tm), °R	539.9			544.2			545.4			544.7		
Barometeric Pressure (Pb), in. Hg	29.97			29.97			29.97			29.97		
Meter Orifice Pressure (ΔH), in. WC	0.500			0.500			0.500			0.500		
Meter Pressure (Pm), in. Hg	30.01			30.01			30.01			30.01		
Standard Meter Volume (Vmstd), dsL	19.915			19.786			19.693			19.751		

Jeremy Hutchens
QA/QC Reviewer

DE: DF
TL: RPO

V2010.0

Alliance SOURCE TESTING

Method 1 Data

Location: FutureFuel Chemical Company
Date: 06/01/10

Source: Boiler 3 Stack - Condition 1
Project No.: 2010-0071

Distance from far wall to outside of port: 26.50 in.
Nipple length: 3.50 in.
Depth of Duct (Ds): 23.00 in.
Width of Duct (Ws): 49.00 in.
Cross Sectional Area of Duct (As): 7.83 ft^2
No. of ports: 5

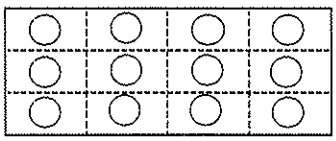
Distance A: 8.5 ft. 3.3 Duct Diameters
Distance B: 9.8 ft. 3.8 Duct Diameters
Equivalent Diameter: 31.3
Number of traverse points total: 25

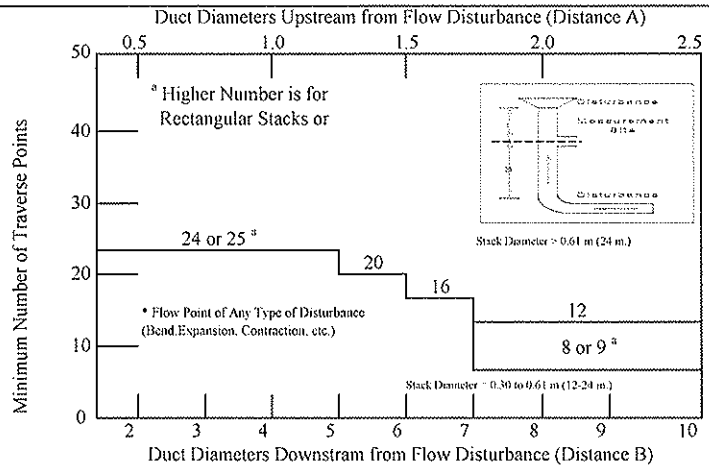
LOCATION OF TRAVERSE POINTS RECTANGULAR STACKS

Traverse point Number on a Diameter	Number of traverse ports on a diameter										
	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5
3	--	63.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	31.8	20.8
4	--	--	87.5	70.0	58.3	50.0	43.8	38.9	35.0	22.7	29.2
5	--	--	--	90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6	--	--	--	--	91.7	78.6	68.8	61.1	55.0	50.0	45.8
7	--	--	--	--	--	92.9	81.3	72.2	65.0	59.1	54.2
8	--	--	--	--	--	--	93.8	83.3	75.0	68.2	62.5
9	--	--	--	--	--	--	--	94.4	85.0	77.3	70.8
10	--	--	--	--	--	--	--	--	95.0	86.4	79.2
11	--	--	--	--	--	--	--	--	--	95.5	87.5
12	--	--	--	--	--	--	--	--	--	--	95.8

*Percent of stack diameter from inside wall to traverse point.

EXAMPLE RECTANGULAR STACK CROSS SECTION DIVIDED INTO 12 EQUAL AREAS, WITH TRAVERSE AT CENTROID





Traverse Point	% of Diameter	Distance from inside wall	Distance from outside of port
1	10.0	2.30	5.80
2	30.0	6.90	10.40
3	50.0	11.50	15.00
4	70.0	16.10	19.60
5	90.0	20.70	24.20
6	--	--	--
7	--	--	--
8	--	--	--
9	--	--	--
10	--	--	--
11	--	--	--
12	--	--	--

NOTES

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

V2010.0

Alliance SOURCE TESTING

Method 2 Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - Condition 1

Project No.: 2010-0071

Run No.	1		2		3		
Date:	6/2/10		6/2/10		6/2/10		
Start Time	8:33 AM		9:32 AM		10:50 AM		
Stop Time	8:43 AM		9:41 AM		10:57 AM		
Leak Check	Pass		Pass		Pass		
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.35	387	0.37	394	0.41	398	
2	0.42	392	0.41	395	0.43	399	
3	0.56	394	0.53	397	0.47	399	
4	0.53	395	0.54	397	0.67	400	
5	0.59	387	0.57	397	0.64	393	
B1	0.35	393	0.69	397	0.71	386	
2	0.74	395	0.81	398	0.72	396	
3	0.88	398	0.89	400	0.92	402	
4	1.05	398	1.04	399	1.30	403	
5	1.15	398	1.03	400	1.50	398	
C1	0.95	398	1.30	398	1.70	402	
2	1.38	398	1.22	400	1.68	405	
3	1.30	399	1.22	401	1.54	406	
4	1.18	400	1.15	400	1.64	406	
5	1.12	397	1.12	400	1.60	406	
D1	1.48	398	1.40	396	1.71	403	
2	1.53	398	1.46	398	1.70	403	
3	1.51	398	1.45	399	1.80	405	
4	1.38	398	1.38	399	1.91	406	
5	1.30	398	1.29	399	1.89	404	
E1	1.62	402	1.52	398	1.68	403	
2	1.59	402	1.61	400	1.59	405	
3	1.50	402	1.53	400	1.69	406	
4	1.38	402	1.34	400	1.39	406	
5	1.37	401	1.37	398	1.41	406	
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	1.020		1.025		1.117		1.054
Average ΔP, in. WC	1.09		1.09		1.31		1.16
Static Pressure (Pg), in. WC	-0.78		-0.72		-0.75		-0.75
Stack Pressure (Ps), in. Hg	29.73		29.74		29.73		29.73
Average Temperature (Ts), °F	397.1		398.4		401.8		399.1
Average Temperature (Ts), °R	857.1		858.4		861.8		859.1
Moisture Fraction (BWS)	0.095		0.095		0.095		0.095
CO2 Concentration, %	8.2		8.2		8.2		8.2
O2 Concentration, %	12.1		12.1		12.1		12.1
Molecular Weight (Md), lb/lb-mole (dry)	29.80		29.80		29.80		29.80
Molecular Weight (Ms), lb/lb-mole (wet)	28.68		28.68		28.68		28.68
Velocity (Vs), ft/sec	73.5		73.9		80.7		76.0
VFR at stack conditions (Qa), acfm	34,494		34,682		37,882		35,686
VFR at standard conditions (Qsw), scfh	1,266,946		1,272,142		1,383,853		1,307,647
VFR at standard conditions (Qsw), scfm	21,116		21,202		23,064		21,794
VFR at standard conditions (Qsd), dscfm	19,114		19,193		20,878		19,728

Pitot Tube ID#: PT-301-A

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.79 in. Hg

Ryan O'Dea

QA/QC Reviewer

DE: DF

TL: JDH

Alliance SOURCE TESTING

Method 2 Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - Condition 1

Project No.: 2010-0071

Run No.	1		2		3	
Date:	6/2/10		6/2/10		6/2/10	
Start Time	12:25 PM		1:10 PM		2:20 PM	
Stop Time	12:35 PM		1:20 PM		2:30 PM	
Leak Check	Pass		Pass		Pass	
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)
A1	0.36	393	0.23	390	0.29	397
2	0.44	394	0.21	395	0.39	399
3	0.40	398	0.40	399	0.36	398
4	0.55	400	0.48	401	0.50	400
5	0.45	400	0.31	394	0.45	401
B1	0.61	397	0.64	397	0.60	400
2	0.82	397	0.90	402	0.84	401
3	1.00	402	1.01	405	1.07	403
4	1.34	398	1.28	406	1.28	404
5	1.40	399	1.34	397	1.27	402
C1	1.81	393	1.49	404	1.38	401
2	1.41	398	1.48	405	1.27	403
3	1.41	400	1.61	406	1.33	404
4	0.93	403	2.05	407	0.89	404
5	1.83	400	2.25	400	1.21	403
D1	1.66	401	1.71	4402	1.60	403
2	1.53	406	1.68	406	1.57	401
3	1.47	400	1.80	409	1.54	404
4	1.45	405	1.91	408	1.52	404
5	1.48	400	1.93	409	1.57	401
E1	1.87	401	1.90	403	1.77	405
2	1.77	406	1.94	408	1.74	405
3	1.80	400	1.81	409	1.57	405
4	1.81	405	1.98	409	1.63	405
5	1.75	404	1.98	410	1.68	402

Pitot Tube ID#: PT-301-A

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.79 in. Hg

				Average
Square Root of ΔP, (in. WC)$^{1/2}$	1.090	1.126	1.054	1.090
Average ΔP, in. WC	1.25	1.37	1.17	1.27
Static Pressure (Pg), in. WC	-0.77	-0.75	-0.75	-0.76
Stack Pressure (Ps), in. Hg	29.73	29.73	29.73	29.73
Average Temperature (Ts), °F	400.0	563.2	402.2	455.1
Average Temperature (Ts), °R	860.0	1023.2	862.2	915.1
Moisture Fraction (BWS)	0.096	0.096	0.096	0.096
CO2 Concentration, %	8.0	8.0	8.0	8.0
O2 Concentration, %	12.2	12.2	12.2	12.2
Molecular Weight (Md), lb/lb-mole (dry)	29.77	29.77	29.77	29.77
Molecular Weight (Ms), lb/lb-mole (wet)	28.64	28.64	28.64	28.64
Velocity (Vs), ft/sec	78.6	88.6	76.1	81.1
VFR at stack conditions (Qa), acfm	36,921	41,615	35,751	38,096
VFR at standard conditions (Qsw), scfh	1,351,574	1,280,452	1,305,480	1,312,502
VFR at standard conditions (Qsw), scfm	22,526	21,341	21,758	21,875
VFR at standard conditions (Qsd), dscfm	20,375	19,303	19,680	19,786

Ryan O'Dea

QA/QC Reviewer

DE: DF

TL: JDH

Alliance SOURCE TESTING

Method 2 Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - Condition 1

Project No.: 2010-0071

Pitot Tube ID#: PT-301-A

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.79 in. Hg

Run No.	1		2		3		
Date:	6/2/10		6/2/10		6/2/10		
Start Time	3:55 PM		5:15 PM		6:15 PM		
Stop Time	4:05 PM		5:25 PM		6:25 PM		
Leak Check	Pass		Pass		Pass		
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.22	381	0.21	401	0.22	397	
2	0.23	390	0.26	401	0.24	400	
3	0.33	393	0.39	402	0.35	401	
4	0.39	398	0.57	402	0.43	403	
5	0.40	397	0.65	402	0.51	405	
B1	0.71	398	0.41	405	0.48	403	
2	0.74	398	0.69	405	0.70	402	
3	0.99	401	0.97	401	0.95	403	
4	1.10	401	1.25	402	1.18	404	
5	1.22	401	1.28	403	1.26	401	
C1	1.22	402	1.16	404	1.25	400	
2	1.41	402	1.29	403	1.39	401	
3	1.34	403	1.31	403	1.30	403	
4	1.05	404	1.20	404	1.11	403	
5	1.04	402	1.11	405	1.08	404	
D1	1.60	402	1.71	404	1.73	399	
2	1.69	403	1.67	405	1.71	402	
3	1.52	403	1.59	405	1.56	403	
4	1.50	402	1.55	404	1.54	404	
5	1.51	402	1.50	404	1.47	405	
E1	1.79	402	1.82	403	1.72	398	
2	1.73	403	1.90	404	1.80	399	
3	1.74	403	1.88	404	1.91	401	
4	1.71	404	1.70	405	1.70	402	
5	1.72	404	1.72	405	1.65	402	
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	1.039		1.056		1.044		1.047
Average ΔP, in. WC	1.16		1.19		1.17		1.17
Static Pressure (Pg), in. WC	-0.76		-0.74		-0.74		-0.75
Stack Pressure (Ps), in. Hg	29.73		29.74		29.74		29.74
Average Temperature (Ts), °F	400.0		403.4		401.8		401.7
Average Temperature (Ts), °R	860.0		863.4		861.8		861.7
Moisture Fraction (BWS)	0.094		0.094		0.094		0.094
CO2 Concentration, %	7.9		7.9		7.9		7.9
O2 Concentration, %	12.3		12.3		12.3		12.3
Molecular Weight (Md), lb/lb-mole (dry)	29.76		29.76		29.76		29.76
Molecular Weight (Ms), lb/lb-mole (wet)	28.65		28.65		28.65		28.65
Velocity (Vs), ft/sec	74.9		76.4		75.4		75.6
VFR at stack conditions (Qa), acfm	35,195		35,865		35,427		35,496
VFR at standard conditions (Qsw), scfh	1,288,480		1,307,801		1,294,281		1,296,854
VFR at standard conditions (Qsw), scfm	21,475		21,797		21,571		21,614
VFR at standard conditions (Qsd), dscfm	19,449		19,741		19,537		19,575

Ryan O'Dea

QA/QC Reviewer

DE: DF

TL: JDH

Alliance SOURCE TESTING

Method 3 Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - Condition 1

Project No.: 2010-0071

Run 1	Date: 6/2/10		
Analysis Number	**% CO_2**	**% O_2**	**% N_2**
1	8.2	12.1	79.7
2	8.2	12.1	79.7
3	8.2	12.1	79.7
Average	8.2	12.1	79.7
Repeatability:	Pass	Pass	NA

Run 2	Date: 6/2/10		
Analysis Number	**% CO_2**	**% O_2**	**% N_2**
1	8.0	12.2	79.8
2	8.0	12.2	79.8
3	8.0	12.2	79.8
Average	8.0	12.2	79.8
Repeatability:	Pass	Pass	NA

Run 3	Date: 6/2/10		
Analysis Number	**% CO_2**	**% O_2**	**% N_2**
1	7.9	12.3	79.8
2	7.9	12.3	79.8
3	7.9	12.3	79.8
Average	7.9	12.3	79.8
Repeatability:	Pass	Pass	NA

Calibration Check		
Calibration Gas Concentration	**Measured Concentration**	**Cylinder No.**
CO_2 ____ %	CO_2 _____ %	See Instrument Calibrations
O_2 ____ %	O_2 _____ %	for Method 3/3A

Analysis Type		
☐ Orsat ☐ Fyrite	**Orsat Acceptability Criteria**	CO2 > 4% --- ± 0.3% CO2 ≤ 4% --- ± 0.2% O2 > 15% --- ± 0.3% O2 ≤ 15% --- ± 0.2%

DE: DF
TL: JDH

Ryan O'Dea
QA/QC Reviewer

Alliance SOURCE TESTING

Method 4 Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - Condition 1
Project No.: 2010-0071

Meter Correction Factor (Y): 0.999
Orifice Calibration Value (ΔH @): 1.742
Meter ID: 912005

Run No.	1	2	3
Date	6/2/10	6/2/10	6/2/10
Start Time	8:00 AM	12:00 PM	3:35 PM
End Time	11:32 AM	3:00 PM	4:35 PM
Run Time (θ), min	180	180	180
Max Vacuum, in. Hg	10.0	5.0	5.0
Post Leak Check, cfm (at max vac.)	0.002	0.005	0.003
Meter Volume, ft^3			
Time			
0	0.000	0.000	0.000
5	3.737	3.675	3.692
10	7.191	7.424	7.325
15	10.734	10.993	10.935
20	14.293	14.526	14.593
25	18.734	18.476	18.553
30	21.846	22.437	22.345
35	26.321	25.399	25.723
40	28.992	28.943	28.945
45	32.215	32.683	33.321
50	35.523	36.225	36.922
55	39.234	42.112	40.728
60	42.934	45.123	44.521
65	46.465	48.511	48.323
70	50.345	51.423	52.125
75	53.284	55.391	57.971
80	56.992	58.554	60.281
85	61.732	61.892	63.844
90	65.004	65.637	67.729
95	67.937	69.676	71.089
100	71.761	73.536	74.616
105	75.432	77.035	78.227
110	79.109	80.747	81.891
115	82.832	84.375	85.427
120	86.589	88.071	89.057
125	90.201	91.765	92.487
130	93.924	95.731	96.729
135	97.744	99.102	99.881
140	101.308	102.964	103.487
145	105.334	106.401	107.282
150	108.727	110.214	110.685
155	112.401	113.793	114.487
160	116.167	117.989	117.882
165	119.889	121.123	121.785
170	123.584	124.446	125.082
175	127.765	128.955	128.688
180	130.965	132.239	132.287
Total Meter Volume (Vm), ft^3	130.965	132.239	132.287
Meter Temperature, °F			
Time			

0	69.0	78.0	82.0	
5	70.0	79.0	82.0	
10	70.0	80.0	83.0	
15	71.0	81.0	83.0	
20	72.0	81.0	84.0	
25	73.0	82.0	85.0	
30	74.0	82.0	86.0	
35	75.0	82.0	86.0	
40	77.0	83.0	88.0	
45	78.0	83.0	89.0	
50	79.0	84.0	90.0	
55	80.0	84.0	90.0	
60	81.0	85.0	90.0	
65	81.0	85.0	90.0	
70	80.0	85.0	90.0	
75	80.0	86.0	90.0	
80	81.0	86.0	90.0	
85	81.0	87.0	90.0	
90	80.0	87.0	90.0	
95	79.0	87.0	90.0	
100	78.0	88.0	90.0	
105	77.0	88.0	90.0	
110	77.0	89.0	90.0	
115	78.0	89.0	90.0	
120	79.0	89.0	90.0	
125	80.0	88.0	90.0	
130	80.0	88.0	90.0	
135	80.0	89.0	90.0	
140	81.0	89.0	89.0	
145	80.0	89.0	89.0	
150	81.0	88.0	89.0	
155	81.0	88.0	89.0	
160	82.0	89.0	89.0	
165	82.0	88.0	89.0	
170	83.0	89.0	88.0	
175	83.0	89.0	88.0	
180	83.0	89.0	88.0	
Average Meter Temperature (Tm), °F	78.3	85.8	88.3	
Average Meter Temperature (Tm), °R	538.3	545.8	548.3	
Barometeric Pressure (Pb), in. Hg	29.79	29.79	29.79	
Meter Orifice Pressure (ΔH), in. WC	1.740	1.740	1.740	
Meter Pressure (Pm), in. Hg	29.92	29.92	29.92	
Standard Meter Volume (Vmstd), ft^3	128.328	127.799	127.260	
Impinger 1, Pre/Post Test, mL	100.0 / 298.0	100.0 / 302.0	100.0 / 296.0	
Impinger 2, Pre/Post Test, mL	100.0 / 142.0	100.0 / 160.0	100.0 / 164.0	
Impinger 3, Pre/Post Test, mL	0.0 / 20.0	0.0 / 21.0	0.0 / 14.0	
Impinger 4, Pre/Post Test, g	753.7 / 779.2	742.3 / 746.0	762.6 / 770.2	
Volume Water Collected (Vlc), mL	285.5	286.7	281.6	
Standard Water Volume (Vwstd), ft^3	13.438	13.495	13.255	
Moisture Fraction Measured (BWSmsd)	0.095	0.096	0.094	
Moisture Fraction @ Saturation (BWSsat)	15.395	15.615	16.225	**Average**
Moisture Fraction (BWS), unitless	0.095	0.096	0.094	0.095
DGM Calibration Check Value, Yqa	-2.8	-2.5	-2.7	-2.6

Condition 2

Alliance SOURCE TESTING

Emisson Calculations

Location:
FutureFuel Chemical Company

Source: **Boiler 3 - Condition 2 - Run 1**
Project No.: **10-0071**

Trap Set Number	13	14	15	16	Condensate	Run Totals
Date	6/3/10	6/3/10	6/3/10	6/3/10	6/3/10	-
Start Time	10:06 AM	10:52 AM	11:53 AM	12:41 PM	10:06 AM	-
Stop Time	10:46 AM	11:32 AM	12:33 PM	1:21 PM	1:21 PM	-
Input Data						
Volumetric Flow Rate, dscfm	--	--	--	--	--	22,225
O2 Concentration, % dry	--	--	--	--	--	9.8
Standard Meter Volume, dsL	19.630	19.516	19.633	19.499	78.278	--
Chlorobenzene, ug	0.05	0.3	*0.2*	N/A	*0.008*	--
Calculated Data						
Chlorobenzene Concentration, ug/dscm	2.55	15.37	10.19	--	0.10	9.47
Chlorobenzene Concentration, ppm	5.4E-04	3.3E-03	2.2E-03	--	2.2E-05	2.0E-03
Chlorobenzene Emision Rate, lbs/hr	--	--	--	--	--	7.9E-04

Notes: *Data Inputs in Italics = Results < RDL; DL Used for Concentration/Emission Rate Calculations*

Alliance SOURCE TESTING

Emisson Calculations

Location: FutureFuel Chemical Company

Source: Boiler 3 - Condition 2 - Run 2

Project No.: 10-0071

Trap Set Number	17	18	19	20	Condensate	Run Totals
Date	6/3/10	6/3/10	6/3/10	6/3/10	6/3/10	-
Start Time	2:13 PM	2:59 PM	3:45 PM	4:32 PM	2:13 PM	-
Stop Time	2:53 PM	3:39 PM	4:25 PM	5:12 PM	5:12 PM	-
Input Data						
Volumetric Flow Rate, dscfm	--	--	--	--	--	23,078
O2 Concentration, % dry	--	--	--	--	--	9.8
Standard Meter Volume, dsL	19.504	19.387	19.425	19.474	77.790	--
Chlorobenzene, ug	0.05	*0.2*	*0.2*	N/A	*0.008*	--
Calculated Data						
Chlorobenzene Concentration, ug/dscm	2.56	10.32	10.30	--	0.10	7.83
Chlorobenzene Concentration, ppm	5.5E-04	2.2E-03	2.2E-03	--	2.2E-05	1.7E-03
Chlorobenzene Emision Rate, lbs/hr	--	--	--	--	--	6.8E-04

Notes: *Data Inputs in Italics = Results < RDL; DL Used for Concentration/Emission Rate Calculations*

Alliance SOURCE TESTING

Emisson Calculations

Location:
FutureFuel Chemical Company

Source: Boiler 3 - Condition 2 - Run 3
Project No.: 10-0071

Trap Set Number	21	22	23	24	Condensate	Run Totals
Date	6/4/10	6/4/10	6/4/10	6/4/10	6/4/10	-
Start Time	7:00 AM	7:45 AM	8:31 AM	9:17 AM	7:00 AM	-
Stop Time	7:40 AM	8:25 AM	9:11 AM	9:57 AM	9:57 AM	-
Input Data						
Volumetric Flow Rate, dscfm	--	--	--	--	--	21,781
O2 Concentration, % dry	--	--	--	--	--	9.9
Standard Meter Volume, dsL	19.700	19.555	19.403	19.548	78.207	--
Chlorobenzene, ug	0.10	*0.2*	*0.2*	N/A	*0.008*	--
Calculated Data						
Chlorobenzene Concentration, ug/dscm	5.08	10.23	10.31	--	0.10	8.64
Chlorobenzene Concentration, ppm	1.1E-03	2.2E-03	2.2E-03	--	2.2E-05	1.8E-03
Chlorobenzene Emision Rate, lbs/hr	--	--	--	--	--	7.0E-04

Notes: *Data Inputs in Italics = Results < RDL: DL Used for Concentration/Emission Rate Calculations*

Alliance SOURCE TESTING

Low-Flow DGM Data

Location: FutureFuel Chemical Company

Source: Boiler 3 - Condition 2 - Run 1
Project No.: 10-0071

Meter Correction Factor (Y): 1.010 Meter ID: 080903-B

Trap Set No.	13			14			15			16		
Date	6/3/10			6/3/10			6/3/10			6/3/10		
Start Time	10:06 AM			10:52 AM			11:53 AM			12:41 PM		
End Time	10:46 AM			11:32 AM			12:33 PM			1:21 PM		
Run Time (θ), min	40			40			40			40		
Max Vacuum, in. Hg	6.0			9.0			11.0			12.0		
Pre Leak Check, L (at > 10 in WC)	0.00			0.00			0.00			0.00		
Post Leak Check, L (at max vac.)	0.00			0.00			0.00			0.00		
Meter Volume, L	Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM		
Time	0.5			0.5			0.5			0.5		
0	0.00			0.00			0.00			0.00		
5	2.42			2.49			2.57			2.50		
10	4.89			4.98			5.11			5.03		
15	7.45			7.55			7.41			7.62		
20	9.93			10.02			9.79			10.10		
25	12.41			12.56			12.55			12.46		
30	15.07			14.88			15.03			14.89		
35	17.49			17.56			17.55			17.43		
40	20.04			19.96			20.08			19.98		
Total Meter Volume (Vm), L	20.04			19.96			20.08			19.98		
Temperatures, °F												
Time	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap
0	76.0	270.0	56.0	77.0	270.0	57.0	77.0	274.0	57.0	78.0	272.0	62.0
5	76.0	272.0	56.0	77.0	272.0	58.0	77.0	274.0	57.0	78.0	272.0	62.0
10	76.0	272.0	56.0	77.0	273.0	58.0	77.0	274.0	58.0	78.0	272.0	63.0
15	76.0	273.0	57.0	77.0	272.0	59.0	77.0	274.0	59.0	78.0	273.0	64.0
20	76.0	273.0	58.0	77.0	272.0	60.0	77.0	273.0	60.0	78.0	273.0	64.0
25	76.0	272.0	58.0	77.0	272.0	61.0	77.0	272.0	60.0	78.0	272.0	56.0
30	76.0	272.0	59.0	77.0	272.0	61.0	77.0	271.0	61.0	78.0	273.0	56.0
35	76.0	273.0	59.0	77.0	269.0	62.0	77.0	271.0	61.0	78.0	273.0	57.0
40	76.0	273.0	59.0	77.0	269.0	62.0	77.0	272.0	61.0	78.0	273.0	57.0
Average Meter Temperature (Tm), °F	76.0			77.0			77.0			78.0		
Average Meter Temperature (Tm), °R	536.0			537.0			537.0			538.0		
Barometeric Pressure (Pb), in. Hg	29.43			29.43			29.43			29.43		
Meter Orifice Pressure (ΔH), in. WC	0.500			0.500			0.500			0.500		
Meter Pressure (Pm), in. Hg	29.47			29.47			29.47			29.47		
Standard Meter Volume (Vmstd), dsL	19.630			19.516			19.633			19.499		

Jeremy Hutchens
QA/QC Reviewer

DE: DF
TL: RPO

V2010.0

Alliance SOURCE TESTING

Low-Flow DGM Data

Location: FutureFuel Chemical Company

Source: Boiler 3 - Condition 2 - Run 2

Project No.: 10-0071

Meter Correction Factor (Y): 1.010

Meter ID: 080903-B

Trap Set No.	17			18			19			20		
Date	6/3/10			6/3/10			6/3/10			6/3/10		
Start Time	2:13 PM			2:59 PM			3:45 PM			4:32 PM		
End Time	2:53 PM			3:39 PM			4:25 PM			5:12 PM		
Run Time (θ), min	40			40			40			40		
Max Vacuum, in. Hg	6.0			7.0			9.0			11.0		
Pre Leak Check, L (at > 10 in WC)	0.00			0.00			0.00			0.00		
Post Leak Check, L (at max vac.)	0.00			0.00			0.00			0.00		
Meter Volume, L	Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM		
Time	0.5			0.5			0.5			0.5		
0	0.00			0.00			0.00			0.00		
5	2.49			2.54			2.41			2.54		
10	5.13			5.02			4.89			5.06		
15	7.78			7.48			7.46			7.53		
20	10.12			10.03			9.83			9.99		
25	12.57			12.55			12.49			12.47		
30	14.93			15.01			15.07			15.20		
35	17.52			17.47			17.56			17.59		
40	20.01			19.96			20.04			20.07		
Total Meter Volume (Vm), L	20.01			19.96			20.04			20.07		
Temperatures, °F												
Time	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap
0	78.0	272.0	56.0	79.0	273.0	57.0	81.0	273.0	60.0	82.0	273.0	59.0
5	78.0	272.0	56.0	80.0	273.0	57.0	81.0	273.0	62.0	81.0	273.0	59.0
10	78.0	271.0	57.0	80.0	273.0	58.0	81.0	274.0	63.0	81.0	272.0	60.0
15	79.0	270.0	58.0	81.0	273.0	59.0	82.0	274.0	64.0	81.0	272.0	62.0
20	79.0	269.0	58.0	81.0	272.0	61.0	82.0	274.0	64.0	81.0	271.0	62.0
25	79.0	269.0	56.0	81.0	273.0	63.0	82.0	274.0	65.0	81.0	271.0	63.0
30	79.0	270.0	56.0	81.0	273.0	63.0	82.0	273.0	65.0	81.0	269.0	63.0
35	79.0	271.0	55.0	81.0	272.0	62.0	82.0	272.0	66.0	81.0	271.0	64.0
40	79.0	272.0	57.0	81.0	271.0	62.0	82.0	274.0	62.0	81.0	271.0	64.0
Average Meter Temperature (Tm), °F	78.7			80.6			81.7			81.1		
Average Meter Temperature (Tm), °R	538.7			540.6			541.7			541.1		
Barometeric Pressure (Pb), in. Hg	29.43			29.43			29.43			29.43		
Meter Orifice Pressure (ΔH), in. WC	0.500			0.500			0.500			0.500		
Meter Pressure (Pm), in. Hg	29.47			29.47			29.47			29.47		
Standard Meter Volume (Vmstd), dsL	19.504			19.387			19.425			19.474		

Jeremy Hutchens
QA/QC Reviewer

DE: DF
TL: RPO

V20100

Alliance SOURCE TESTING

Low-Flow DGM Data

Location: FutureFuel Chemical Company

Source: Boiler 3 - Condition 2 - Run 3
Project No.: 10-0071

Meter Correction Factor (Y): 1.010 Meter ID: 080903-B

Trap Set No.	21			22			23			24		
Date	6/4/10			6/4/10			6/4/10			6/4/10		
Start Time	7:00 AM			7:45 AM			8:31 AM			9:17 AM		
End Time	7:40 AM			8:25 AM			9:11 AM			9:57 AM		
Run Time (θ), min	40			40			40			40		
Max Vacuum, in. Hg	7.0			8.0			9.0			9.0		
Pre Leak Check, L (at > 10 in WC)	0.00			0.00			0.00			0.00		
Post Leak Check, L (at max vac.)	0.00			0.00			0.00			0.00		
Meter Volume, L	Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM		
Time	0.5			0.5			0.5			0.5		
0	0.00			0.00			0.00			0.00		
5	2.53			2.46			2.51			2.44		
10	4.99			4.93			5.06			4.92		
15	7.54			7.46			7.51			7.49		
20	9.96			10.03			10.07			9.94		
25	12.51			12.48			12.49			12.52		
30	14.98			14.90			15.03			15.11		
35	17.48			17.55			17.45			17.54		
40	19.97			20.03			19.99			20.04		
Total Meter Volume (Vm), L	19.97			20.03			19.99			20.04		
Temperatures, °F												
Time	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap
0	70.0	273.0	59.0	74.0	273.0	52.0	80.0	273.0	65.0	78.0	274.0	62.0
5	70.0	273.0	59.0	74.0	273.0	53.0	80.0	273.0	65.0	78.0	274.0	62.0
10	70.0	273.0	60.0	75.0	273.0	53.0	80.0	273.0	65.0	78.0	273.0	62.0
15	71.0	273.0	60.0	76.0	273.0	53.0	80.0	273.0	65.0	77.0	273.0	64.0
20	71.0	272.0	60.0	78.0	273.0	54.0	81.0	273.0	57.0	77.0	274.0	65.0
25	72.0	273.0	62.0	78.0	274.0	54.0	80.0	274.0	58.0	77.0	274.0	66.0
30	72.0	270.0	64.0	79.0	273.0	54.0	80.0	274.0	58.0	77.0	274.0	66.0
35	73.0	269.0	64.0	79.0	273.0	55.0	80.0	273.0	58.0	77.0	274.0	64.0
40	73.0	269.0	65.0	79.0	273.0	55.0	79.0	273.0	59.0	77.0	274.0	64.0
Average Meter Temperature (Tm), °F	71.3			76.9			80.0			77.3		
Average Meter Temperature (Tm), °R	531.3			536.9			540.0			537.3		
Barometeric Pressure (Pb), in. Hg	29.38			29.38			29.38			29.38		
Meter Orifice Pressure (ΔH), in. WC	0.500			0.500			0.500			0.500		
Meter Pressure (Pm), in. Hg	29.42			29.42			29.42			29.42		
Standard Meter Volume (Vmstd), dsL	19.700			19.555			19.403			19.548		

Jeremy Hutchens
QA/QC Reviewer

DE: DF
TL: RPO

V2010.0

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - C2, PM/Metals
Project No.: 2010-0071

Run Number		Run 1	Run 2	Run 3	Average
Date		06/03/10	06/03/10	06/04/10	--
Start Time		10:04 AM	2:14 PM	7:00 AM	--
Stop Time		12:56 PM	4:37 PM	9:41 AM	--
Run Time, min	(θ)	125.0	125.0	125.0	125.0
INPUT DATA					
Barometric Pressure, in. Hg	(Pb)	29.43	29.43	29.38	29.41
Meter Correction Factor	(Y)	0.999	0.999	0.999	0.999
Orifice Calibration Value	(ΔH @)	1.742	1.742	1.742	1.742
Meter Volume, ft^3	(Vm)	116.466	118.514	109.945	114.975
Meter Temperature, °F	(Tm)	79.0	83.6	74.0	78.9
Meter Temperature, °R	(Tm)	539.0	543.6	534.0	538.9
Meter Orifice Pressure, in. WC	(ΔH)	2.894	2.994	2.691	2.860
Volume H2O Collected, mL	(Vlc)	253.4	267.0	252.4	257.6
Nozzle Diameter, in	(Dn)	0.242	0.242	0.242	0.242
Area of Nozzle, ft^2	(An)	0.00032	0.00032	0.00032	0.00032
Filterable PM Mass, mg	(Mn)	46.9	78.0	72.6	65.8
Arsenic Mass, ug	(M_{As})	49.10	52.60	39.90	47.20
Beryllium Mass, ug	(M_{Be})	*1.50*	*1.50*	*1.50*	1.50
Cadmium Mass, ug	(M_{Cd})	*2.61*	*3.34*	*5.92*	3.96
Chromium Mass, ug	(M_{Cr})	153.0	236.5	343.7	244.4
Lead Mass, ug	(M_{Pb})	327.0	452.8	406.0	395.3
Mercury Mass, ug	(M_{Hg})	*13.04*	*9.03*	*7.76*	9.94
ISOKINETIC DATA					
Standard Meter Volume, ft^3	(Vmstd)	112.910	113.952	107.367	111.410
Standard Water Volume, ft^3	(Vwstd)	11.928	12.568	11.880	12.125
Moisture Fraction Measured	(BWSmsd)	0.096	0.099	0.100	0.098
Moisture Fraction @ Saturation	(BWSsat)	26.170	27.606	25.915	26.564
Moisture Fraction	(BWS)	0.096	0.099	0.100	0.098
Meter Pressure, in Hg	(Pm)	29.64	29.65	29.58	29.62
Volume at Nozzle, ft^3	(Vn)	218.362	222.632	208.672	216.555
Isokinetic Sampling Rate, (%)	(I)	99.3	96.9	96.8	97.7
DGM Calibration Check Value, (+/- 5%)	(Y_{qa})	-0.1	-3.9	-4.5	-2.8
EMISSION CALCULATIONS					
Filterable PM Conc. (corrected), mg/dscm @ 7% O2	(C_{FPMc})	18.3	30.2	30.1	26.2
Arsenic Concentration, ug/dscm @ 7 % O2	(C_{Asc})	19.2	20.4	16.6	18.7
Beryllium Concentration, ug/dscm @ 7 % O2	(C_{Bec})	0.6	0.6	0.6	0.6
Cadmium Concentration, ug/dscm @ 7 % O2	(C_{Cdc})	1.0	1.3	2.5	1.6
Chromium Concentration, ug/dscm @ 7 % O2	(C_{Crc})	59.8	91.6	142.6	98.0
Lead Concentration, ug/dscm @ 7 % O2	(C_{Pbc})	127.8	175.4	168.4	157.2
Mercury Concentration, ug/dscm @ 7 % O2	(C_{Hg})	5.1	3.5	3.2	3.9

Alliance SOURCE TESTING

Volumetric Flow Rate Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - C2, PM/Metals

Project No.: 2010-0071

Run Number		Run 1	Run 2	Run 3	Average
Date		6/3/10	6/3/10	6/4/10	--
Start Time		10:04 AM	2:14 PM	7:00 AM	--
Stop Time		12:56 PM	4:37 PM	9:41 AM	--
Run Time, min		125.0	125.0	125.0	125.0
VELOCITY HEAD, in. WC					
Point 1		0.55	1.73	0.38	0.89
Point 2		0.48	1.75	0.97	1.07
Point 3		1.02	1.69	1.62	1.44
Point 4		1.31	1.55	1.32	1.39
Point 5		1.55	1.47	0.99	1.34
Point 6		1.50	1.27	1.33	1.37
Point 7		1.60	1.57	1.55	1.57
Point 8		0.80	1.73	1.67	1.40
Point 9		0.34	1.56	1.47	1.12
Point 10		0.87	1.48	1.20	1.18
Point 11		1.57	1.42	1.34	1.44
Point 12		1.61	1.55	1.62	1.59
Point 13		1.92	1.45	1.76	1.71
Point 14		1.82	1.89	1.85	1.85
Point 15		1.87	1.86	1.52	1.75
Point 16		2.33	1.88	1.72	1.98
Point 17		2.23	1.78	1.75	1.92
Point 18		1.88	1.89	1.69	1.82
Point 19		2.11	1.78	1.72	1.87
Point 20		2.00	1.71	1.43	1.71
Point 21		2.18	1.60	1.31	1.70
Point 22		2.11	1.76	1.67	1.85
Point 23		2.12	1.81	1.74	1.89
Point 24		2.04	1.76	2.11	1.97
Point 25		1.94	1.55	1.59	1.69
CALCULATED DATA					
Square Root of ΔP, (in. WC)$^{1/2}$	(ΔP)	1.233	1.287	1.211	1.244
Pitot Tube Coefficient	(Cp)	0.84	0.84	0.84	0.84
Barometric Pressure, in. Hg	(Pb)	29.43	29.43	29.38	29.41
Static Pressure, in. WC	(Pg)	-0.80	-0.80	-0.80	-0.80
Stack Pressure, in. Hg	(Ps)	29.37	29.37	29.32	29.35
Stack Cross-sectional Area, ft^2	(As)	7.83	7.83	7.83	7.83
Temperature, °F	(Ts)	446.6	452.0	445.4	448.0
Temperature, °R	(Ts)	906.6	912.0	905.4	908.0
Moisture Fraction Measured	(BWSmsd)	0.096	0.099	0.100	0.098
Moisture Fraction @ Saturation	(BWSsat)	26.170	27.606	25.915	26.564
Moisture Fraction	(BWS)	0.096	0.099	0.100	0.098
CO2 Concentration, %	(CO2)	10.3	10.3	10.2	10.3
O2 Concentration, %	(O2)	9.8	9.8	9.9	9.8
Molecular Weight, lb/lb-mole (dry)	(Md)	30.04	30.04	30.03	30.04
Molecular Weight, lb/lb-mole (wet)	(Ms)	28.89	28.84	28.83	28.85
Velocity, ft/sec	(Vs)	91.5	95.9	90.0	92.5
VOLUMETRIC FLOW RATE					
At Stack Conditions, acfm	(Qa)	42,973	45,017	42,267	43,419
At Standard Conditions, dscfm	(Qs)	22,222	23,043	21,749	22,338

Alliance SOURCE TESTING

Cyclonic Flow Check

Location: FutureFuel Chemical Company
Date: 06/02/10

Source: Boiler 3 Stack - C2, PM/Metals
Project No.: 2010-0071

Sample Point	ΔP @ 0° Ref	Angle (ΔP=0)
1	0.04	5
2	0.05	6
3	0.07	7
4	0.08	6
5	0.03	3
6	0.04	4
7	0.05	4
8	0.04	3
9	0.05	4
10	0.04	3
11	0.05	4
12	0.06	5
13	0.06	6
14	0.05	5
15	0.06	5
16	0.07	6
17	0.08	8
18	0.09	9
19	0.09	8
20	0.08	7
21	0.07	7
22	0.07	7
23	0.08	8
24	0.07	7
25	0.06	6
26		
27		
28		
29		
30		
31		
32		
Average	0.06	5.7

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

Alliance SOURCE TESTING

Method 4 Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - C2, PM/Metals

Project No. : 2010-0071

	Run 1	Date: 6/3/10							
	IMPINGER VOLUME, ml								
	1	2	3	4	5	6	7	8	Total
Contents	HNO3/H2O2	HNO3/H2O2	Empty	KMnO4	KMnO4	Silica	--	--	--
Initial	100.0	100.0	0.0	100.0	100.0	228.7			628.7
Final	243.0	143.0	35.0	110.0	92.0	259.1			882.1
Gain	143.0	43.0	35.0	10.0	-8.0	30.4	--	--	253.4

	Run 2	Date: 6/3/10							
	IMPINGER VOLUME, ml								
	1	2	3	4	5	6	7	8	Total
Contents	HNO3/H2O2	HNO3/H2O2	Empty	KMnO4	KMnO4	Silica	--	--	--
Initial	100.0	100.0	0.0	100.0	100.0	233.4			633.4
Final	218.0	176.0	24.0	110.0	100.0	272.4			900.4
Gain	118.0	76.0	24.0	10.0	0.0	39.0	--	--	267.0

	Run 3	Date: 6/4/10							
	IMPINGER VOLUME, ml								
	1	2	3	4	5	6	7	8	Total
Contents	HNO3/H2O2	HNO3/H2O2	Empty	KMnO4	KMnO4	Silica	--	--	--
Initial	100.0	100.0	0.0	100.0	100.0	231.4			631.4
Final	248.0	164.0	8.0	104.0	100.0	259.8			883.8
Gain	148.0	64.0	8.0	4.0	0.0	28.4	--	--	252.4

Ryan O'Dea

QA/QC Reviewer

DE: DF

TL: JDH

Alliance SOURCE TESTING

Isokinetic Field Data

Location:	FutureFuel Chemical Company	Start Time:	10:04 AM	Source:	Boiler 3 Stack - C2, PM/Metals
Date:	06/03/10 — Run 1 — VALID	End Time:	12:56 PM	Project No.:	2010-0071

STACK DATA (EST)			EQUIPMENT			STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA
Moisture:	9.0	% est.	METER BOX:	912005		Est. Tm:	85	°F	10032423	Pb:	29.43	in. Hg	Vlc (ml)
Barometric:	29.97	in. Hg	Y:	0.999		Est. Ts:	402	°F		Pg:	-0.80	in. WC	253.4
Static Press:	-0.80	in. WC	ΔH @:	1.742	in. WC	Est. ΔP:	1.17	in. WC		CO2:	10.3	%	K-FACTOR
Stack Press:	29.91	in. Hg	PROBE ID:	PR-302A		Est. Dn:	0.228	in.		O2:	9.8	%	1.939
CO2:	14.0	%	Cp:	0.84									
O2:	6.0	%	NOZZLE ID:	G-402A									
N2/CO:	80.0	%	Dn:	0.242	in^2								
Md:	30.48	lb/lb-mole	Stack Area:	7.83	ft^2								
Ms:	29.36	lb/lb-mole											

LEAK CHECKS

	Pre	Mid 1	Mid 2	Post	Volume Corrections		
Leak Rate (cfm):	0.005	0.007	--	0.007	#1	0.110	cf
Vacuum (in Hg):	10	5	--	6	#2		cf
Pitot Tube:	Pass	Pass	--	Pass	Total	0.110	cf

Sample Point	Sample Time (minutes) Begin	End	Dry Gas Meter Reading (ft^3)	Pitot Tube ΔP (in. WC)	Gas Temperatures (°F) DGM Average Amb. 70	Stack Amb. 70	Orifice Press. ΔH (in. WC) Ideal	Actual	Pump Vac (in. Hg)	Gas Temps (°F) Probe Amb. 70	Filter Amb. 70	Imp. Exit Amb. 70	XAD	% ISO	Vs (fps)
A1	0.00	5.00	0.000	0.55	73	438	1.00	1.00	4	264	260	55	-	104.6	53.86
2	5.00	10.00	2.913	0.48	73	439	0.88	0.05	4	260	264	57	-	106.4	50.34
3	10.00	15.00	5.686	1.02	73	439	1.85	1.90	5	262	263	58	-	105.6	73.38
4	15.00	20.00	9.682	1.31	74	444	2.37	2.40	5	263	262	58	-	104.6	83.40
5	20.00	25.00	14.158	1.55	75	444	2.81	2.80	5	260	261	59	-	99.2	90.71
B1	25.00	30.00	18.779	1.50	76	444	2.72	2.70	5	261	260	60	-	101.2	89.24
2	30.00	35.00	23.426	1.60	77	444	2.91	2.90	5	262	262	57	-	100.5	92.17
3	35.00	40.00	28.196	0.80	78	440	1.47	1.50	5	260	262	57	-	99.3	65.03
4	40.00	45.00	31.554	0.34	78	440	0.63	0.60	5	260	260	58	-	96.2	42.39
5	45.00	50.00	33.679	0.87	78	443	1.59	1.60	3	261	260	58	-	100.9	67.92
C1	50.00	55.00	37.231	1.57	78	444	2.86	2.90	4	262	260	58	-	99.4	91.30
2	55.00	60.00	41.913	1.61	78	444	2.93	2.95	4	262	261	58	-	98.3	92.45
3	60.00	65.00	46.604	1.92	81	448	3.49	3.50	5	262	260	58	-	103.1	101.19
4	65.00	70.00	51.987	1.82	82	450	3.31	3.35	5	263	261	55	-	100.8	98.62
5	70.00	75.00	57.117	1.87	83	449	3.41	3.40	5	259	264	57	-	104.4	99.91
D1	75.00	80.00	62.512	2.33	84	450	4.25	4.25	5	261	264	59	-	95.7	111.59
2	80.00	85.00	68.032	2.23	81	451	4.04	4.05	5	260	261	60	-	99.5	109.23
3	85.00	90.00	73.611	1.88	81	451	3.41	3.45	5	262	264	62	-	100.6	100.29
4	90.00	95.00	78.799	2.11	82	451	3.83	3.90	5	262	264	63	-	101.0	106.25
5	95.00	100.00	84.321	2.00	83	452	3.63	4.25	6	261	262	63	-	106.3	103.50
E1	100.00	105.00	89.981	2.18	81	451	3.95	3.95	6	261	262	64	-	98.1	108.00
2	105.00	110.00	95.421	2.11	81	451	3.82	3.85	6	261	262	65	-	97.5	106.25
3	110.00	115.00	100.742	2.12	82	452	3.84	3.90	6	261	262	57	-	98.4	106.56
4	115.00	120.00	106.132	2.04	82	453	3.70	3.70	6	263	262	58	-	98.3	104.59
5	120.00	125.00	111.412	1.94	82	452	3.52	3.50	6	259	260	58	-	98.4	101.93
	125.00	--	116.576										-	-	-
	--	--											-	-	-
	--	--											-	-	-
	--	--											-	-	-
	--	--											-	-	-
	--	--											-	-	-
	--	--											-	-	-
	Final DGM:		116.576												

☐ Saturated

RESULTS	Run Time	Vm	ΔP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y_{qa}
	125.0 min	116.466 ft^3	1.59 in. WC	79.0 °F	446.6 °F	6	2.894 in. WC	99.3	0.096	-0.1

NOTES: Volume correction due to leak check at last port change. Leak check volume (before, after) 85.598, 85.708

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

v2010.0

Alliance SOURCE TESTING

Isokinetic Field Data

Location: FutureFuel Chemical Company		Start Time: 2:14 PM	Source: Boiler 3 Stack - C2, PM/Metals
Date: 06/03/10	Run 2 / VALID	End Time: 4:37 PM	Project No.: 2010-0071

STACK DATA (EST)		EQUIPMENT		STACK DATA (EST)		FILTER NO.	STACK DATA (FINAL)		MOIST. DATA
Moisture:	9.5 % est.	METER BOX:	912005	Est. Tm:	79 °F	10032424	Pb:	29.43 in. Hg	Vlc (ml)
Barometric:	29.97 in. Hg	Y:	0.999	Est. Ts:	447 °F		Pg:	-0.80 in. WC	267.0
Static Press:	-0.80 in. WC	ΔH @:	1.742 in. WC	Est. ΔP:	1.59 in. WC		CO2:	10.3 %	K FACTOR
Stack Press:	29.91 in. Hg	PROBE ID:	PR-302A	Est. Dn:	0.216 in.		O2:	9.8 %	1.797
CO2:	14.0 %	Cp:	0.84						
O2:	6.0 %	NOZZLE ID:	G-402A						
N2/CO:	80.0 %	Dn:	0.242 in²						
Md:	30.48 lb/lb-mole	Stack Area:	7.83 ft²						
Ms:	29.29 lb/lb-mole								

LEAK CHECKS

	Pre	Mid 1	Mid 2	Post
Leak Rate (cfm):	0.001	0.001	0.002	0.002
Vacuum (in Hg):	10	6	7	7
Pitot Tube:	Pass	Pass	Pass	Pass

Volume Corrections		
#1	1.133	cf
#2		cf
Total	1.133	cf

Sample Point	Sample Time (minutes) Begin	End	Dry Gas Meter Reading (ft³)	Pitot Tube ΔP (in. WC)	Gas Temperatures (°F) DGM Average Amb. ---	Stack Amb. --	Orifice Press. ΔH (in. WC) Ideal	Actual	Pump Vac (in. Hg)	Gas Temps (°F) Probe Amb. --	Filter Amb. --	Imp. Exit Amb. --	XAD	% ISO	Vs (fps)
A1	0.00	5.00	0.000	1.73	78	451	3.08	3.10	5	260	265	56	-	97.6	96.31
2	5.00	10.00	4.773	1.75	78	452	3.11	3.10	5	261	262	57	-	99.8	96.92
3	10.00	15.00	9.676	1.69	78	453	3.00	3.00	5	260	261	57	-	97.2	95.29
4	15.00	20.00	14.370	1.55	79	453	2.76	2.80	6	261	261	59	-	97.9	91.26
5	20.00	25.00	18.908	1.47	80	453	2.62	2.65	6	261	262	60	-	97.9	88.87
B1	25.00	30.00	23.335	1.27	80	452	2.27	2.30	5	261	260	61	-	100.5	82.56
2	30.00	35.00	27.567	1.57	81	452	2.81	2.85	5	260	260	56	-	97.6	91.80
3	35.00	40.00	32.137	1.73	82	453	3.09	3.10	6	259	262	60	-	98.3	96.41
4	40.00	45.00	36.974	1.56	83	453	2.80	2.80	6	260	261	60	-	98.2	91.56
5	45.00	50.00	41.576	1.48	84	452	2.66	2.70	6	262	260	63	-	100.9	89.13
C1	50.00	55.00	46.193	1.42	84	451	2.56	2.60	6	259	260	62	-	100.9	87.25
2	55.00	60.00	50.716	1.55	84	451	2.79	2.80	6	259	262	61	-	97.1	91.16
3	60.00	65.00	55.263	1.45	84	452	2.61	2.60	6	259	261	55	-	98.7	88.22
4	65.00	70.00	59.732	1.89	85	452	3.40	3.40	6	260	260	57	-	96.7	100.72
5	70.00	75.00	64.732	1.86	86	451	3.36	3.35	6	260	261	59	-	98.8	99.86
D1	75.00	80.00	69.811	1.88	86	451	3.39	3.40	6	260	260	60	-	99.9	100.40
2	80.00	85.00	74.975	1.78	86	451	3.21	3.20	6	260	261	63	-	101.3	97.69
3	85.00	90.00	80.074	1.89	86	452	3.41	3.40	7	259	260	64	-	96.5	100.72
4	90.00	95.00	85.071	1.78	86	452	3.21	3.20	7	260	262	64	-	99.1	97.74
5	95.00	100.00	90.053	1.71	86	453	3.08	3.10	7	260	260	65	-	99.7	95.86
E1	100.00	105.00	94.968	1.60	87	452	2.89	2.90	7	259	260	66	-	98.4	92.67
2	105.00	110.00	99.670	1.76	87	452	3.18	3.20	7	260	259	66	-	101.6	97.19
3	110.00	115.00	104.759	1.81	87	452	3.27	3.30	7	260	259	67	-	100.1	98.56
4	115.00	120.00	109.845	1.76	87	452	3.18	3.20	7	261	261	66	-	101.0	97.19
5	120.00	125.00	114.903	1.55	87	452	2.80	2.80	7	261	262	64	-	100.8	91.21
--	125.00	--	119.647										-	-	-
--	--	--											-	-	-
--	--	--											-	-	-
--	--	--											-	-	-
--	--	--											-	-	-
--	--	--											-	-	-
--	--	--											-	-	-
	Final DGM:		119.647												

☐ Saturated

RESULTS

Run Time	Vm	ΔP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y_{qa}
125.0 min	118.514 ft³	1.66 in. WC	83.6 °F	452.0 °F	7	2.994 in. WC	96.9	0.099	-3.9

NOTES

Volume correction because of leak checks between port changes. Leak check volumes (before, after) 1= 23.335, 23.403 2=46.193, 46.717 3=69.611, 69.905 4=94.968, 95.105

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

v2010.0

Alliance SOURCE TESTING

Isokinetic Field Data

Location:	FutureFuel Chemical Company	Start Time:	7:00 AM	Source:	Boiler 3 Stack - C2, PM/Metals
Date:	06/04/10 — Run 3 — VALID	End Time:	9:41 AM	Project No.:	2010-0071

STACK DATA (EST)			EQUIPMENT		STACK DATA (EST)			FILTER NO.	STACK DATA (FINAL)			MOIST. DATA
Moisture:	9.5	% est.	METER BOX:	912005	Est. Tm:	84	°F	10042028	Pb:	29.38	in. Hg	Vlc (ml)
Barometric:	29.97	in. Hg	Y:	0.999	Est. Ts:	452	°F		Pg:	-0.80	in. WC	252.4
Static Press:	-0.80	in. WC	ΔH@:	1.742 in. WC	Est. ΔP:	1.66	in. WC		CO2:	10.2	%	K FACTOR
Stack Press:	29.91	in. Hg	PROBE ID:	PR-302A	Est. Dn:	0.213	in.		O2:	9.9	%	1.802
CO2:	14.0	%	Cp:	0.84								
O2:	6.0	%	NOZZLE ID:	G-402A								
N2/CO:	80.0	%	Dn:	0.242 in²								
Md:	30.48	lb/lb-mole	Stack Area:	7.83 ft²								
Ms:	29.29	lb/lb-mole										

LEAK CHECKS

	Pre	Mid 1	Mid 2	Post
Leak Rate (cfm):	0.005	0.001	0.001	0.001
Vacuum (in Hg):	10	3	4	6
Pitot Tube:	Pass	Pass	Pass	Pass

Volume Corrections		
#1	1.042	cf
#2		cf
Total	1.042	cf

Sample Point	Sample Time (minutes) Begin	End	Dry Gas Meter Reading (ft³)	Pitot Tube ΔP (in. WC)	Gas Temperatures (°F) DGM Average	Stack	Orifice Press. ΔH (in. WC) Ideal	Actual	Pump Vac (in. Hg)	Gas Temps (°F) Probe	Filter	Imp. Exit	XAD	% ISO	Vs (fps)
					Amb. ---	Amb. --				Amb. --	Amb. --	Amb. --			
A1	0.00	5.00	0.000	0.38	66	432	0.68	0.70	2	259	260	55	-	102.3	44.66
2	5.00	10.00	2.331	0.97	66	437	1.72	1.75	2	259	258	55	-	99.2	71.56
3	10.00	15.00	5.921	1.62	66	437	2.86	2.90	2	260	258	56	-	96.7	92.48
4	15.00	20.00	10.430	1.32	67	440	2.33	2.35	3	260	259	57	-	101.8	83.62
5	20.00	25.00	14.721	0.99	68	442	1.75	1.75	3	262	259	58	-	101.0	72.49
B1	25.00	30.00	18.417	1.33	69	442	2.35	2.35	3	261	260	59	-	97.6	84.03
2	30.00	35.00	22.560	1.55	70	441	2.75	2.80	3	262	260	58	-	92.2	90.66
3	35.00	40.00	26.790	1.67	74	441	2.98	3.00	4	262	261	58	-	98.6	94.10
4	40.00	45.00	31.521	1.47	74	445	2.62	2.65	4	261	262	58	-	100.4	88.48
5	45.00	50.00	36.032	1.20	76	445	2.15	2.15	4	261	262	58	-	98.2	79.95
C1	50.00	55.00	40.039	1.34	78	443	2.41	2.45	4	260	259	60	-	101.5	84.39
2	55.00	60.00	44.431	1.62	78	442	2.91	2.95	4	259	260	61	-	100.8	92.74
3	60.00	65.00	49.228	1.76	79	446	3.15	3.20	4	260	261	62	-	94.2	96.87
4	65.00	70.00	53.894	1.85	80	448	3.31	3.35	4	260	263	63	-	94.4	99.43
5	70.00	75.00	58.692	1.52	80	449	2.72	2.75	4	260	258	57	-	98.2	90.18
D1	75.00	80.00	63.219	1.72	81	450	3.08	3.20	4	260	259	59	-	106.7	95.98
2	80.00	85.00	68.453	1.75	82	449	3.14	3.20	4	260	259	60	-	100.5	96.76
3	85.00	90.00	73.437	1.69	82	450	3.03	3.16	4	262	258	62	-	99.9	95.14
4	90.00	95.00	78.304	1.72	84	451	3.09	3.22	4	261	258	62	-	99.7	96.03
5	95.00	100.00	83.217	1.43	85	452	2.58	2.60	4	262	261	62	-	98.2	87.61
E1	100.00	105.00	87.641	1.31	84	451	2.36	2.35	4	258	259	62	-	101.9	83.81
2	105.00	110.00	92.032	1.67	85	451	3.01	3.05	5	259	259	63	-	99.9	94.62
3	110.00	115.00	96.893	1.74	85	451	3.14	3.15	5	261	258	65	-	98.4	96.59
4	115.00	120.00	101.782	2.11	85	451	3.80	3.80	5	260	258	65	-	93.5	106.36
5	120.00	125.00	106.890	1.59	5	449	2.45	2.45	6	260	259	66	-	100.9	92.23
--	125.00	--	110.987										-	-	-
--	--	--											-	-	-
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--	--	--											-	-	-
--	--	--											-	-	-
--	--	--											-	-	-
--	--	--											-	-	-
	Final DGM:		110.987												

☐ Saturated

RESULTS

Run Time	Vm	ΔP	Tm	Ts	Max Vac	ΔH	%ISO	BWS	Y_{qa}
125.0 min	109.945 ft³	1.49 in. WC	74.0 °F	445.4 °F	6	2.691 in. WC	96.8	0.100	-4.5

NOTES

Volume corrections because of leak checks between port changes. Leak check volumes (before, after) 1= 18.417, 18.712 2= 40.039, 40.196 3= 63.219, 63.649 4= 87.641, 87.801

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

v2010.0

Appendix C

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Chlorobenzene - Air

Maxxam Analytics

Driven by Service and Science

Prepared for: Alliance Source Testing, LLC

Project: 2010-0071-001

Future Fuel

Analytical Data Package

Analysis: M0030 / M8260

Maxxam Job #: B073331

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Analytics

Driven by Service and Science

I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

Clayton Johnson
2010.07.28 14:46:02 -04'00'

Maxxam
Driven by Service and Science

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
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Glossary of Terms

- ***MDL*** represents the Minimum Detection Limit below which the laboratory cannot confirm the presence of the analyte to the 95% confidence level.
- ***RDL*** represents the Reportable Detection Limit and is usually set at a value equivalent to the lowest calibration standard.
- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.
- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.
- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.
- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid
- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.
- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variablity.
- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.
- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.
- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.
- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.
- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.
- ***RSD*** is the relative standard deviation.
- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.
- ***Window Definng Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.
- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.
- ***EMPC/NDR*** – Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

Driven by Service and Science

1.0 Project Narrative

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

PROJECT NARRATIVE

Maxxam Analytics (Burlington ON)
Maxxam Job #: B073313

Client: Alliance Source Testing, LLC
Client Project: 2010-0071-001 FUTURE FUEL

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
VOST Analysis (5041mod)						
GC8242	FIELD BLANK-TRAP 27	2010/06/04	2010/06/09	N/A	2010/06/10	2010/05/05
GC8244	R1-CONDITION 1-TRAP8	2010/06/02	2010/06/09	N/A	2010/06/10	2010/06/07
GC8245	R1-CONDITION 1-TRAP7	2010/06/02	2010/06/09	N/A	2010/06/11	2010/06/07
GC8246	R1-CONDITION 1-TRAP6	2010/06/02	2010/06/09	N/A	2010/06/11	2010/05/05
GC8248	R2-CONDITION 1-TRAP1	2010/06/02	2010/06/09	N/A	2010/06/10	2010/05/05
GC8249	R2-CONDITION 1-TRAP2	2010/06/02	2010/06/09	N/A	2010/06/11	2010/05/05
GC8250	R2-CONDITION 1-TRAP3	2010/06/02	2010/06/09	N/A	2010/06/11	2010/05/05
GC8252	R3-CONDITION 1-TRAP9	2010/06/02	2010/06/09	N/A	2010/06/10	2010/06/07
GC8253	R3-CONDITION 1-TRAP10	2010/06/02	2010/06/09	N/A	2010/06/11	2010/05/05
GC8254	R3-CONDITION 1-TRAP11	2010/06/02	2010/06/09	N/A	2010/06/11	2010/05/05
GC8375	R1-CONDITION 2-TRAP13	2010/06/03	2010/06/09	N/A	2010/06/10	2010/06/07
GC8376	R1-CONDITION 2-TRAP14	2010/06/03	2010/06/09	N/A	2010/06/11	2010/06/07
GC8377	R1-CONDITION 2-TRAP15	2010/06/03	2010/06/09	N/A	2010/06/11	2010/06/07
GC8379	R2-CONDITION 2-TRAP17	2010/06/03	2010/06/09	N/A	2010/06/10	2010/05/05
GC8380	R2-CONDITION 2-TRAP18	2010/06/03	2010/06/09	N/A	2010/06/11	2010/05/05
GC8381	R2-CONDITION 2-TRAP19	2010/06/03	2010/06/09	N/A	2010/06/11	2010/05/05
GC8383	R3-CONDITION 2-TRAP21	2010/06/04	2010/06/09	N/A	2010/06/10	2010/05/05
GC8384	R3-CONDITION 2-TRAP22	2010/06/04	2010/06/09	N/A	2010/06/11	2010/06/07
GC8385	R3-CONDITION 2-TRAP23	2010/06/04	2010/06/09	N/A	2010/06/11	2010/06/07
GC8397	RUN 1-AUDIT-TRAP1	2010/06/04	2010/06/09	N/A	2010/06/10	2010/06/07
GC8401	RUN 2-AUDIT-TRAP2	2010/06/04	2010/06/09	N/A	2010/06/10	2010/05/05
GC8402	RUN 3-AUDIT-TRAP3	2010/06/04	2010/06/09	N/A	2010/06/11	2010/06/07
VOST Condensate (8260Cmod)						
GC8387	RUN 1- CONDITION 1-CON	2010/06/02	2010/06/09	N/A	2010/06/15	2010/06/14
GC8388	RUN 2- CONDITION 1-CON	2010/06/02	2010/06/09	N/A	2010/06/15	2010/06/14
GC8389	RUN 3- CONDITION 1-CON	2010/06/02	2010/06/09	N/A	2010/06/15	2010/06/14
GC8390	RUN 1- CONDITION 2-CON	2010/06/03	2010/06/09	N/A	2010/06/15	2010/06/14
GC8391	RUN 2- CONDITION 2-CON	2010/06/03	2010/06/09	N/A	2010/06/15	2010/06/14
GC8392	RUN 3- CONDITION 2-CON	2010/06/04	2010/06/09	N/A	2010/06/15	2010/06/14
GC8403	AUDIT CONDENSATE	2010/06/04	2010/06/09	N/A	2010/06/15	2010/06/14

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Clayton Johnson, Project Manager

2010/07/27
Date

Driven by Service and Science

2.0 Summary Report

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Your Project #: 2010-0071-001
Site: FUTURE FUEL
Your C.O.C. #: N/A

Attention: Chris Lemay
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/08/18
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B073313
Received: 2010/06/09, 13:00

Sample Matrix: AIR
Samples Received: 22

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
VOST Analysis (5041mod)	9	N/A	2010/06/10	BRL SOP-00302	EPA 5041mod(M0030)
VOST Analysis (5041mod)	13	N/A	2010/06/11	BRL SOP-00302	EPA 5041mod(M0030)

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
VOST Condensate (8260Cmod)	7	N/A	2010/06/15	BRL SOP-00305	EPA 8260Cmod(M0030)

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
2010.08.18 14:37:02 -04'00'

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CLAYTON JOHNSON, Project Manager
Email: Clayton.Johnson@maxxamanalytics.com
Phone# (905) 817-5769

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		GC8242		GC8244			GC8245		
Sampling Date		2010/06/04 07:35		2010/06/02 08:40			2010/06/02 09:37		
COC Number		N/A		N/A			N/A		
	Units	**FIELD BLANK-TRAP 27**	**QC Batch**	**R1-CONDITION 1-TRAP8**	**RDL**	**QC Batch**	**R1-CONDITION 1-TRAP7**	**RDL**	**QC Batch**
Chlorobenzene	ug	<0.01	2175592	0.16	0.01	2176427	<0.2	0.2	2177204
Surrogate Recovery (%)									
D8-Toluene	%	97	2175592	91		2176427	102		2177204

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8246			GC8248			GC8249		
Sampling Date		2010/06/02 10:38			2010/06/02 12:40			2010/06/02 13:21		
COC Number		N/A			N/A			N/A		
	Units	**R1-CONDITION 1-TRAP6**	**RDL**	**QC Batch**	**R2-CONDITION 1-TRAP1**	**RDL**	**QC Batch**	**R2-CONDITION 1-TRAP2**	**RDL**	**QC Batch**
Chlorobenzene	ug	<0.2	0.2	2176679	0.05	0.01	2175592	<0.2	0.2	2176679
Surrogate Recovery (%)										
D8-Toluene	%	84		2176679	84		2175592	101		2176679

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8250			GC8252			GC8253		
Sampling Date		2010/06/02 14:13			2010/06/02 16:15			2010/06/02 17:02		
COC Number		N/A			N/A			N/A		
	Units	**R2-CONDITION 1-TRAP3**	**RDL**	**QC Batch**	**R3-CONDITION 1-TRAP9**	**RDL**	**QC Batch**	**R3-CONDITION 1-TRAP10**	**RDL**	**QC Batch**
Chlorobenzene	ug	<0.2	0.2	2176679	0.05	0.01	2175592	<0.2	0.2	2176679
Surrogate Recovery (%)										
D8-Toluene	%	81		2176679	87		2175592	96		2176679

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		GC8254			GC8375			GC8376		
Sampling Date		2010/06/02 17:52			2010/06/03 10:46			2010/06/03 11:32		
COC Number		N/A			N/A			N/A		
	Units	**R3-CONDITION 1-TRAP11**	**RDL**	**QC Batch**	**R1-CONDITION 2-TRAP13**	**RDL**	**QC Batch**	**R1-CONDITION 2-TRAP14**	**RDL**	**QC Batch**
Chlorobenzene	ug	<0.2	0.2	2176679	0.05	0.01	2176427	0.3	0.2	2177204
Surrogate Recovery (%)										
D8-Toluene	%	91		2176679	93		2176427	98		2177204

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8377			GC8379			GC8380		
Sampling Date		2010/06/03 12:33			2010/06/03 14:53			2010/06/03 15:39		
COC Number		N/A			N/A			N/A		
	Units	**R1-CONDITION 2-TRAP15**	**RDL**	**QC Batch**	**R2-CONDITION 2-TRAP17**	**RDL**	**QC Batch**	**R2-CONDITION 2-TRAP18**	**RDL**	**QC Batch**
Chlorobenzene	ug	<0.2	0.2	2177204	0.05	0.01	2175592	<0.2	0.2	2176679
Surrogate Recovery (%)										
D8-Toluene	%	103		2177204	85		2175592	96		2176679

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8381			GC8383			GC8384		
Sampling Date		2010/06/03 16:25			2010/06/04 07:40			2010/06/04 08:25		
COC Number		N/A			N/A			N/A		
	Units	**R2-CONDITION 2-TRAP19**	**RDL**	**QC Batch**	**R3-CONDITION 2-TRAP21**	**RDL**	**QC Batch**	**R3-CONDITION 2-TRAP22**	**RDL**	**QC Batch**
Chlorobenzene	ug	<0.2	0.2	2176679	0.10	0.01	2175592	<0.2	0.2	2177204
Surrogate Recovery (%)										
D8-Toluene	%	92		2176679	85		2175592	81		2177204

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		GC8385			GC8397		GC8401		
Sampling Date		2010/06/04 09:11			2010/06/04 13:13		2010/06/04 13:32		
COC Number		N/A			N/A		N/A		
	Units	**R3-CONDITION 2-TRAP23**	**RDL**	**QC Batch**	**RUN 1-AUDIT-TRAP1**	**QC Batch**	**RUN 2-AUDIT-TRAP2**	**RDL**	**QC Batch**
Chlorobenzene	ug	<0.2	0.2	2177204	1.23	2176427	2.48	0.01	2175592
Surrogate Recovery (%)									
D8-Toluene	%	102		2177204	103	2176427	92		2175592

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8402		
Sampling Date		2010/06/04 13:52		
COC Number		N/A		
	Units	**RUN 3-AUDIT-TRAP3**	**RDL**	**QC Batch**
Chlorobenzene	ug	1.4	0.1	2177204
Surrogate Recovery (%)				
D8-Toluene	%	110		2177204

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GC8387	GC8388	GC8389	GC8390	GC8391		
Sampling Date		2010/06/02 11:27	2010/06/02 14:59	2010/06/02 18:39	2010/06/03 13:21	2010/06/03 17:12		
COC Number		N/A	N/A	N/A	N/A	N/A		
	Units	**RUN 1- CONDITION 1-CON**	**RUN 2- CONDITION 1-CON**	**RUN 3- CONDITION 1-CON**	**RUN 1- CONDITION 2-CON**	**RUN 2- CONDITION 2-CON**	**RDL**	**QC Batch**
Chlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	2175128
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	94	92	93	93	95		2175128
D4-1,2-Dichloroethane	%	94	94	94	96	96		2175128
D8-Toluene	%	96	99	98	98	101		2175128

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8392	GC8403		
Sampling Date		2010/06/04 09:57	2010/06/04 13:52		
COC Number		N/A	N/A		
	Units	**RUN 3- CONDITION 2-CON**	**AUDIT CONDENSATE**	**RDL**	**QC Batch**
Chlorobenzene	ug/L	<1.0	<1.0	1.0	2175128
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	94	95		2175128
D4-1,2-Dichloroethane	%	97	98		2175128
D8-Toluene	%	100	99		2175128

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GC8242 **Collected** 2010/06/04
Sample ID FIELD BLANK-TRAP 27 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2175592	N/A	2010/06/10	DBJ

Maxxam ID GC8244 **Collected** 2010/06/02
Sample ID R1-CONDITION 1-TRAP8 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176427	N/A	2010/06/10	YYA

Maxxam ID GC8245 **Collected** 2010/06/02
Sample ID R1-CONDITION 1-TRAP7 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2177204	N/A	2010/06/11	YYA

Maxxam ID GC8246 **Collected** 2010/06/02
Sample ID R1-CONDITION 1-TRAP6 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176679	N/A	2010/06/11	DBJ

Maxxam ID GC8248 **Collected** 2010/06/02
Sample ID R2-CONDITION 1-TRAP1 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2175592	N/A	2010/06/10	DBJ

Maxxam ID GC8249 **Collected** 2010/06/02
Sample ID R2-CONDITION 1-TRAP2 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176679	N/A	2010/06/11	DBJ

Maxxam ID GC8250 **Collected** 2010/06/02
Sample ID R2-CONDITION 1-TRAP3 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176679	N/A	2010/06/11	DBJ

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GC8252 **Collected** 2010/06/02
Sample ID R3-CONDITION 1-TRAP9 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2175592	N/A	2010/06/10	DBJ

Maxxam ID GC8253 **Collected** 2010/06/02
Sample ID R3-CONDITION 1-TRAP10 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176679	N/A	2010/06/11	DBJ

Maxxam ID GC8254 **Collected** 2010/06/02
Sample ID R3-CONDITION 1-TRAP11 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176679	N/A	2010/06/11	DBJ

Maxxam ID GC8375 **Collected** 2010/06/03
Sample ID R1-CONDITION 2-TRAP13 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176427	N/A	2010/06/10	YYA

Maxxam ID GC8376 **Collected** 2010/06/03
Sample ID R1-CONDITION 2-TRAP14 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2177204	N/A	2010/06/11	YYA

Maxxam ID GC8377 **Collected** 2010/06/03
Sample ID R1-CONDITION 2-TRAP15 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2177204	N/A	2010/06/11	YYA

Maxxam ID GC8379 **Collected** 2010/06/03
Sample ID R2-CONDITION 2-TRAP17 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2175592	N/A	2010/06/10	DBJ

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GC8380 **Collected** 2010/06/03
Sample ID R2-CONDITION 2-TRAP18 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176679	N/A	2010/06/11	DBJ

Maxxam ID GC8381 **Collected** 2010/06/03
Sample ID R2-CONDITION 2-TRAP19 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176679	N/A	2010/06/11	DBJ

Maxxam ID GC8383 **Collected** 2010/06/04
Sample ID R3-CONDITION 2-TRAP21 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2175592	N/A	2010/06/10	DBJ

Maxxam ID GC8384 **Collected** 2010/06/04
Sample ID R3-CONDITION 2-TRAP22 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2177204	N/A	2010/06/11	YYA

Maxxam ID GC8385 **Collected** 2010/06/04
Sample ID R3-CONDITION 2-TRAP23 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2177204	N/A	2010/06/11	YYA

Maxxam ID GC8387 **Collected** 2010/06/02
Sample ID RUN 1- CONDITION 1-CON **Shipped**
Matrix Water **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Condensate (8260Cmod)	P&T/MS	2175128	N/A	2010/06/15	AGE

Maxxam ID GC8388 **Collected** 2010/06/02
Sample ID RUN 2- CONDITION 1-CON **Shipped**
Matrix Water **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Condensate (8260Cmod)	P&T/MS	2175128	N/A	2010/06/15	AGE

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GC8389 **Collected** 2010/06/02
Sample ID RUN 3- CONDITION 1-CON **Shipped**
Matrix Water **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Condensate (8260Cmod)	P&T/MS	2175128	N/A	2010/06/15	AGE

Maxxam ID GC8390 **Collected** 2010/06/03
Sample ID RUN 1- CONDITION 2-CON **Shipped**
Matrix Water **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Condensate (8260Cmod)	P&T/MS	2175128	N/A	2010/06/15	AGE

Maxxam ID GC8391 **Collected** 2010/06/03
Sample ID RUN 2- CONDITION 2-CON **Shipped**
Matrix Water **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Condensate (8260Cmod)	P&T/MS	2175128	N/A	2010/06/15	AGE

Maxxam ID GC8392 **Collected** 2010/06/04
Sample ID RUN 3- CONDITION 2-CON **Shipped**
Matrix Water **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Condensate (8260Cmod)	P&T/MS	2175128	N/A	2010/06/15	AGE

Maxxam ID GC8397 **Collected** 2010/06/04
Sample ID RUN 1-AUDIT-TRAP1 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2176427	N/A	2010/06/10	YYA

Maxxam ID GC8401 **Collected** 2010/06/04
Sample ID RUN 2-AUDIT-TRAP2 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2175592	N/A	2010/06/10	DBJ

Maxxam ID GC8402 **Collected** 2010/06/04
Sample ID RUN 3-AUDIT-TRAP3 **Shipped**
Matrix AIR **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2177204	N/A	2010/06/11	YYA

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID	GC8403	**Collected**	2010/06/04
Sample ID	AUDIT CONDENSATE	**Shipped**	
Matrix	Water	**Received**	2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Condensate (8260Cmod)	P&T/MS	2175128	N/A	2010/06/15	AGE

Maxxam Job #: B073313
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

GENERAL COMMENTS

VOC Analysis: Due to insufficient sample volume, sample required dilution. Detection limits were adjusted accordingly.

Sample GC8245-01: Sample analyzed at 20X dilution due to high concentration of non-target analytes. The DL's were adjusted accordingly.

Sample GC8246-01: VOCVOSTM-A: Analyzed 20X dilution of sample due to high levels of non-target compounds. Detection limits have been adjusted accordingly.

Sample GC8249-01: VOCVOSTM-A: Analyzed 20X dilution of sample due to high levels of non-target compounds. Detection limits have been adjusted accordingly.

Sample GC8250-01: VOCVOSTM-A: Analyzed 20X dilution of sample due to high levels of non-target compounds. Detection limits have been adjusted accordingly.

Sample GC8253-01: VOCVOSTM-A: Analyzed 20X dilution of sample due to high levels of non-target compounds. Detection limits have been adjusted accordingly.

Sample GC8254-01: VOCVOSTM-A: Analyzed 20X dilution of sample due to high levels of non-target compounds. Detection limits have been adjusted accordingly.

Sample GC8376-01: Sample analyzed at 20X dilution due to high concentration of non-target analytes. The DL's were adjusted accordingly.

Sample GC8377-01: Sample analyzed at 20X dilution due to high concentration of non-target analytes. The DL's were adjusted accordingly.

Sample GC8380-01: VOCVOSTM-A: Analyzed 20X dilution of sample due to high levels of non-target compounds. Detection limits have been adjusted accordingly.

Sample GC8381-01: VOCVOSTM-A: Analyzed 20X dilution of sample due to high levels of non-target compounds. Detection limits have been adjusted accordingly.

Sample GC8384-01: Sample analyzed at 20X dilution due to high concentration of non-target analytes. The DL's were adjusted accordingly.

Sample GC8385-01: Sample analyzed at 20X dilution due to high concentration of non-target analytes. The DL's were adjusted accordingly.

Sample GC8397-01: Chlorobenzene is over the calibration range. Data should be considered an estimate only.

Sample GC8401-01: Chlorobenzene exceeds calibration range in this sample. Result should be considered as estimate only.

Sample GC8402-01: Sample analyzed at 10X dilution due to high concentration of non-target analytes. The DL's were adjusted accordingly.

Results relate only to the items tested.

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Alliance Source Testing, LLC
Attention: Chris Lemay
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report

Maxxam Job Number: GB073313

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2175128 AGE	Spiked Blank	4-Bromofluorobenzene	2010/06/15		99	%	76 - 120
		D4-1,2-Dichloroethane	2010/06/15		88	%	67 - 122
		D8-Toluene	2010/06/15		100	%	75 - 114
		Chlorobenzene	2010/06/15		102	%	70 - 130
	Method Blank	4-Bromofluorobenzene	2010/06/15		93	%	76 - 120
		D4-1,2-Dichloroethane	2010/06/15		91	%	67 - 122
		D8-Toluene	2010/06/15		97	%	75 - 114
		Chlorobenzene	2010/06/15	<0.50		ug/L	
2175592 DBJ	Spiked Blank	D8-Toluene	2010/06/10		99	%	80 - 114
		Chlorobenzene	2010/06/10		106	%	50 - 150
	Method Blank	D8-Toluene	2010/06/10		97	%	80 - 114
		Chlorobenzene	2010/06/10	<0.01		ug	
2176427 YYA	Spiked Blank	D8-Toluene	2010/06/10		99	%	80 - 114
		Chlorobenzene	2010/06/10		105	%	50 - 150
	Method Blank	D8-Toluene	2010/06/10		102	%	80 - 114
		Chlorobenzene	2010/06/10	<0.01		ug	
2176679 DBJ	Spiked Blank	D8-Toluene	2010/06/11		98	%	80 - 114
		Chlorobenzene	2010/06/11		95	%	50 - 150
	Method Blank	D8-Toluene	2010/06/11		101	%	80 - 114
		Chlorobenzene	2010/06/11	<0.01		ug	
2177204 YYA	Spiked Blank	D8-Toluene	2010/06/11		101	%	80 - 114
		Chlorobenzene	2010/06/11		103	%	50 - 150
	Method Blank	D8-Toluene	2010/06/11		104	%	80 - 114
		Chlorobenzene	2010/06/11	<0.01		ug	

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Validation Signature Page

Maxxam Job #: B073313

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Maureen Smith

MAUREEN SMITH, Supervisor, Volatiles

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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3.0 Sample Custody

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Chain of Custody Form

Condition 1 | Run 1 | Method 0030 PDAC

Maxxam Analytics Inc.
5555 N. Service Road
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Page 1 of 1

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	SW846 Method 0030 - Chlorobenzene (Traps)	SW846 Method 0030 - Chlorobenzene (Condensate)									
	Condition 1 / Run 1 / Trap 8	2	6/2/10	8:40	NA	2										
	Condition 1 / Run 1 / Trap 7	2	6/2/10	9:37		2										
	" " / " " / Trap 6	2	6/2/10	10:38		2										
	" " / " " / Trap 5	2	6/2/10	11:27		2		*Hold - do not analyze								
	Condition 1 / Run 1 / Condensate	1	6/2/10	11:27		1	1									

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-2-2010 9:00

Method 23 / TCSA
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

6-09-10 / 1:00 pm

Confidential : Maxxam Analytics International

Chain of Custody Form (Condition 1 / Run 2 / Method 0030 PCDD/F)

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Burlington, Ontario L7L 5H7
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Page ____ of ____

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	SW846 Method 0030 - Chlorobenzene (Traps)	SW846 Method 0030 - Chlorobenzene (Condensate)									
	Condition 1 / Run 2 / Trap 1	2	6-2-10	12:40 PM	14 g	2										
	" " / " " / Trap 2	2	6-2-10	13:27	↓	2										
	" " / " " / Trap 3	2	6-2-10	14:13		2										
	" " / " " / Trap 4	2	6-2-10	14:59		2		*Hold - do not analyze								
	" " / " " / Condensate	1	6-2-10	14:59	↓		1									

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Method 23 / TO9A

- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐
- TEF x DL ☐
- TEF x 0 DL ☐
- TEF x 0.5 DL ☐

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

6-9-2010 / 1:00 PM

Chain of Custody Form

Condition 1 / Run 3 / Method 0030 PCHC

Maxxam Analytics Inc.
5555 N. Service Road
Burlington, Ontario L7L 5H7
www.maxxamanalytics.com
Toll Free: 1-800-668-0639
Phone: (905) 332-8788
Fax: (905) 332-9169

Page ___ of ___

ANALYSIS REQUESTED

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	SW846 Method 0030 - Chlorobenzene (Traps)	SW846 Method 0030 - Chlorobenzene (Condensate)								
	Condition 1 / Run 3 / Trap 9	2	6-2-10	16:15	NA	2									
	" " / " " / Trap 10	2	6-2-10	17:02		2									
	" " / " " / Trap 11	2	6-2-10	17:52		2									
	" " / " " / Trap 12	2	6-2-10	18:39		2		*Hold - do not analyze							
	" " / " " / Condensate	1	6-2-10	18:39			1								

TAT Requirement
- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION
- Project #: 2010-0071-001
- Name: FutureFuel
- PO #:
- Maxxam Quote #:
- Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS
- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS
* Initial impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature: [signature]
Affiliation: AS
Date/Time: 6/7/2010 / 9:00

Received by: [signature]
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TOSA
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1988 WHO ☐
- TEF x DL ☐
- TEF x 0 DL ☐
- TEF x 0.5 DL ☐

[signature] 6-9-10 / 1:00pm

Confidential : Maxxam Analytics International

Chain of Custody Form

Condition 2 / Run 1 / Method 0050 POHC

Maxxam Analytics Inc
5555 N. Service Road
Burlington, Ontario L7L 5H7
www.maxxamanalytics.com
Toll Free: 1-800-668-0639
Phone: (905) 332-6788
Fax: (905) 332-9169

Page 1 of 1

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	SW846 Method 0050 – Chlorobenzene (Traps)	SW846 Method 0050 – Chlorobenzene (Condensate)	
	Condition 2/Run 1/Trap 13	2	6-3-10	10:40	N/A	2		
	Condition 2/Run 1/Trap 14	2	6-3-10	11:32	↓	2		
	Condition 2/Run 1/Trap 15	2	6-3-10	12:33	↓	2		
	Condition 2/Run 1/Trap 16	2	6-3-10	13:21	↓	2		* Hold, do not analyze
	Condition 2/Run 1/Condensate	1	6-3-10	13:21	↓		1	

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 10-7-2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TCSA

- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐
- TEF x DL ☐
- TEF x 0 DL ☐
- TEF x 0.5 DL ☐

6-9-2010 1:00 pm

Chain of Custody Form

Condition 2 / Run 2 / Method 0030 POHC

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5555 N. Service Road
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Toll Free: 1-800-668-0639
Phone: (905) 332-8788
Fax: (905) 332-9169

Page ____ of ____

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	Sub346 Method 0030 – Chlorobenzene (Traps)	Sub346 Method 0030 – Chlorobenzene (Condensate)								
	Condition 2/Run 2/Trap 17	2	6-3-10	14:53	NA	2									
	Condition 2/Run 2/Trap 18	2	6-3-10	15:39		2									
	Condition 2/Run 2/Trap 19	2	6-3-10	16:25		2									
	Condition 2/Run 2/Trap 20	2	6-3-10	17:12		2		*Hold, do not analyze							
	Condition 2/Run 2/Condensate	1	6-3-10	17:12			1								

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: ASI
Date/Time: 6/7/2010 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TCDA
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1988 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

6-9-2010 1:00pm

Chain of Custody Form

Condition 2/ Run 3 / Method 0030 POHC

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5555 N. Service Road
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Page ____ of ____

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	SW846 Method 0030 – Chlorobenzene (Traps)	SW846 Method 0030 – Chlorobenzene (Condensate)									
	Condition 2/Run 3/Trap 21	2	6-4-10	7:40	NA	2										
	Condition 2/Run 3/Trap 22	2	6-4-10	8:25	↓	2										
	Condition 2/Run 3/Trap 23	2	6-4-10	9:11	↓	2										
	Condition 2/Run 3/Trap 24	2	6-4-10	9:57	↓	2		*	Hold, do not analyze							
	Condition 2/Run 3/Condensate	1	6-4-10	9:57	↓		1									
	Fieldblank/Trap 27	2	6-4-10	7:35	↓	2										
	Tripblank/Trap 28	2	6-4-10	7:30	↓	2		*	Hold, do not analyze							
	Audit Run 1/Trap 1	2	6-4-10	13:15	↓	2										
	Audit Run 2/Trap 2	2	6-4-10	13:52	↓	2										
	Audit Run 3/Trap 3	2	6-4-10	13:52	↓	2										
	Audit Condensate	1	6-4-10	13:52	↓		1									

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑

** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: ACT
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TO9A
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

SAMPLE RECEIPT LOG

Lab Name: Maxxam Analytics Inc., Mississauga Laboratory

Received by (Name): Marsela Wijaya

Received by (Signature): MS *Date:* June 9, 10 *Time:* 1:00 pm

Client Name: Alliance Source Testing

Number of Package: Number of Boxes: ____ or Coolers: 2

Waybill #: Driver pick up at client

REMARKS:				Condition of Sample(s) Shipment - Comments
Sample Reception Documentation				
Samples Packed in Coolers?	Yes ☑	No ☐	N/A ☐	
Cooler Contains ice?	Yes ☑	No ☐	N/A ☐	
Custody seal(s) on cooler?	Yes ☑	No ☐	N/A ☐	
Chain of Custody (CofC) present?	Yes ☑	No ☐	N/A ☐	
Cooler Temperature measured?	Yes ☑	No ☐	N/A ☐	
Containers intact?	Yes ☑	No ☐	N/A ☐	
Correct containers used?	Yes ☑	No ☐	N/A ☐	
CoC agrees with samples?	Yes ☑	No ☐	N/A ☐	
Samples rec'd after hold time?	Yes ☐	No ☐	N/A ☐	
Project Mgr contacted via SIF?	Yes ☐	No ☐	N/A ☐	
Project Manager Documentation				
Client contacted if discrepancies in shipment are observed	Yes ☐	No ☐	N/A ☐	
Client acceptance of deficiencies (if observed at sample receipt)	Yes ☐	No ☐	N/A ☐	
Cooler temperatures upon receipt				
Cooler ID: 1 VOST	Temp. 11° / 12° / 12°			
Cooler ID: 2	Temp. 18° / 18° / 18°			
Cooler ID:	Temp.			

Unpacked & package checked By: MW *Date:* June 9, 2010

Package checked By: ____ *Date:* ____

Relinquished by: ____ *Date:* ____

Maxxam Analytics

Driven by Service and Science

Method 0030 – Volatile Organic Sampling Train (VOST)

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Analytics

Driven by Service and Science

4.0 Initial Calibration Data

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

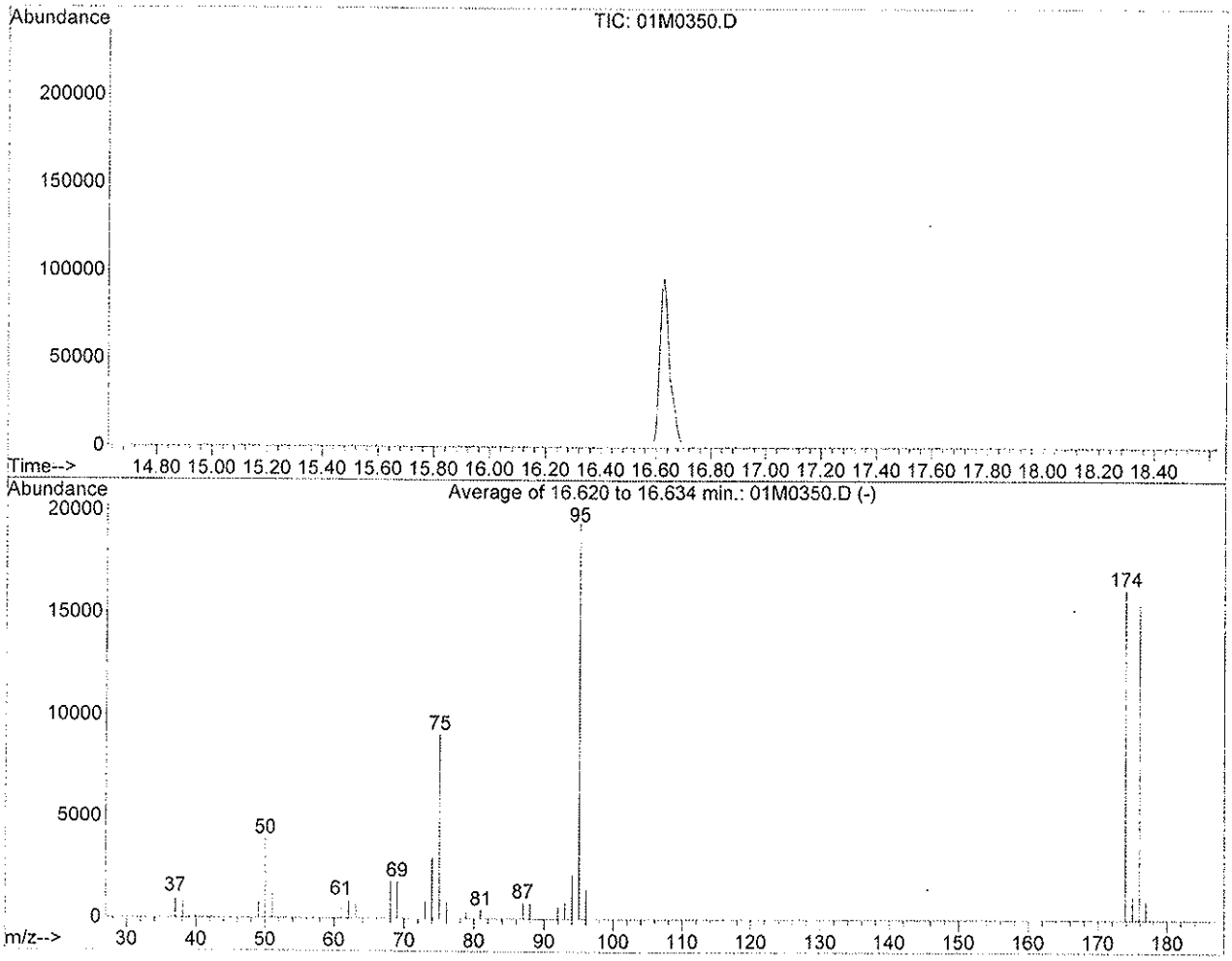
```
Sequence Name: C:\MSDchem\1\sequence\01M10MAY05.S
      Comment: VOST ANALYSIS - 6PT. CAL.
     Operator: DBJ
    Data Path: C:\MSDchem\1\DATA\01M10MAY05\
  Pre-Seq Cmd:
 Post-Seq Cmd:

Method Sections To Run      On A Barcode Mismatch
 (X) Full Method              (X) Inject Anyway
 ( ) Reprocessing Only        ( ) Don't Inject


Line Type       Vial DataFile Method   Sample Name
-----------------------------------------------------------------------
  1 BFB            1 01M0349  VOS00304 BFB STD
  2 Pause     - BFB STD
  3 BFB            2 01M0350  VOS00505 BFB STD
  4 Sample         3 01M0351  VOS00505 SBLANK
  5 Sample         4 01M0352  VOS00505 50 ng VOST STD
  6 Sample         5 01M0353  VOS00505 100 ng VOST STD
  7 Sample         6 01M0354  VOS00505 250 ng VOST STD
  8 Sample         7 01M0355  VOS00505 375 ng VOST STD
  9 Sample         8 01M0356  VOS00505 500 ng VOST STD
 10 Sample         9 01M0357  VOS00505 1000 ng VOST STD
```

BFB

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0350.D Vial: 2
Acq On : 5 May 2010 11:29 am Operator: DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS



AutoFind: Scans 1824, 1825, 1826; Background Corrected with Scan 1818

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.1	3906	PASS
75	95	30	60	46.8	9079	PASS
95	95	100	100	100.0	19400	PASS
96	95	5	9	7.5	1448	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	83.4	16185	PASS
175	174	5	9	7.5	1214	PASS
176	174	95	101	96.1	15555	PASS
177	176	5	9	6.1	951	PASS

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0350.D Vial: 2
Acq On : 5 May 2010 11:29 am Operator: DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:57:39 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	0.00	114	0	0.00 ng	-10.82
3) d5-Chlorobenzene	15.01	117	438	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	0.00	152	0	0.00 ng	-18.06

System Monitoring Compounds

2) d4-1,2-Dichloroethane	0.00	65	0	0.00 ng	
Spiked Amount 250.000	Range 74 - 122		Recovery = 0.00%#		
4) d8-Toluene	0.00	98	0	0.00 ng	
Spiked Amount 250.000	Range 80 - 114		Recovery = 0.00%#		
5) d10-Ethylbenzene	0.00	98	0	0.00 ng	
Spiked Amount 200.000	Range 54 - 152		Recovery = 0.00%#		
7) 4-Bromofluorobenzene	16.63	174	47044	72708.97 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 29083.59%#		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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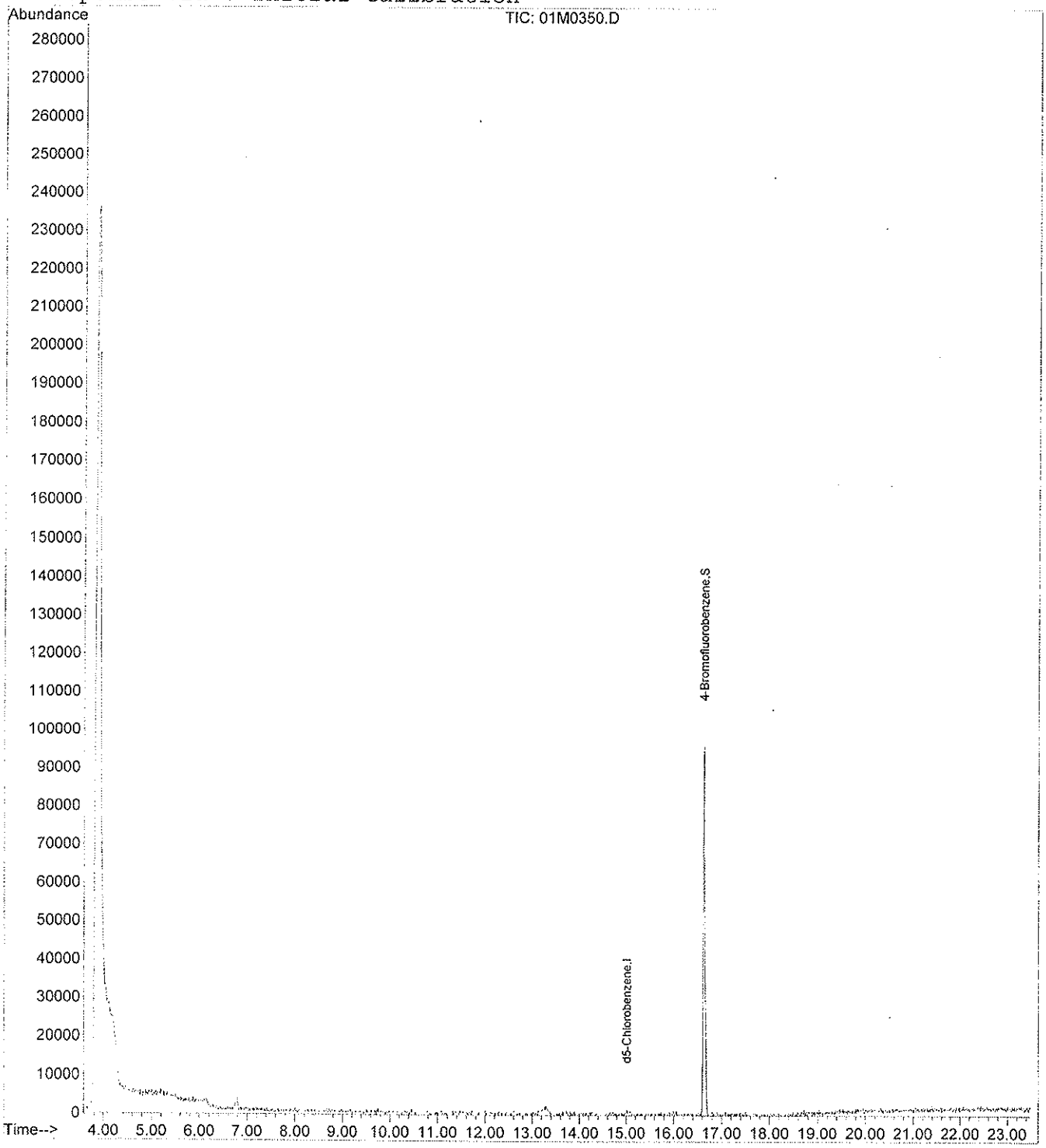
Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0350.D Vial: 2
Acq On : 5 May 2010 11:29 am Operator: DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:57 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Response Factor Report msd1

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration

Calibration Files
1 =01M0352.D 2 =01M0353.D 3 =01M0354.D
4 =01M0355.D 5 =01M0356.D 6 =01M0357.D

		Compound	1	2	3	4	5	6	Avg	%RSD
1)	I	Difluorobenzene	----------ISTD----------							
2)	S	d4-1,2-Dichloro	0.318	0.321	0.332	0.336	0.335	0.312	0.326	3.16
3)	I	d5-Chlorobenzene	----------ISTD----------							
4)	S	d8-Toluene	1.271	1.273	1.268	1.262	1.267	1.272	1.269	0.33
5)	S	d10-Ethylbenzen	1.402	1.342	1.442	1.462	1.404	1.445	1.416	3.08
6)		Chlorobenzene	0.936	0.830	0.823	0.923	0.917	0.885	0.886	5.51
7)	S	4-Bromofluorobe	0.340	0.363	0.366	0.379	0.379	0.388	0.369	4.64
8)	I	d4-1,4-Dichlorobenzen	----------ISTD----------							

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0352.D Vial: 4
Acq On : 5 May 2010 2:55 pm Operator: DBJ
Sample : 50 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:58:08 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

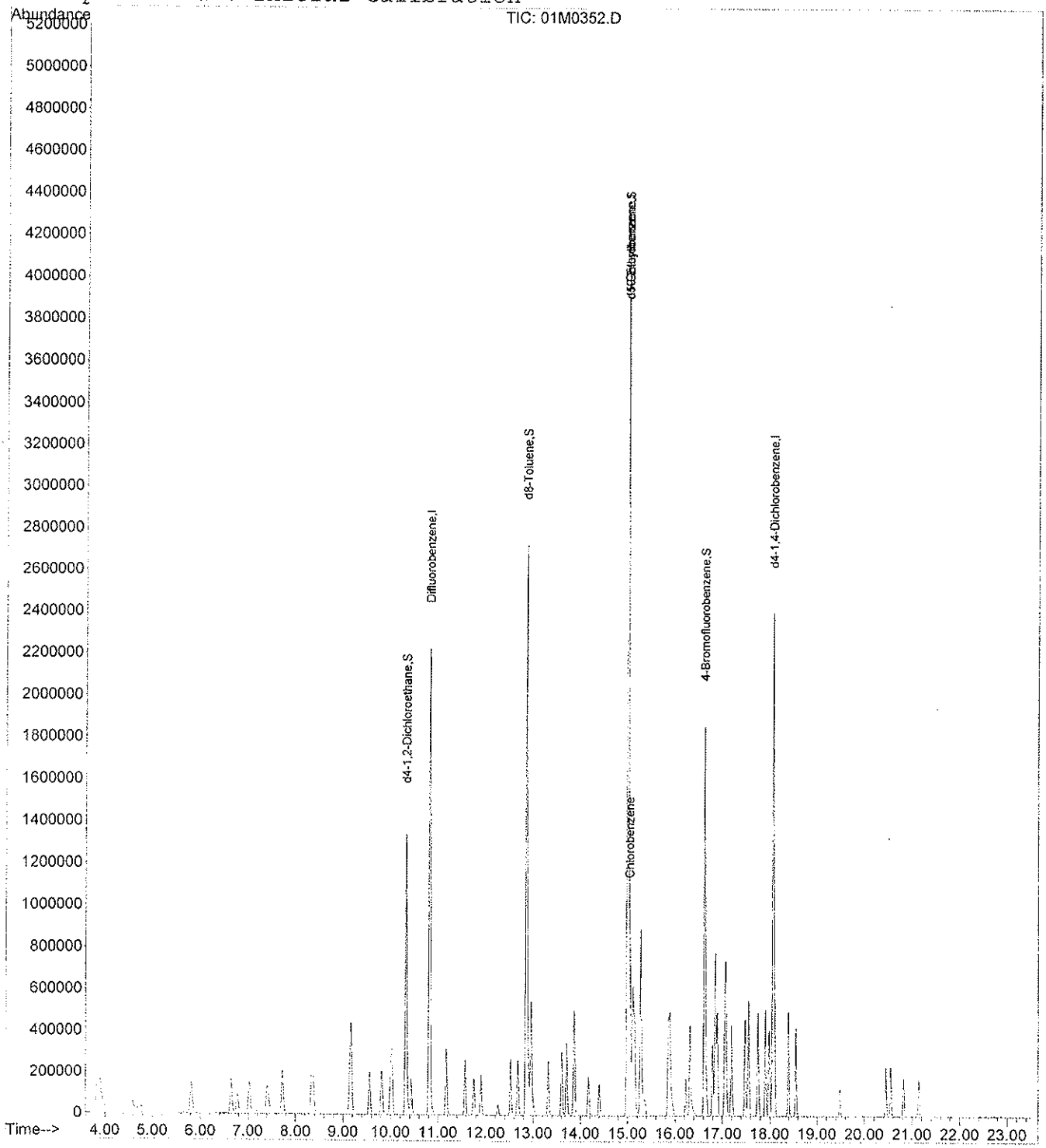
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.82	114	2451191	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2120899	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	722455	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	778631	243.91	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 97.56%			
4) d8-Toluene	12.86	98	2694789	250.33	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 100.13%			
5) d10-Ethylbenzene	14.99	98	2379452	198.02	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 99.01%			
7) 4-Bromofluorobenzene	16.62	174	720589	230.00	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 92.00%			
Target Compounds						Qvalue
6) Chlorobenzene	15.05	112	397075	52.85	ng	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0352.D Vial: 4
Acq On : 5 May 2010 2:55 pm Operator: DBJ
Sample : 50 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:58 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0353.D Vial: 5
Acq On : 5 May 2010 3:37 pm Operator: DBJ
Sample : 100 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:58:56 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.82	114	2439687	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2139238	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	810096	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	782560	246.30	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 98.52%			
4) d8-Toluene	12.86	98	2724044	250.88	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 100.35%			
5) d10-Ethylbenzene	15.00	98	2296809	189.50	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 94.75%			
7) 4-Bromofluorobenzene	16.62	174	777383	246.00	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 98.40%			
Target Compounds						Qvalue
6) Chlorobenzene	15.05	112	710195	93.71	ng	96

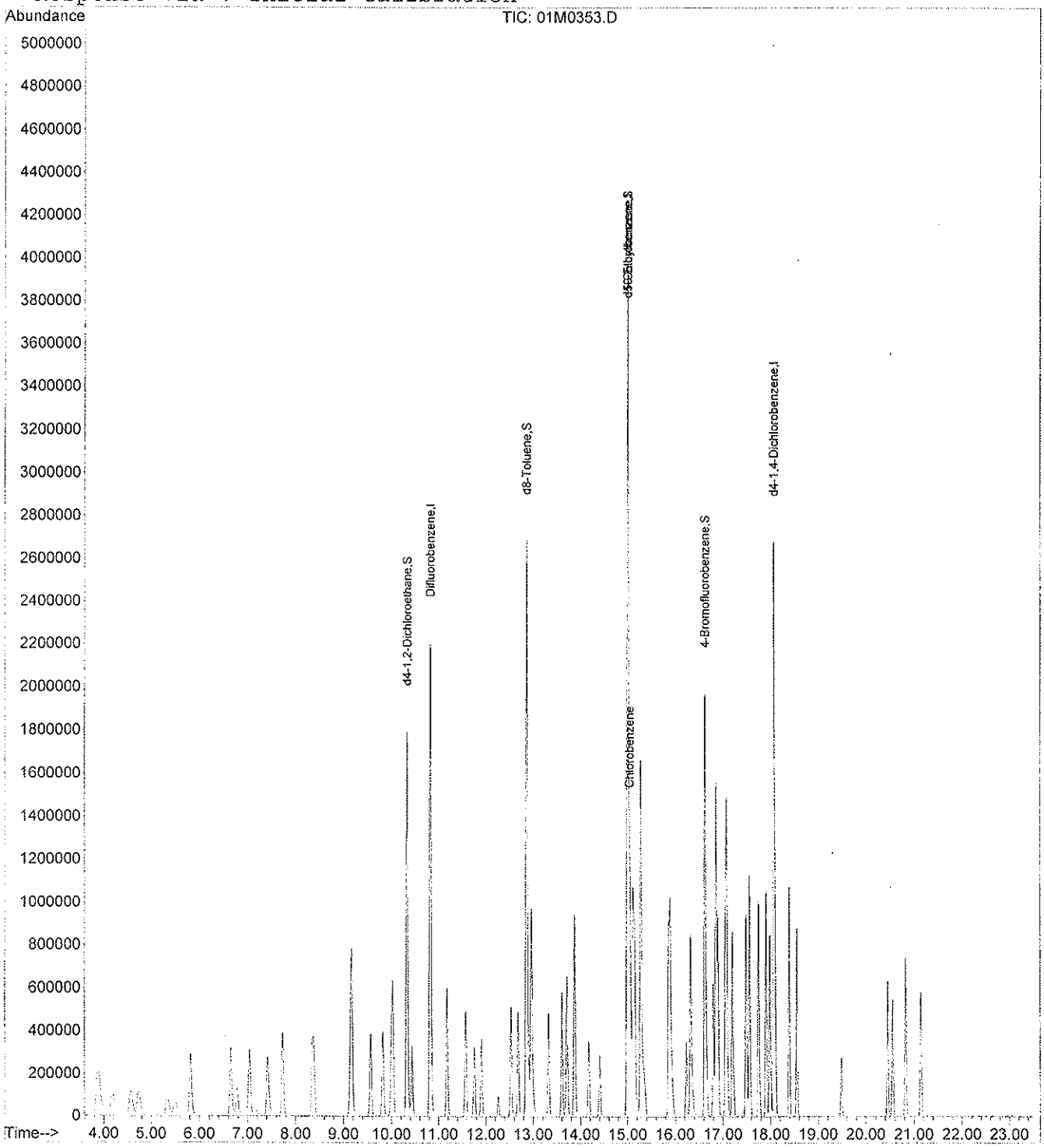
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Confidential : Maxxam Analytics International

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0353.D Vial: 5
Acq On : 5 May 2010 3:37 pm Operator: DBJ
Sample : 100 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:58 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0354.D Vial: 6
Acq On : 5 May 2010 4:22 pm Operator: DBJ
Sample : 250 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:59:57 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

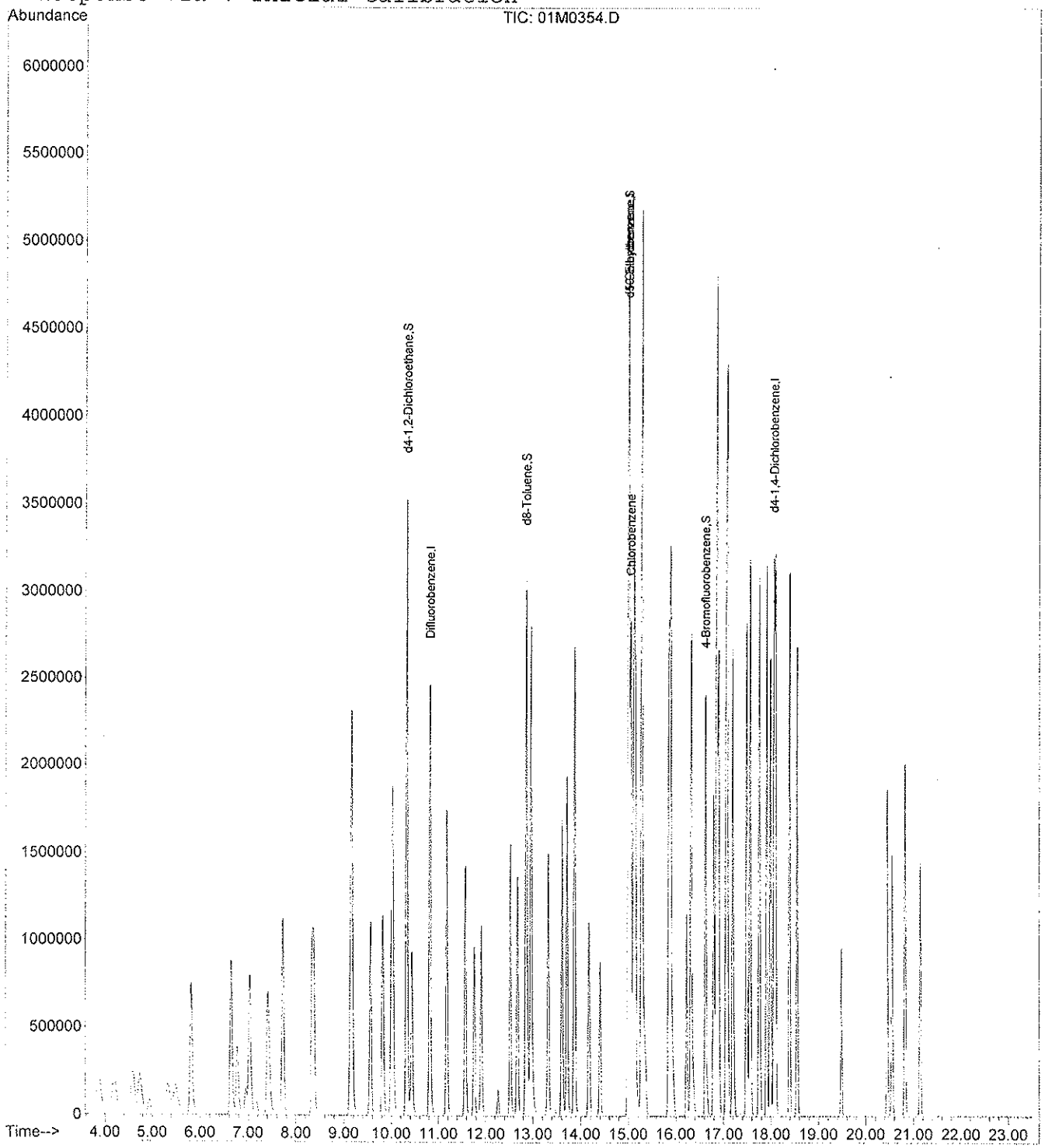
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.82	114	2753447	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	2424989	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	952960	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	10.33	65	914550	255.04 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 102.02%		
4) d8-Toluene	12.86	98	3075429	249.86 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 99.94%		
5) d10-Ethylbenzene	14.99	98	2798232	203.67 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 101.83%		
7) 4-Bromofluorobenzene	16.62	174	888446	248.02 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 99.21%		
Target Compounds					Qvalue
6) Chlorobenzene	15.05	112	1996133	232.35 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0354.D Vial: 6
Acq On : 5 May 2010 4:22 pm Operator: DBJ
Sample : 250 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 22 13:59 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0355.D Vial: 7
Acq On : 5 May 2010 5:13 pm Operator: DBJ
Sample : 375 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:40:09 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:40:09 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

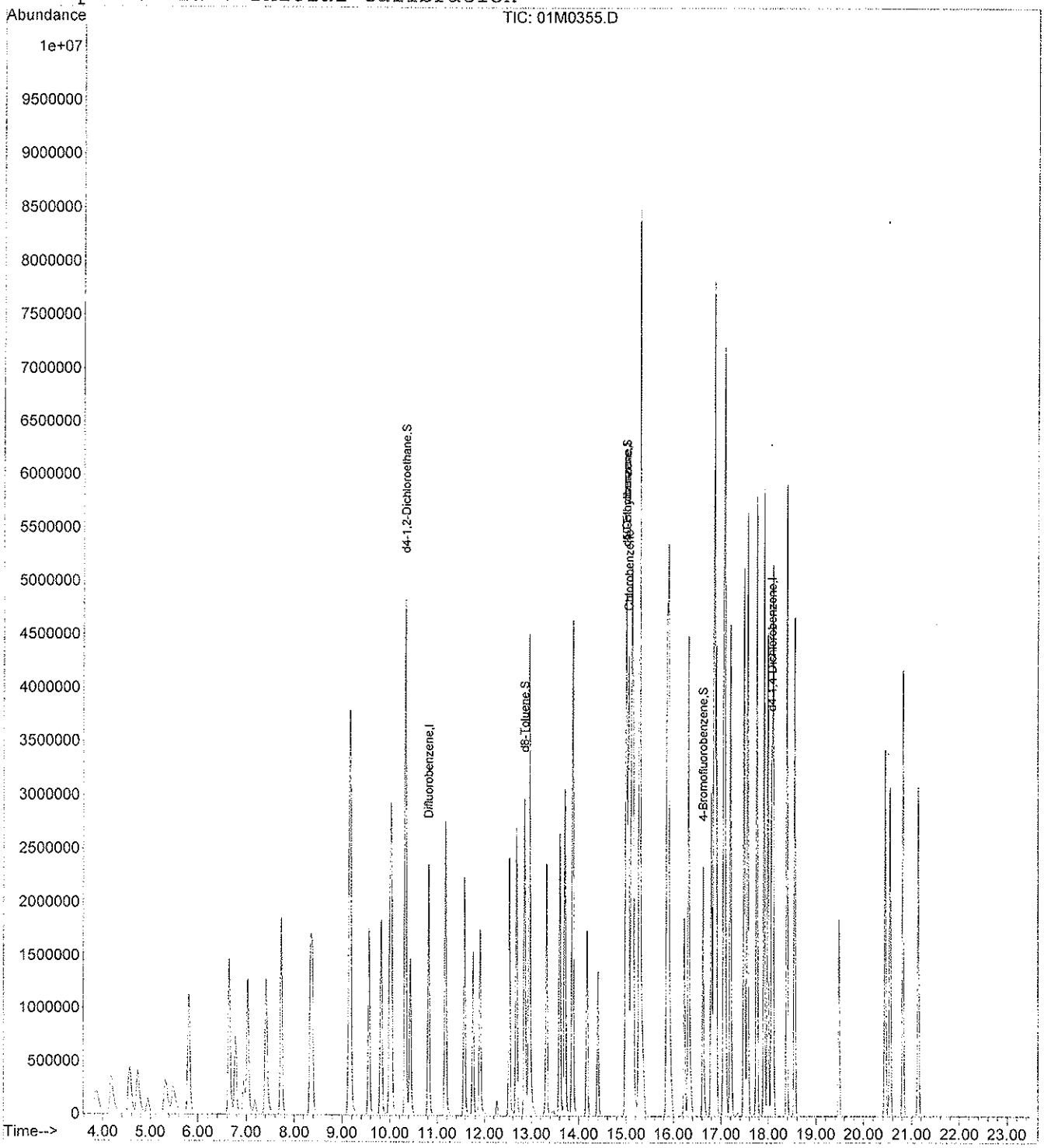
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.82	114	2588147	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2294502	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	971056	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	870365	259.87	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 103.95%			
4) d8-Toluene	12.86	98	2895146	248.24	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 99.30%			
5) d10-Ethylbenzene	14.99	98	2684278	209.56	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 104.78%			
7) 4-Bromofluorobenzene	16.62	174	868475	265.42	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 106.17%			
Target Compounds						Qvalue
6) Chlorobenzene	15.05	112	3177795	401.17	ng	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0355.D Vial: 7
Acq On : 5 May 2010 5:13 pm Operator: DBJ
Sample : 375 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:40 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0356.D Vial: 8
Acq On : 5 May 2010 5:50 pm Operator: DBJ
Sample : 500 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:40:10 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:40:09 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

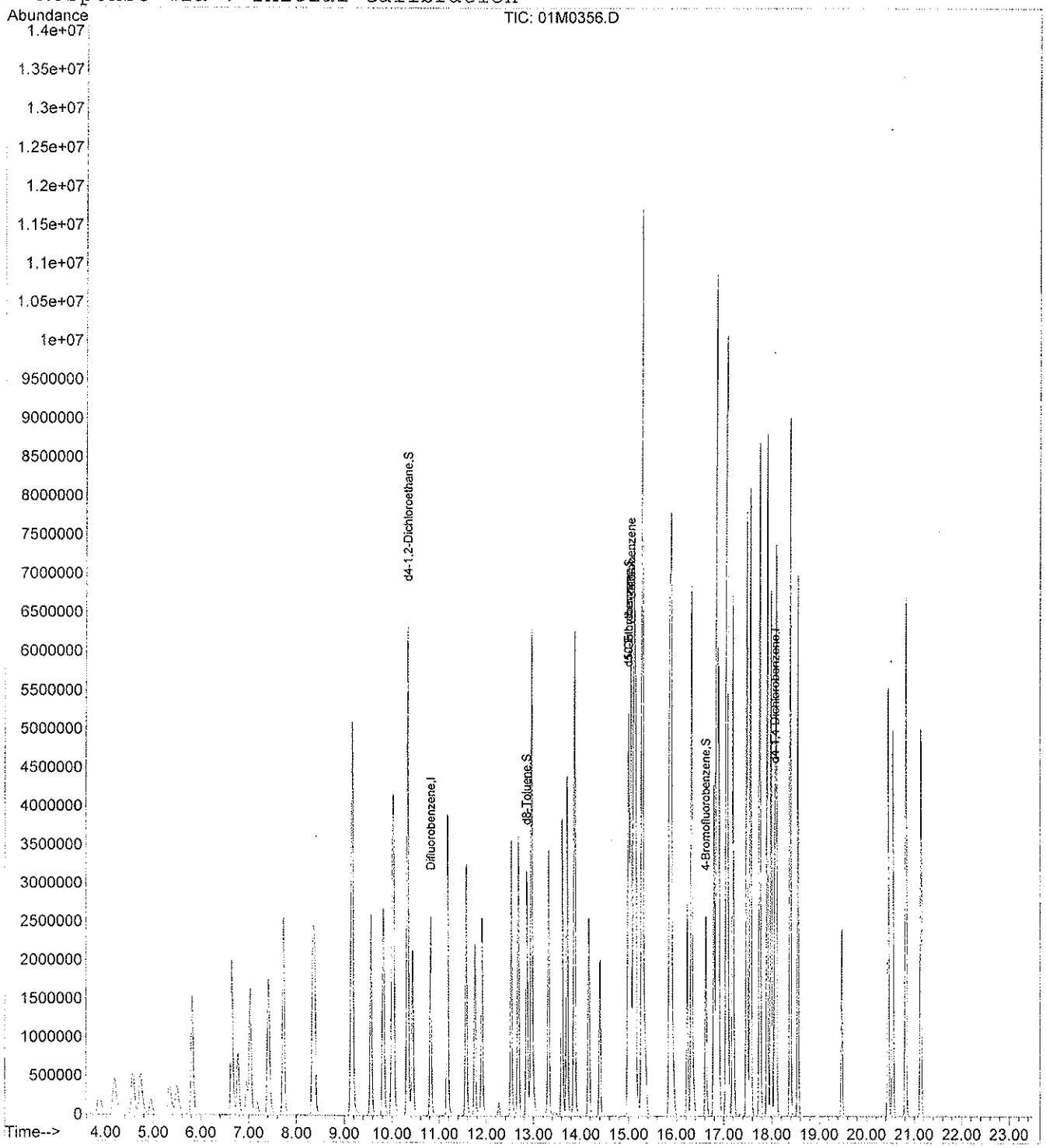
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.82	114	2850059	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2494588	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	1104614	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	954843	256.36	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 102.54%			
4) d8-Toluene	12.86	98	3160926	249.73	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 99.89%			
5) d10-Ethylbenzene	14.99	98	2801518	198.80	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 99.40%			
7) 4-Bromofluorobenzene	16.62	174	946257	261.96	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 104.78%			
Target Compounds						Qvalue
6) Chlorobenzene	15.05	112	4572596	521.85	ng	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0356.D Vial: 8
Acq On : 5 May 2010 5:50 pm Operator: DBJ
Sample : 500 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:40 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0357.D Vial: 9
Acq On : 5 May 2010 6:28 pm Operator: DBJ
Sample : 1000 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:40:10 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:40:10 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

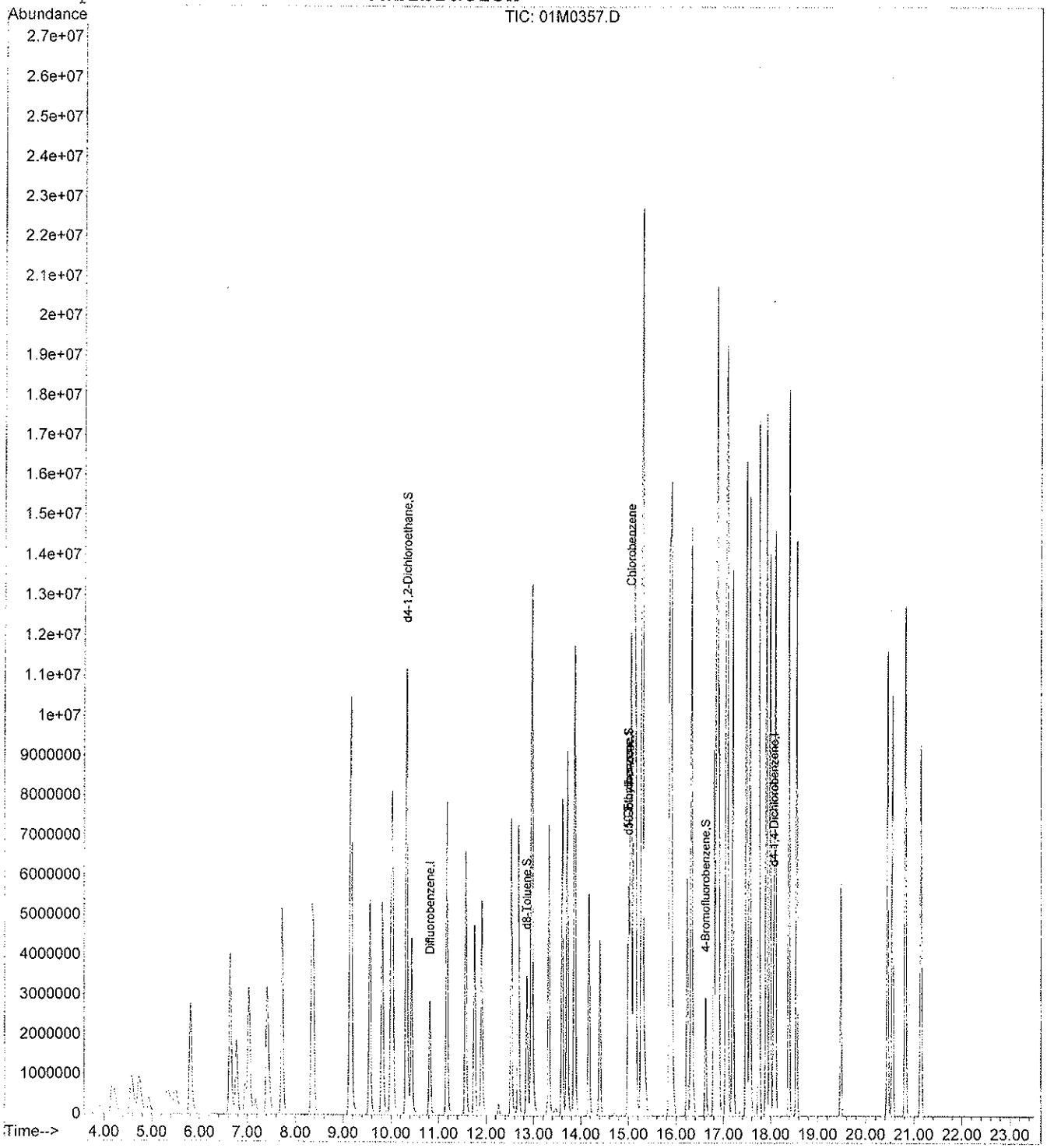
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.82	114	3265655	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2793229	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	1252468	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	1017584	237.23	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 94.89%			
4) d8-Toluene	12.86	98	3554228	250.83	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 100.33%			
5) d10-Ethylbenzene	14.99	98	3229979	204.94	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 102.47%			
7) 4-Bromofluorobenzene	16.62	174	1085080	265.73	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 106.29%			
Target Compounds						Qvalue
6) Chlorobenzene	15.05	112	9887733	999.06	ng	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2010\01M10MAY05\01M0357.D Vial: 9
Acq On : 5 May 2010 6:28 pm Operator: DBJ
Sample : 1000 ng VOST STD Inst : msd1
Misc : 100505DJ01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:40 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Confidential : Maxxam Analytics International

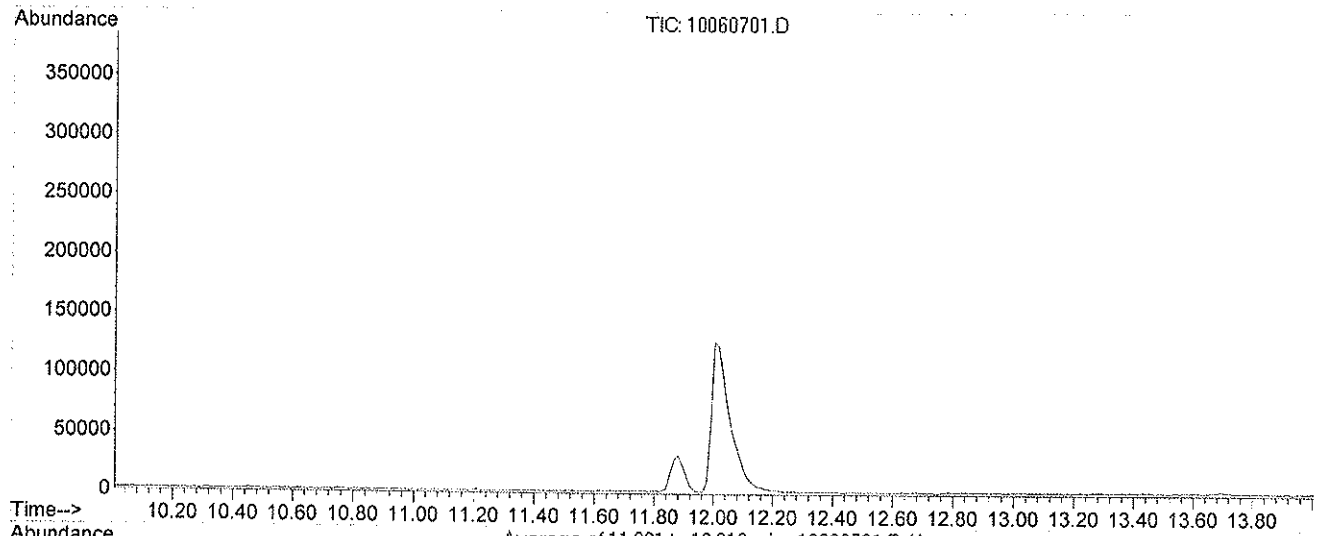
```
   Sequence Name: C:\MSDChem\1\sequence\20100607.S
         Comment: MSD2
        Operator: YY
       Data Path: C:\DATA\2010\2010_06\2100607\
Top                  Pre-Seq Cmd:
Instrument Control   Pre-Seq Cmd:
Data Analysis        Pre-Seq Cmd:

Top                 Post-Seq Cmd:
Instrument Control  Post-Seq Cmd:
Data Analysis       Post-Seq Cmd:

   Method Sections To Run      On A Barcode Mismatch
    (X) Full Method              (X) Inject Anyway
    ( ) Reprocessing Only        ( ) Don't Inject

   ----------------------------------------------------------------------
   Line                     Sample Name/Misc Info
 1)  BFB            1  10060701 VOS00322 BFB
 2)  Sample         2  10060702 VOS00322 BLANK
 3)  Sample         3  10060703 VOS00322 BLANK
 4)  Sample         4  10060704 VOS00322 50NG VOST STD
 5)  Sample         5  10060705 VOS00322 100NG VOST STD
 6)  Sample         6  10060706 VOS00322 250NG VOST STD
 7)  Sample         7  10060707 VOS00322 375NG VOST STD
 8)  Sample         8  10060708 VOS00322 500NG VOST STD
 9)  Sample         9  10060709 VOS00322 1000NG VOST STD
```

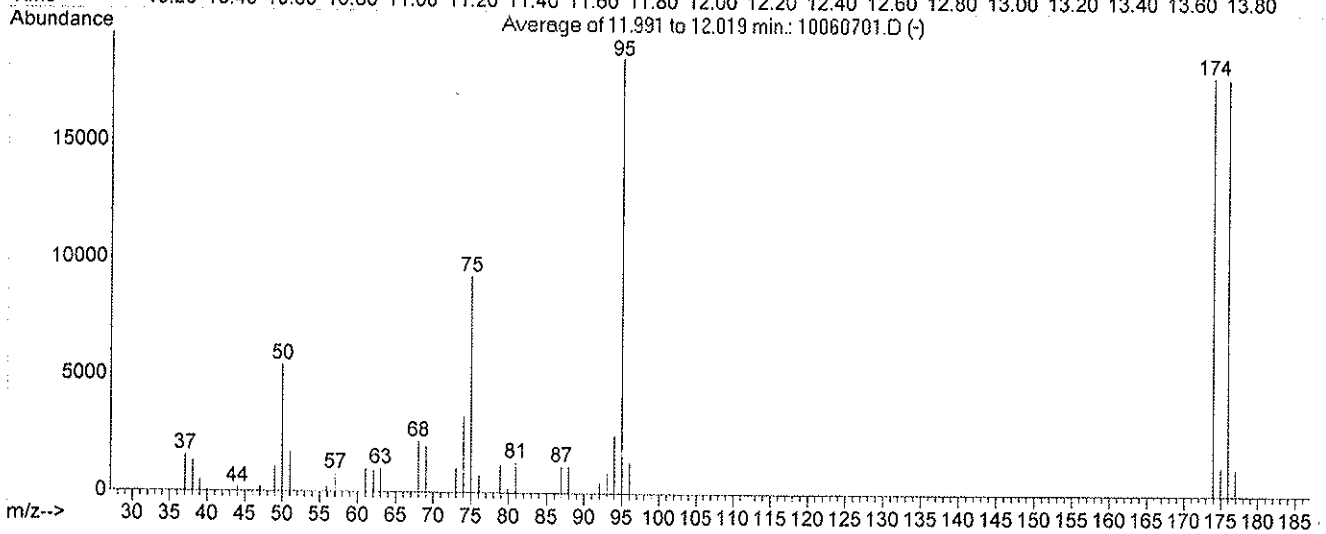
BFB

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060701.D
Acq On : 7 Jun 2010 8:27 am
Operator : YY
Sample : BFB
Misc : 100302YY01
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\CB00607.M
Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
Last Update : Wed Jun 09 10:13:57 2010





AutoFind: Scans 653, 654, 655; Background Corrected with Scan 649

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	29.1	5432	PASS
75	95	30	60	49.8	9302	PASS
95	95	100	100	100.0	18670	PASS
96	95	5	9	7.2	1345	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	96.1	17951	PASS
175	174	5	9	6.9	1237	PASS
176	174	95	101	99.6	17886	PASS
177	176	5	9	6.5	1164	PASS

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060701.D
Acq On : 7 Jun 2010 8:27 am
Operator : YY
Sample : BFB
Misc : 100302YY01
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 22 10:53:48 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	0.00	114	0	0.00 ng	-7.63
3) d5-Chlorobenzene	0.00	117	0	0.00 ng	-10.55
8) d4-1,4-Dichlorobenzene	0.00	152	0	0.00 ng	-13.64

System Monitoring Compounds

2) d4-1,2-Dichloroethane	0.00	65	0	0.00 ng	
Spiked Amount 250.000	Range 74 - 122		Recovery	=	0.00%#
4) d10-Ethylbenzene	0.00	98	0	0.00 ng	
Spiked Amount 200.000	Range 54 - 152		Recovery	=	0.00%#
6) d8-Toluene	0.00	98	0	0.00 ng	
Spiked Amount 250.000	Range 80 - 114		Recovery	=	0.00%#
7) 4-Bromofluorobenzene	12.02	174	110512	0.00 ng	0.01
Spiked Amount 250.000	Range 36 - 141		Recovery	=	0.00%#

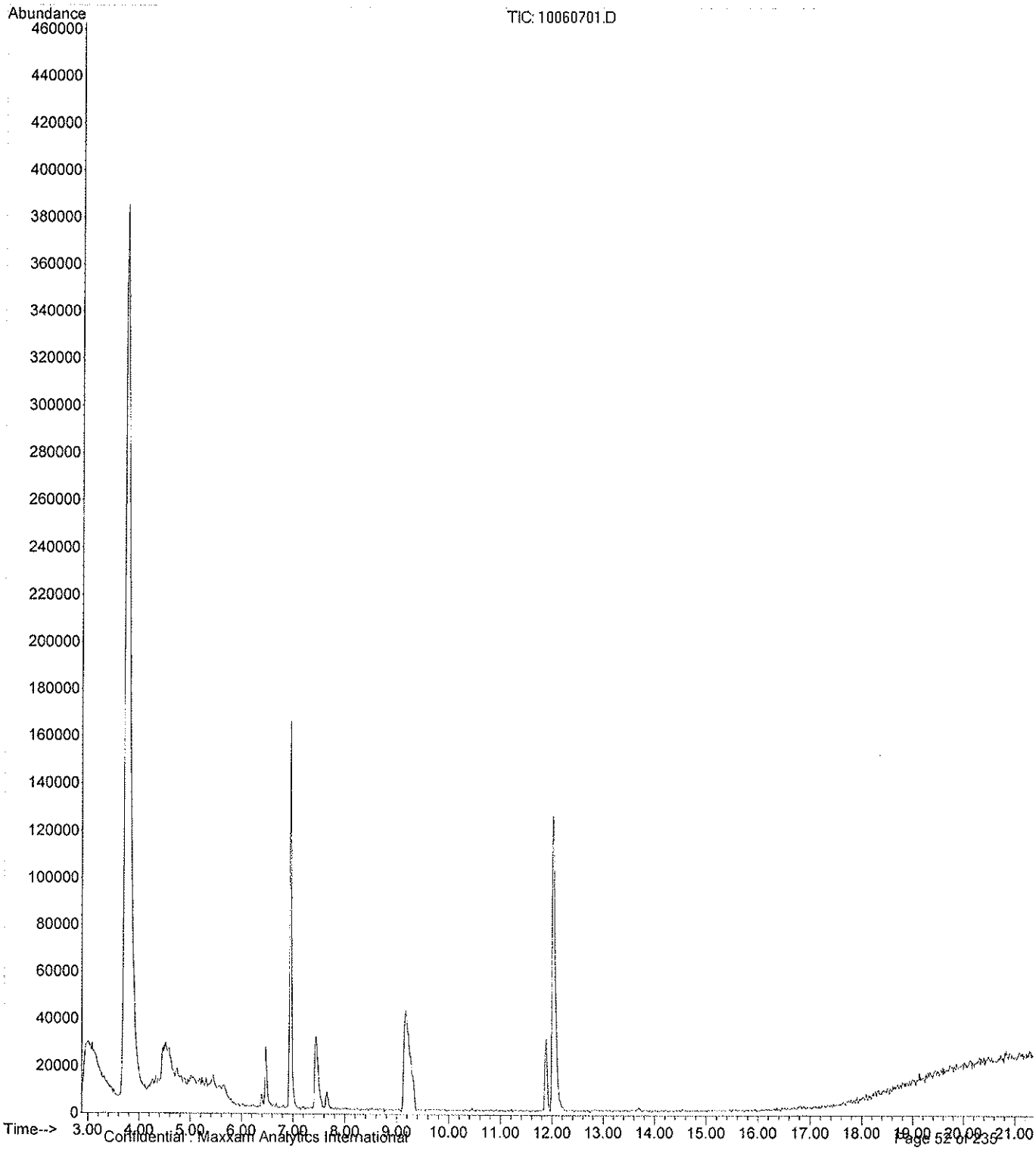
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060701.D
Acq On : 7 Jun 2010 8:27 am
Operator : YY
Sample : BFB
Misc : 100302YY01
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 22 10:53:48 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



CB00607.M Tue Jun 22 10:53:53 2010 MSD2

Response Factor Report MSD2

Method Path : C:\MSDCHEM\1\METHODS\
Method File : CB00607.M
Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
Last Update : Wed Jun 09 10:13:57 2010
Response Via : Initial Calibration

Calibration Files
50 =10060704.D 100 =10060705.D 250 =10060706.D
375 =10060707.D 500 =10060708.D 1000=10060709.D

	Compound	50	100	250	375	500	1000	Avg	%RSD
1) IR	Difluorobenzene	----------ISTD----------							
2) S	d4-1,2-Dichloroet	0.369	0.373	0.377	0.380	0.389	0.347	0.373	3.76
3) IR	d5-Chlorobenzene	----------ISTD----------							
4) S	d10-Ethylbenzene	1.506	1.559	1.553	1.495	1.455	1.523	1.515	2.57
5) TMPC	Chlorobenzene	1.119	1.016	0.969	0.910	0.887	0.825	0.954	10.92
6) S	d8-Toluene	1.156	1.134	1.130	1.091	1.114	1.080	1.118	2.56
7) S	4-Bromofluorobenz	0.410	0.416	0.401	0.410	0.409	0.415	0.410	1.26
8) IR	d4-1,4-Dichlorobenzen	----------ISTD----------							

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060704.D
Acq On : 7 Jun 2010 11:41 am
Operator : YY
Sample : 50NG VOST STD
Misc : 100607YY01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 22 10:54:52 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

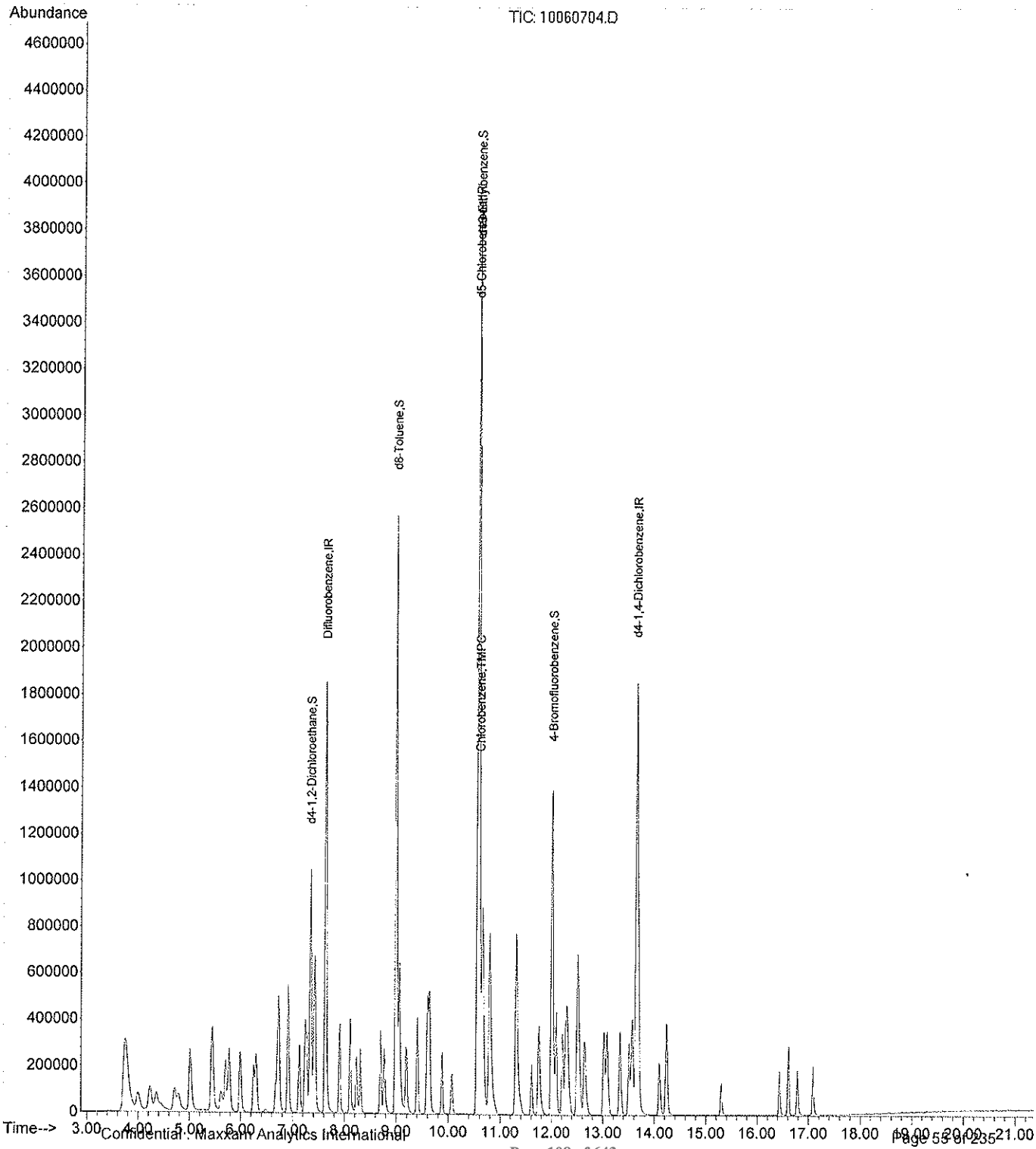
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.63	114	1965485	250.00 ng	0.00
3) d5-Chlorobenzene	10.55	117	1819369	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	822275	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	724662	247.35 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 98.94%		
4) d10-Ethylbenzene	10.57	98	2192367	198.82 ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 99.41%		
6) d8-Toluene	8.99	98	2103574	258.65 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 103.46%		
7) 4-Bromofluorobenzene	12.00	174	746836	250.13 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 100.05%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	407063	58.61 ng	84

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060704.D
Acq On : 7 Jun 2010 11:41 am
Operator : YY
Sample : 50NG VOST STD
Misc : 100607YY01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 22 10:54:52 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060705.D
Acq On : 7 Jun 2010 12:18 pm
Operator : YY
Sample : 100NG VOST STD
Misc : 100607YY01
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 22 10:55:38 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

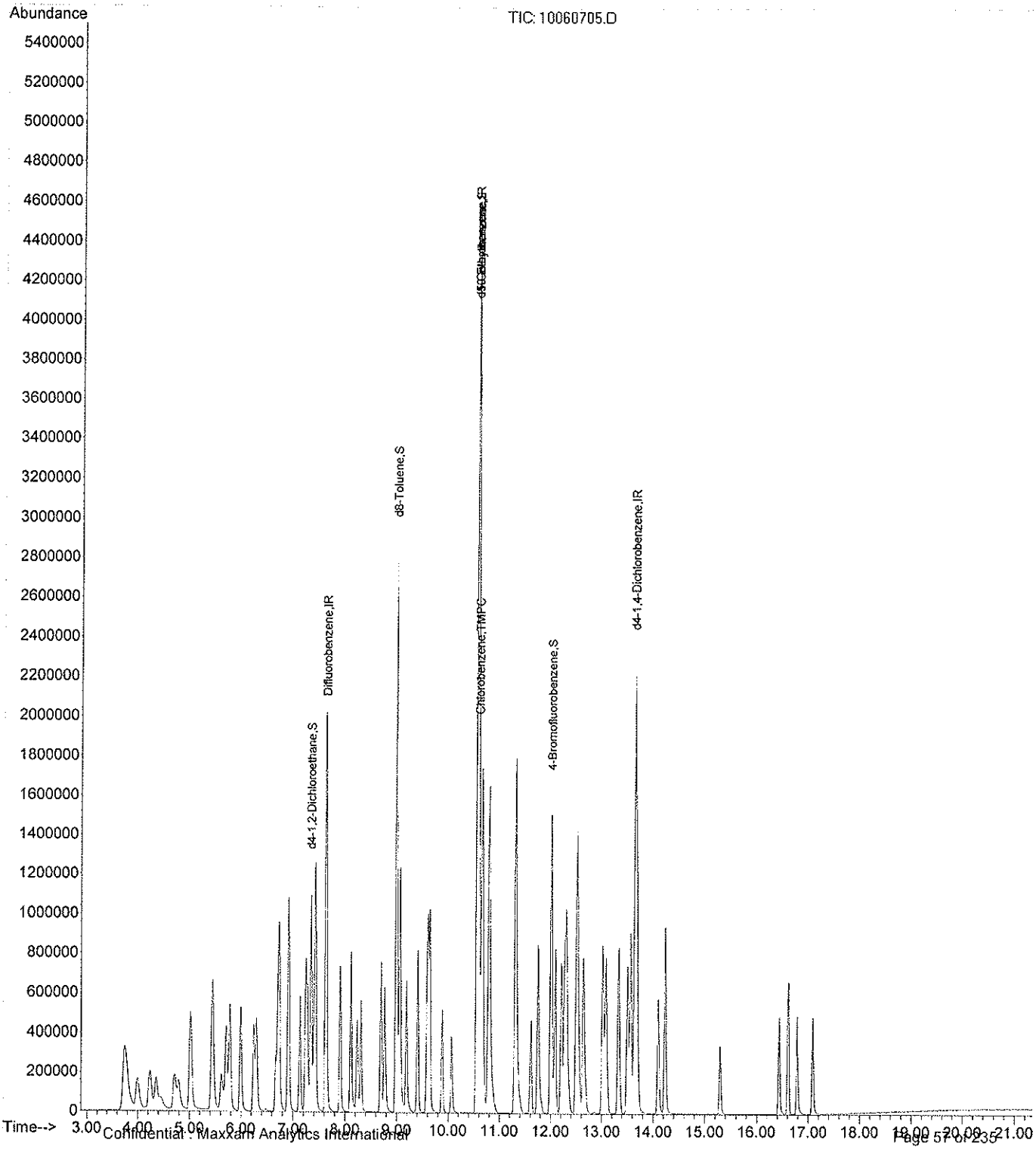
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.63	114	2066373	250.00 ng	0.00
3) d5-Chlorobenzene	10.55	117	1920262	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	922612	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	770459	250.14 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery	= 100.06%	
4) d10-Ethylbenzene	10.55	98	2395405	205.82 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery	= 102.91%	
6) d8-Toluene	8.99	98	2178177	253.75 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery	= 101.50%	
7) 4-Bromofluorobenzene	12.01	174	799178	253.60 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery	= 101.44%	
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	780266	106.45 ng	91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060705.D
Acq On : 7 Jun 2010 12:18 pm
Operator : YY
Sample : 100NG VOST STD
Misc : 100607YY01
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 22 10:55:38 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060706.D
Acq On : 7 Jun 2010 1:31 pm
Operator : YY
Sample : 250NG VOST STD
Misc : 100607YY01
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 22 10:56:15 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

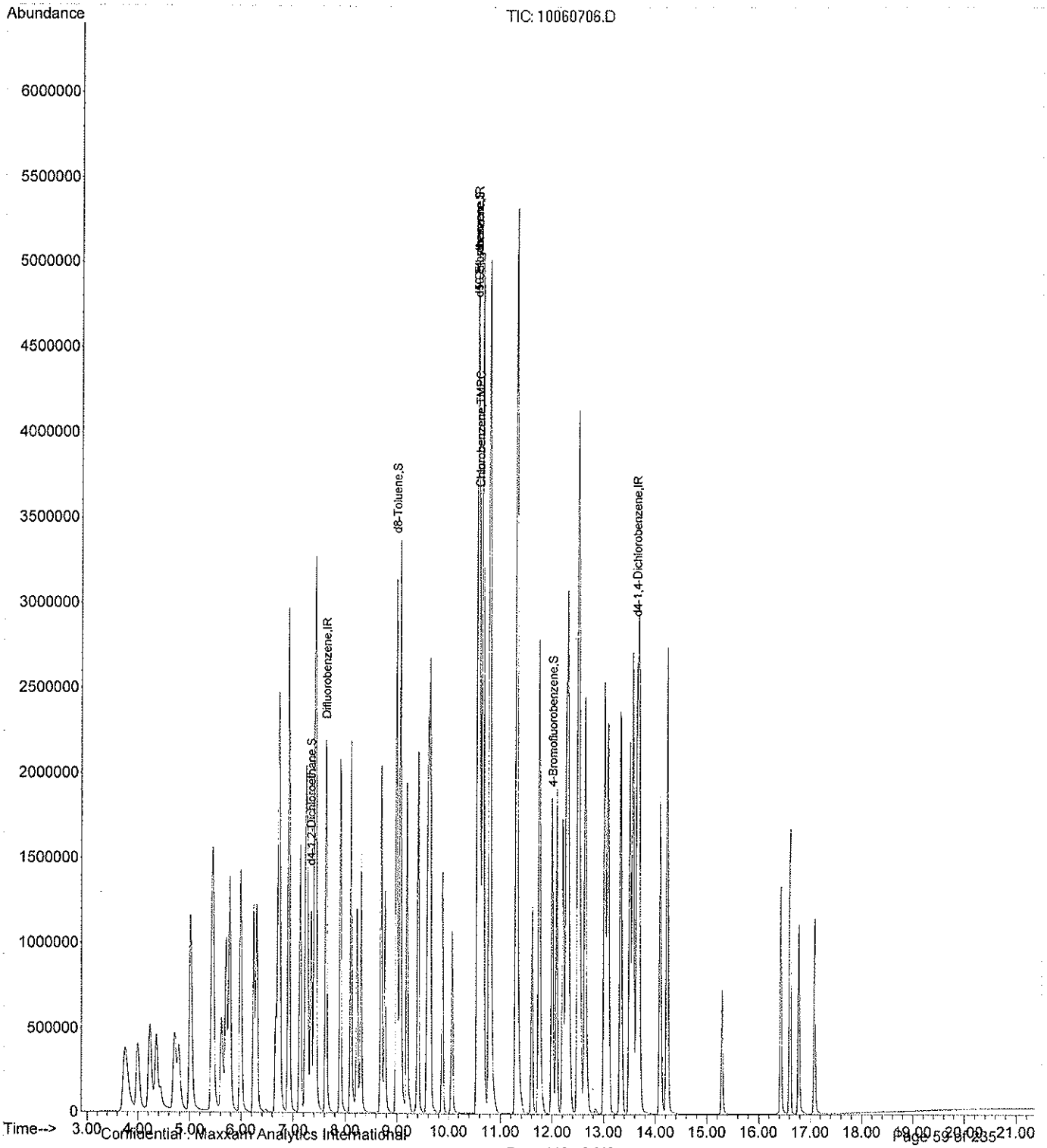
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	7.63	114	2217610	250.00	ng	0.00
3) d5-Chlorobenzene	10.55	117	2092949	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1022556	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	7.34	65	834591	252.49	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 101.00%			
4) d10-Ethylbenzene	10.55	98	2599811	204.96	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 102.48%			
6) d8-Toluene	8.99	98	2365906	252.88	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 101.15%			
7) 4-Bromofluorobenzene	12.01	174	840098	244.59	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 97.84%			
Target Compounds						Qvalue
5) Chlorobenzene	10.59	112	2028696	253.94	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060706.D
Acq On : 7 Jun 2010 1:31 pm
Operator : YY
Sample : 250NG VOST STD
Misc : 100607YY01
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 22 10:56:15 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060707.D
Acq On : 7 Jun 2010 2:13 pm
Operator : YY
Sample : 375NG VOST STD
Misc : 100607YY01
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 22 10:57:03 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

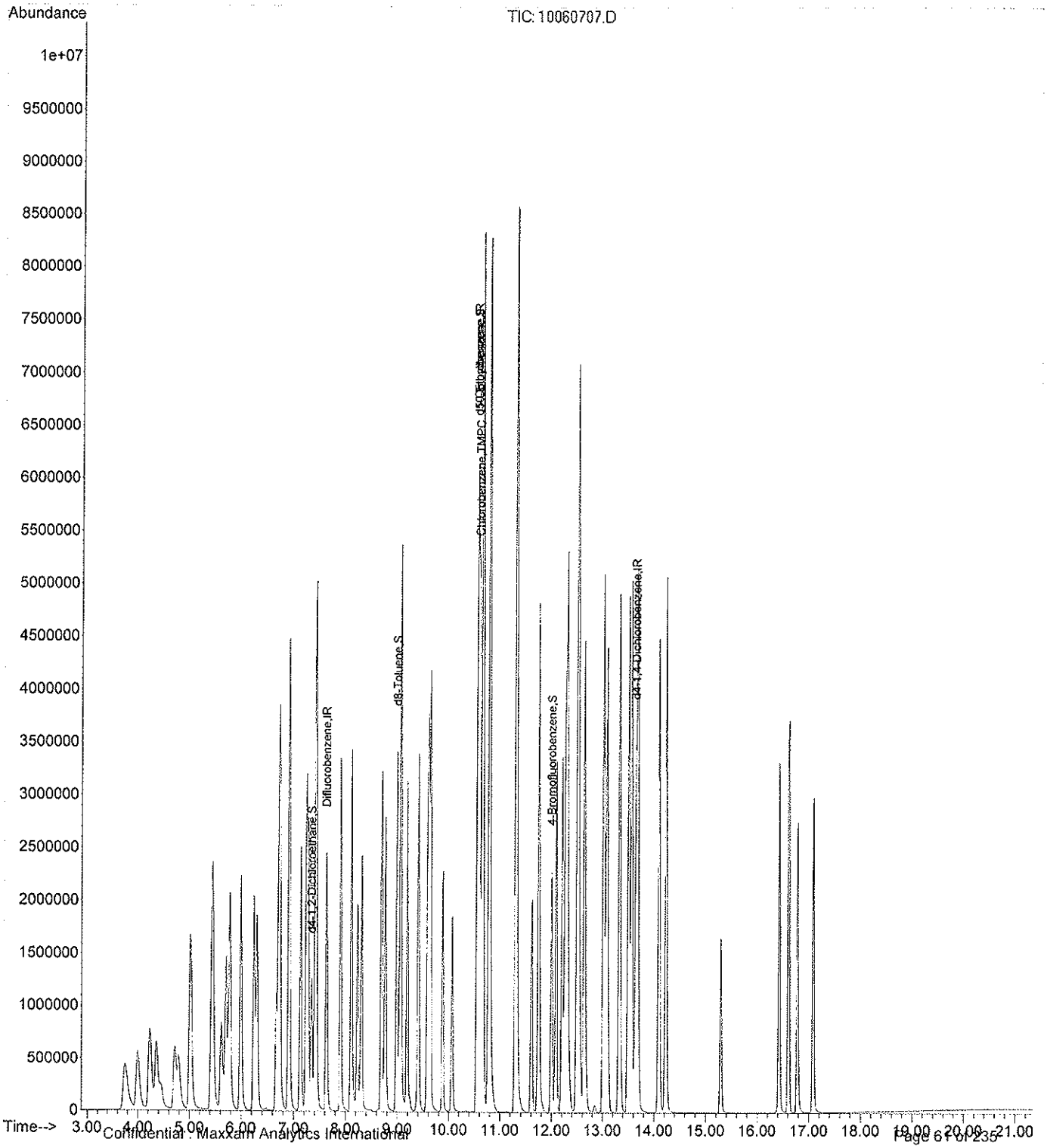
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	2381639	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	2334063	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1239131	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	903325	254.46 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 101.78%		
4) d10-Ethylbenzene	10.55	98	2791373	197.33 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 98.67%		
6) d8-Toluene	8.99	98	2547164	244.13 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 97.65%		
7) 4-Bromofluorobenzene	11.99	174	957211	249.90 ng	-0.01
Spiked Amount 250.000	Range 36 - 141		Recovery = 99.96%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	3184359	357.42 ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060707.D
Acq On : 7 Jun 2010 2:13 pm
Operator : YY
Sample : 375NG VOST STD
Misc : 100607YY01
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 22 10:57:03 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060708.D
Acq On : 7 Jun 2010 2:50 pm
Operator : YY
Sample : 500NG VOST STD
Misc : 100607YY01
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jun 22 10:57:32 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

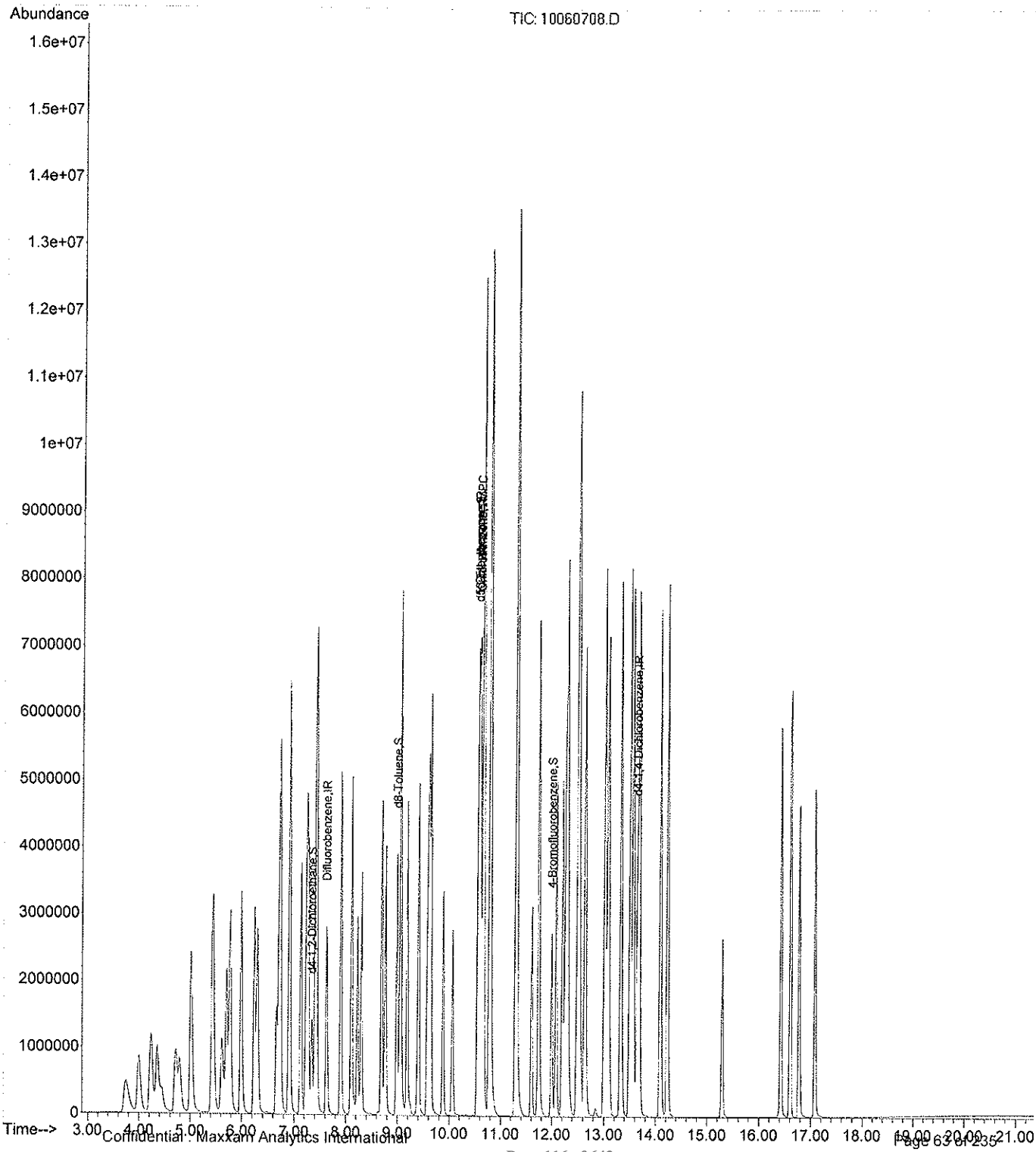
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	2732245	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	2655494	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1445047	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	1061375	260.61 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 104.24%		
4) d10-Ethylbenzene	10.55	98	3089948	191.99 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 96.00%		
6) d8-Toluene	8.99	98	2957211	249.12 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 99.65%		
7) 4-Bromofluorobenzene	11.99	174	1085905	249.18 ng	-0.01
Spiked Amount 250.000	Range 36 - 141		Recovery = 99.67%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	4713261	464.99 ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060708.D
Acq On : 7 Jun 2010 2:50 pm
Operator : YY
Sample : 500NG VOST STD
Misc : 100607YY01
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jun 22 10:57:32 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



CB00607.M Tue Jun 22 10:58:00 2010 MSD2

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060709.D
Acq On : 7 Jun 2010 3:27 pm
Operator : YY
Sample : 1000NG VOST STD
Misc : 100607YY01
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 22 10:58:17 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

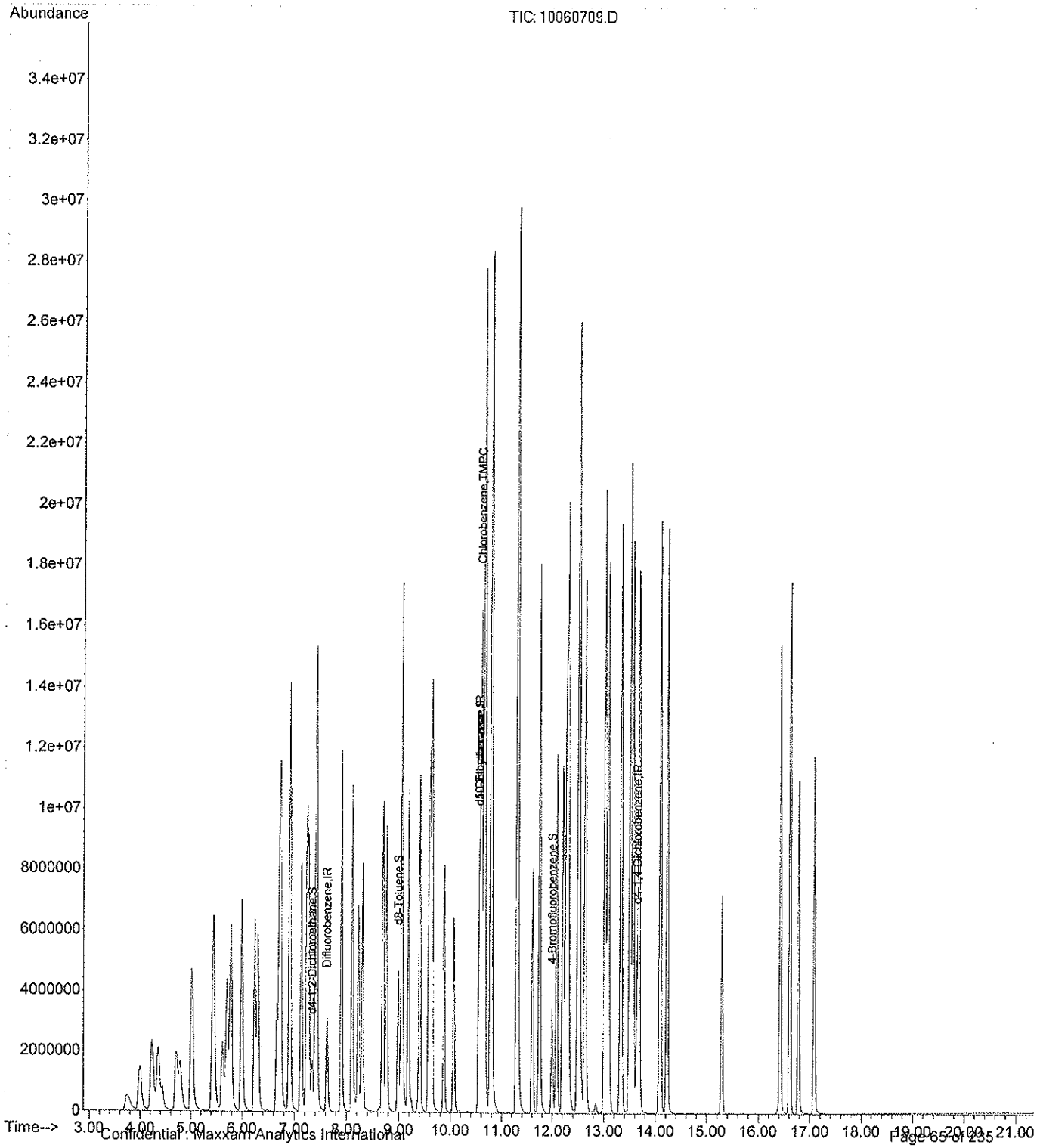
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	3238484	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	3266246	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1791264	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	1125354	233.13 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 93.25%		
4) d10-Ethylbenzene	10.55	98	3980492	201.08 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 100.54%		
6) d8-Toluene	8.99	98	3525927	241.49 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 96.60%		
7) 4-Bromofluorobenzene	11.99	174	1354028	252.61 ng	-0.01
Spiked Amount 250.000	Range 36 - 141		Recovery = 101.04%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	10776598	864.37 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100607\
Data File : 10060709.D
Acq On : 7 Jun 2010 3:27 pm
Operator : YY
Sample : 1000NG VOST STD
Misc : 100607YY01
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 22 10:58:17 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



CB00607.M Tue Jun 22 10:58:39 2010 MSD2

Maxxam Analytics

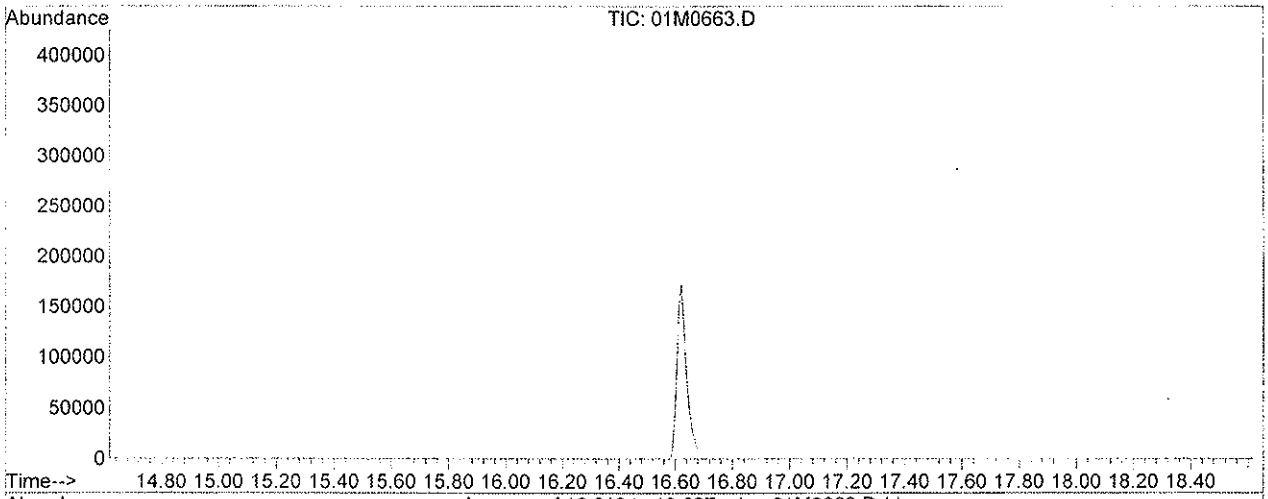
Driven by Service and Science

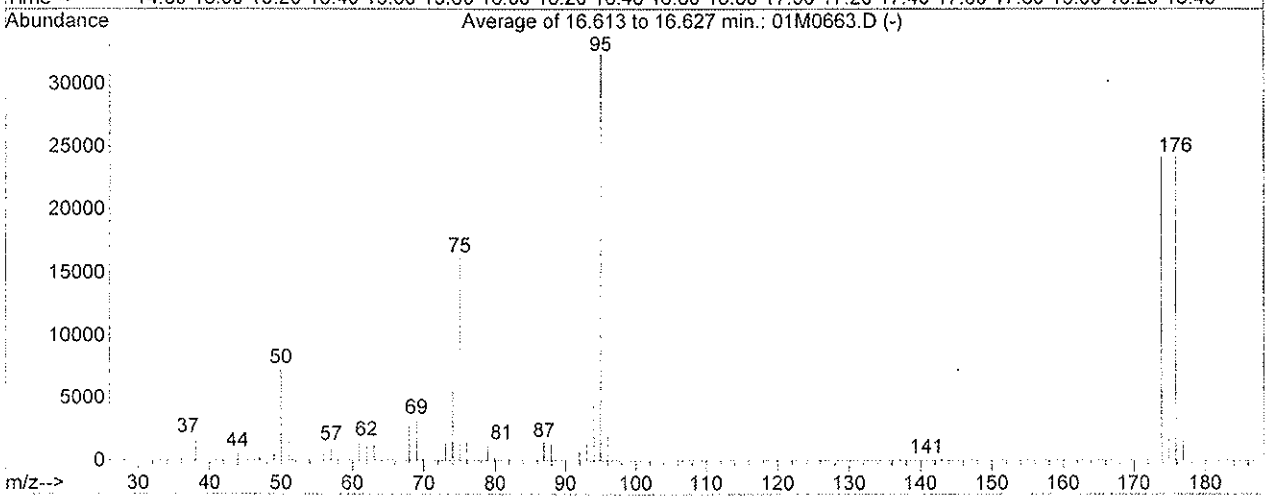
4.1 Continuing Calibration Data

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

BFB

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0663.D Vial: 2
Acq On : 10 Jun 2010 11:07 am Operator: DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS





AutoFind: Scans 1823, 1824, 1825; Background Corrected with Scan 1817

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.6	7348	PASS
75	95	30	60	50.0	16235	PASS
95	95	100	100	100.0	32442	PASS
96	95	5	9	6.7	2164	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	74.4	24136	PASS
175	174	5	9	7.4	1795	PASS
176	174	95	101	100.0	24146	PASS
177	176	5	9	7.0	1694	PASS

Confidential : Maxxam Analytics International

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0663.D Vial: 2
Acq On : 10 Jun 2010 11:07 am Operator: DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:31:23 2010 Quant Results File: VOS00505.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOS00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Wed May 05 18:55:26 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	0.00	114	0	0.00	ng	-10.82
32) d5-Chlorobenzene	0.00	117	0	0.00	ng	-15.00
50) d4-1,4-Dichlorobenzene	0.00	152	0	0.00	ng	-18.06

System Monitoring Compounds

24) d4-1,2-Dichloroethane	0.00	65	0	0.00	ng	
Spiked Amount 250.000	Range 74 - 122		Recovery	=	0.00%#	
33) d8-Toluene	0.00	98	0	0.00	ng	
Spiked Amount 250.000	Range 80 - 114		Recovery	=	0.00%#	
42) d10-Ethylbenzene	0.00	98	0	0.00	ng	
Spiked Amount 200.000	Range 54 - 152		Recovery	=	0.00%#	
49) 4-Bromofluorobenzene	16.62	174	66191	0.00	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery	=	0.00%#	

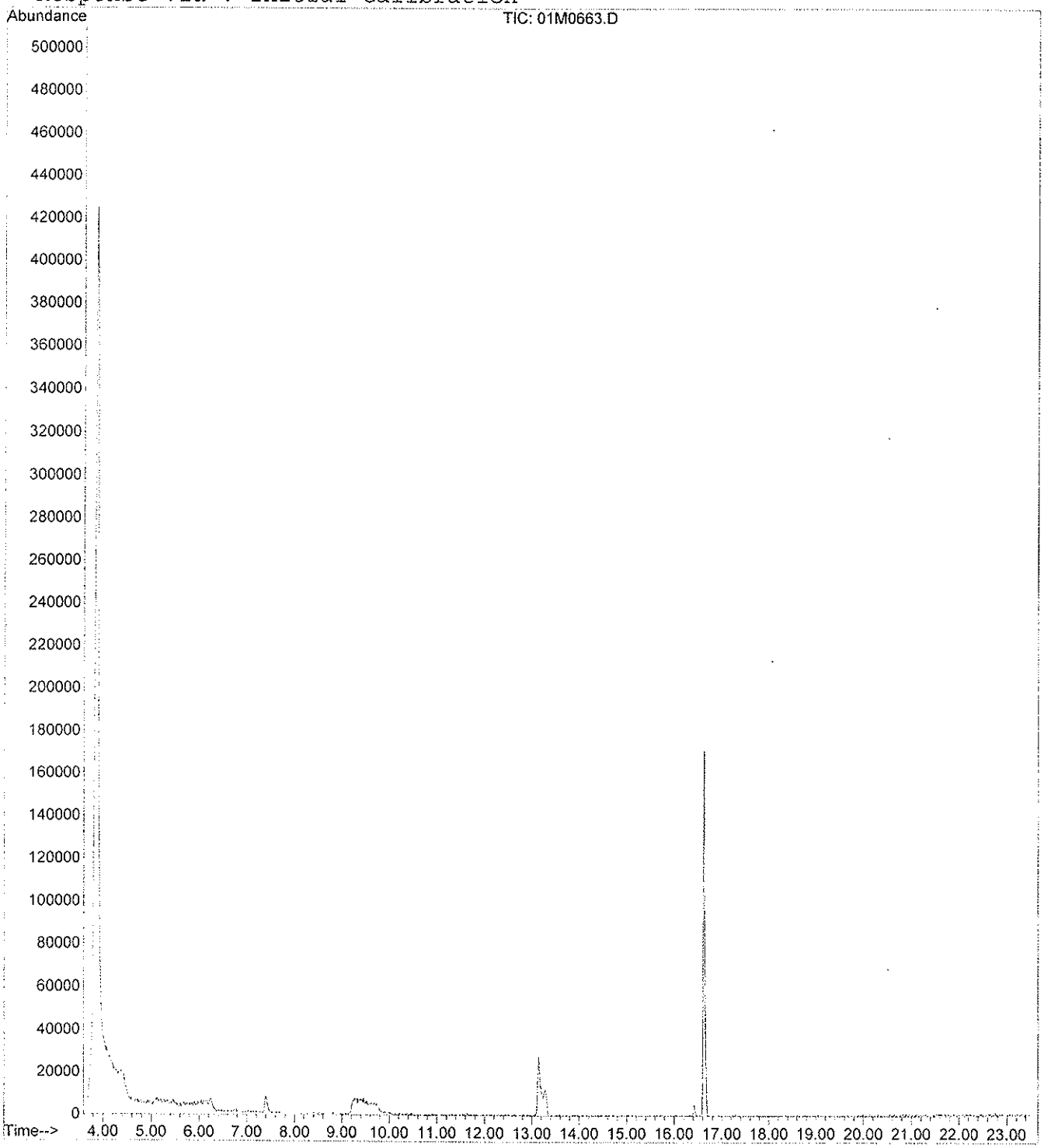
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0663.D Vial: 2
Acq On : 10 Jun 2010 11:07 am Operator: DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 11:31 2010 Quant Results File: VOS00505.RES

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0664.D Vial: 3
Acq On : 10 Jun 2010 11:47 am Operator: DBJ
Sample : 250ng VOST STD Inst : msd1
Misc : 100603YY02 Multiplr: 1.00
MS Integration Params: Lscint.p

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.17min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Difluorobenzene	1.000	1.000	0.0	88	0.00
2	S	d4-1,2-Dichloroethane	0.326	0.361	-10.7	96	0.00
3	I	d5-Chlorobenzene	1.000	1.000	0.0	94	0.00
4	S	d8-Toluene	1.269	1.212	4.5	90	0.00
5	S	d10-Ethylbenzene	1.416	1.768	-24.9#	115	0.00
6		Chlorobenzene	0.886	0.898	-1.4	102	0.00
7	S	4-Bromofluorobenzene	0.369	0.373	-1.1	95	0.00
8	I	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0664.D Vial: 3
Acq On : 10 Jun 2010 11:47 am Operator: DBJ
Sample : 250ng VOST STD Inst : msd1
Misc : 100603YY02 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 12:37:48 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

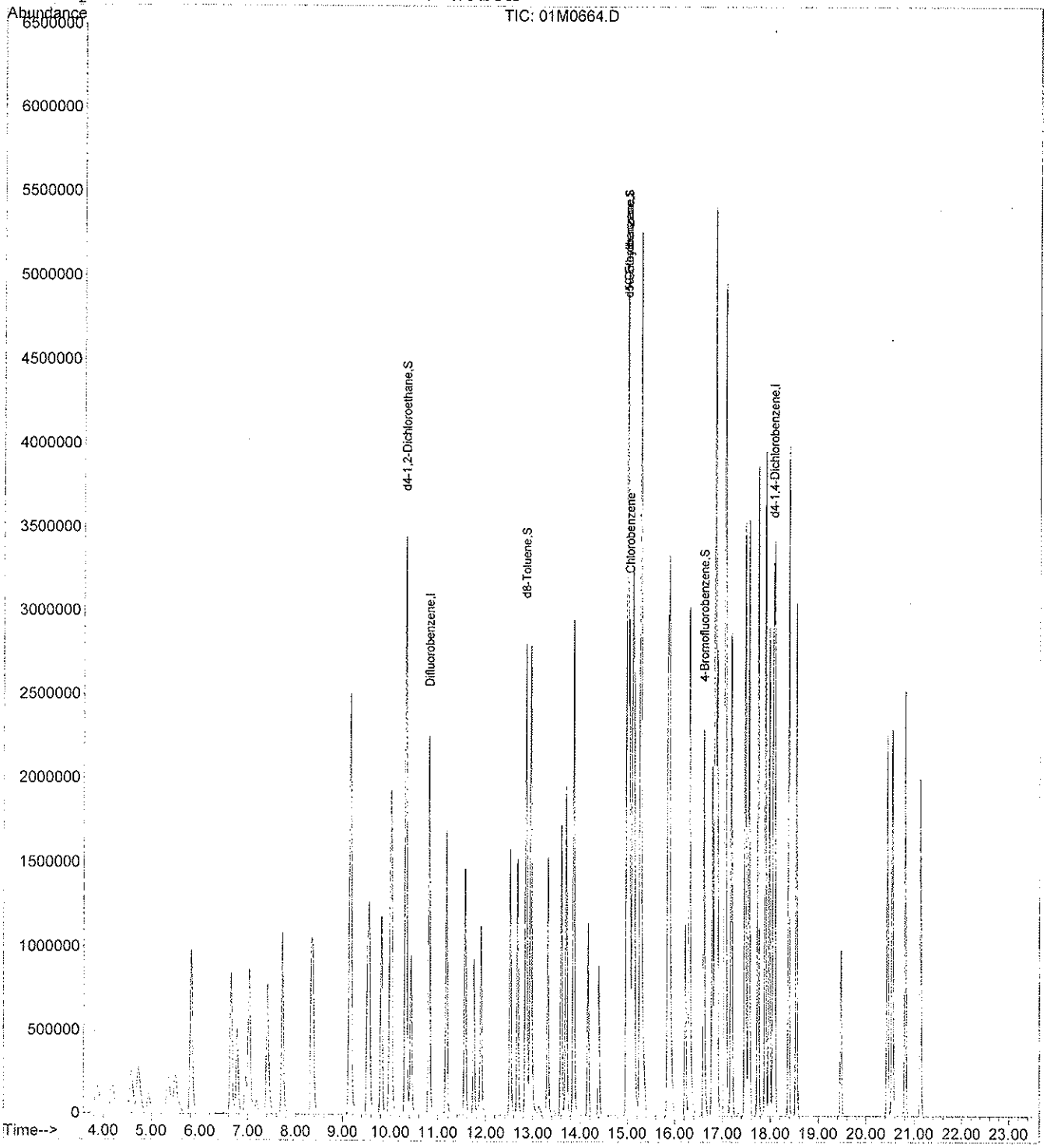
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2424092	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2273647	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	957131	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	874485	277.00	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 110.80%			
4) d8-Toluene	12.85	98	2756666	238.87	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 95.55%			
5) d10-Ethylbenzene	14.99	98	3216473	249.69	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 124.85%			
7) 4-Bromofluorobenzene	16.62	174	847915	252.46	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 100.98%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	2042487	253.57	ng	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0664.D Vial: 3
Acq On : 10 Jun 2010 11:47 am Operator: DBJ
Sample : 250ng VOST STD Inst : msd1
Misc : 100603YY02 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 12:37 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0676.D Vial: 3
Acq On : 11 Jun 2010 9:31 am Operator: MM/DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 09:55:01 2010 Quant Results File: VOS00505.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOS00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Wed May 05 18:55:26 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	527	250.00 ng	0.00
32) d5-Chlorobenzene	15.00	117	4366	250.00 ng	0.00
50) d4-1,4-Dichlorobenzene	18.06	152	7005	250.00 ng	0.00
System Monitoring Compounds					
24) d4-1,2-Dichloroethane	0.00	65	0	0.00 ng	
Spiked Amount 250.000	Range 74 - 122		Recovery = 0.00%#		
33) d8-Toluene	12.86	98	2205	99.50 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 39.80%#		
42) d10-Ethylbenzene	14.98	98	2422	97.91 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 48.95%#		
49) 4-Bromofluorobenzene	16.61	174	132825	20594.63 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 8237.85%#		

Target Compounds						Qvalue
5) Bromomethane	5.31	94	10949	31643.65 ng		83
6) Chloroethane	5.50	64	2583	6670.71 ng	#	44
7) Trichlorofluoromethane	5.80	101	3856	4085.85 ng		91
8) 1,1-Dichloroethene	6.63	96	2404	4786.70 ng	#	73
9) Acetone	6.77	43	164893	233446.78 ng		95
10) Iodomethane	6.96	142	15664	53040.12 ng		100
11) Carbondisulfide	7.03	76	7502	4808.03 ng		100
12) Dichloromethane	7.40	84	16350	29695.44 ng		98
13) trans-1,2-Dichloroethene	7.73	61	5589	7041.86 ng		88
14) 1,1-Dichloroethane	8.37	63	7574	7476.82 ng		88
15) Vinylacetate	8.34	43	10124	6788.02 ng	#	72
16) 2-Butanone	9.16	43	213486	266542.94 ng		95
17) cis-1,2-Dichloroethene	9.17	61	7898	9244.11 ng		91
18) 2,2-Dichloropropane	9.14	77	6543	7809.82 ng	#	52
19) Chloroform	9.56	83	7953	8407.99 ng		98
20) 1,1,1-Trichloroethane	9.81	97	6787	7984.79 ng		90
21) Carbontetrachloride	9.98	117	6145	8208.60 ng		94
22) 1,1-Dichloropropene	10.03	75	5650	7498.14 ng		81
23) Benzene	10.33	78	18522	8021.81 ng		94
25) 1,2-Dichloroethane	10.43	62	6840	8981.92 ng		92
26) Trichloroethene	11.17	130	3892	6221.57 ng		91
27) 1,2-Dichloropropane	11.56	63	4453	7992.57 ng		87
28) Dibromomethane	11.75	174	2900	7381.33 ng		99
29) Bromodichloromethane	11.90	83	4953	6907.04 ng	#	94
30) cis-1,3-Dichloropropene	12.52	75	5213	5832.79 ng		85
31) 4-Methyl-2-pentanone	12.68	43	98497	94142.26 ng		95
34) Toluene	12.95	91	19169	825.04 ng		95
35) trans-1,3-Dichloropropene	13.32	75	5569	731.88 ng		96

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0676.D Vial: 3
Acq On : 11 Jun 2010 9:31 am Operator: MM/DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 09:55:01 2010 Quant Results File: VOS00505.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOS00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Wed May 05 18:55:26 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

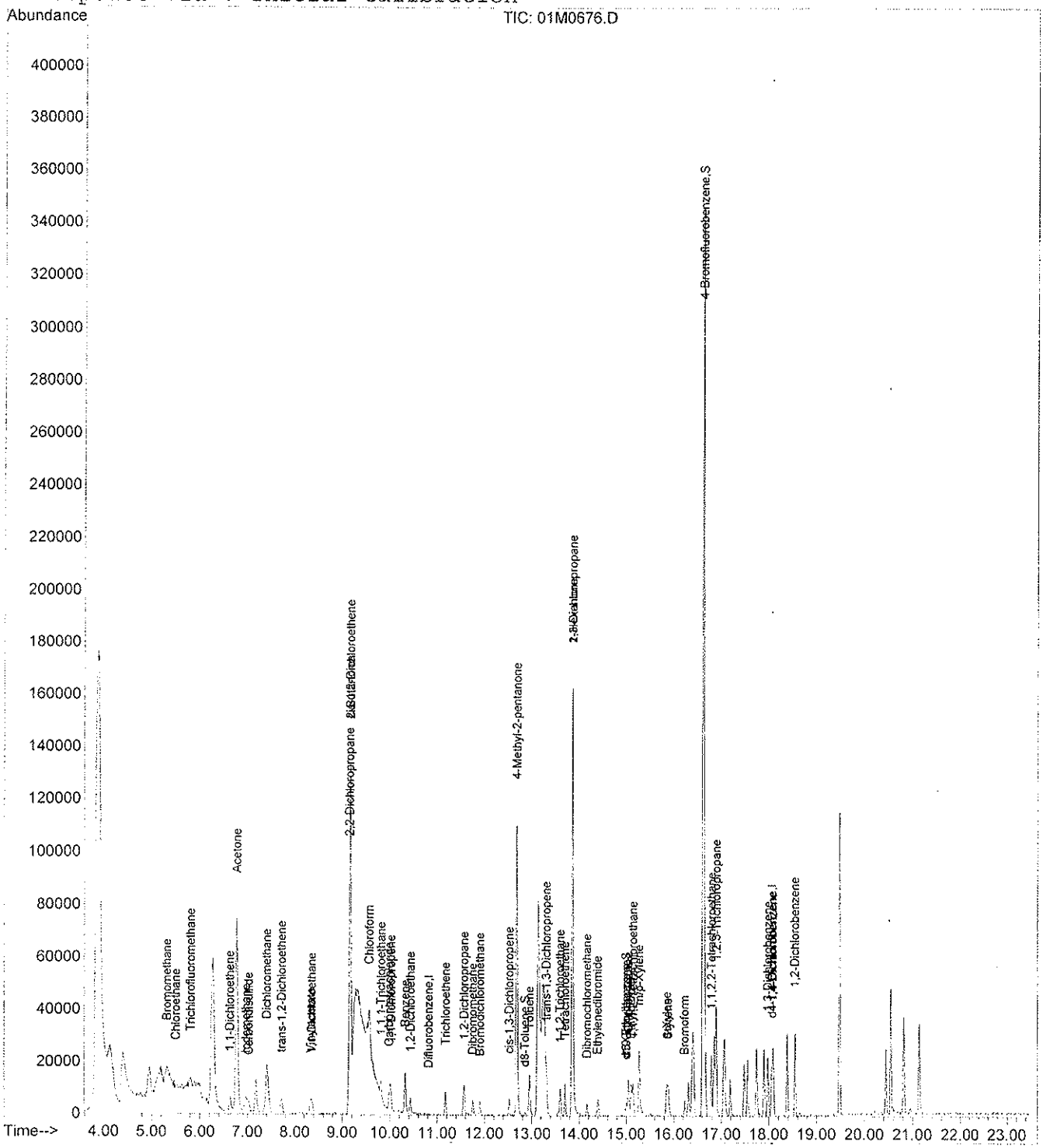
Compound	R.T.	QIon	Response	Conc Unit		Qvalue
36) 1,1,2-Trichloroethane	13.60	97	4417	844.79 ng		95
37) Tetrachloroethene	13.70	166	4627	775.77 ng		96
38) 2-Hexanone	13.86	43	136634	16946.11 ng		93
39) 1,3-Dichloropropane	13.87	76	8543	911.44 ng		100
40) Dibromochloromethane	14.17	129	4266	746.49 ng	#	85
41) Ethylenedibromide	14.39	107	5048	873.07 ng		98
43) Chlorobenzene	15.04	112	11840	765.49 ng		85
44) Ethylbenzene	15.10	91	18935	752.32 ng		89
45) 1,1,1,2-Tetrachloroethane	15.13	131	4408	828.33 ng		90
46) m/p-Xylene	15.27	91	25484	1410.97 ng		99
47) o-Xylene	15.85	91	16055	843.54 ng		83
48) Styrene	15.88	104	7466	489.69 ng		98
51) Bromoform	16.23	173	3194	167.69 ng	#	57
52) 1,1,2,2-Tetrachloroethane	16.79	83	15342	455.69 ng		96
53) 1,2,3-Trichloropropane	16.89	110	7846	635.70 ng		98
54) 1,3-Dichlorobenzene	17.98	146	14574	349.96 ng		94
55) 1,4-Dichlorobenzene	18.09	146	13958	337.33 ng		97
56) 1,2-Dichlorobenzene	18.55	146	15538	391.90 ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0676.D Vial: 3
Acq On : 11 Jun 2010 9:31 am Operator: MM/DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 9:55 2010 Quant Results File: VOS00505.RES

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0677.D Vial: 4
Acq On : 11 Jun 2010 10:08 am Operator: MM/DBJ
Sample : 250NG VOST STD Inst : msd1
Misc : 100603YY01 Multiplr: 1.00
MS Integration Params: Lscint.p

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.17min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Difluorobenzene	1.000	1.000	0.0	92	0.00
2	S	d4-1,2-Dichloroethane	0.326	0.358	-9.8	99	0.00
3	I	d5-Chlorobenzene	1.000	1.000	0.0	91	0.00
4	S	d8-Toluene	1.269	1.247	1.7	90	0.00
5	S	d10-Ethylbenzene	1.416	1.483	-4.7	94	0.00
6		Chlorobenzene	0.886	0.894	-0.9	99	0.00
7	S	4-Bromofluorobenzene	0.369	0.372	-0.8	93	0.00
8	I	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0677.D Vial: 4
Acq On : 11 Jun 2010 10:08 am Operator: MM/DBJ
Sample : 250NG VOST STD Inst : msd1
Misc : 100603YY01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 10:52:38 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

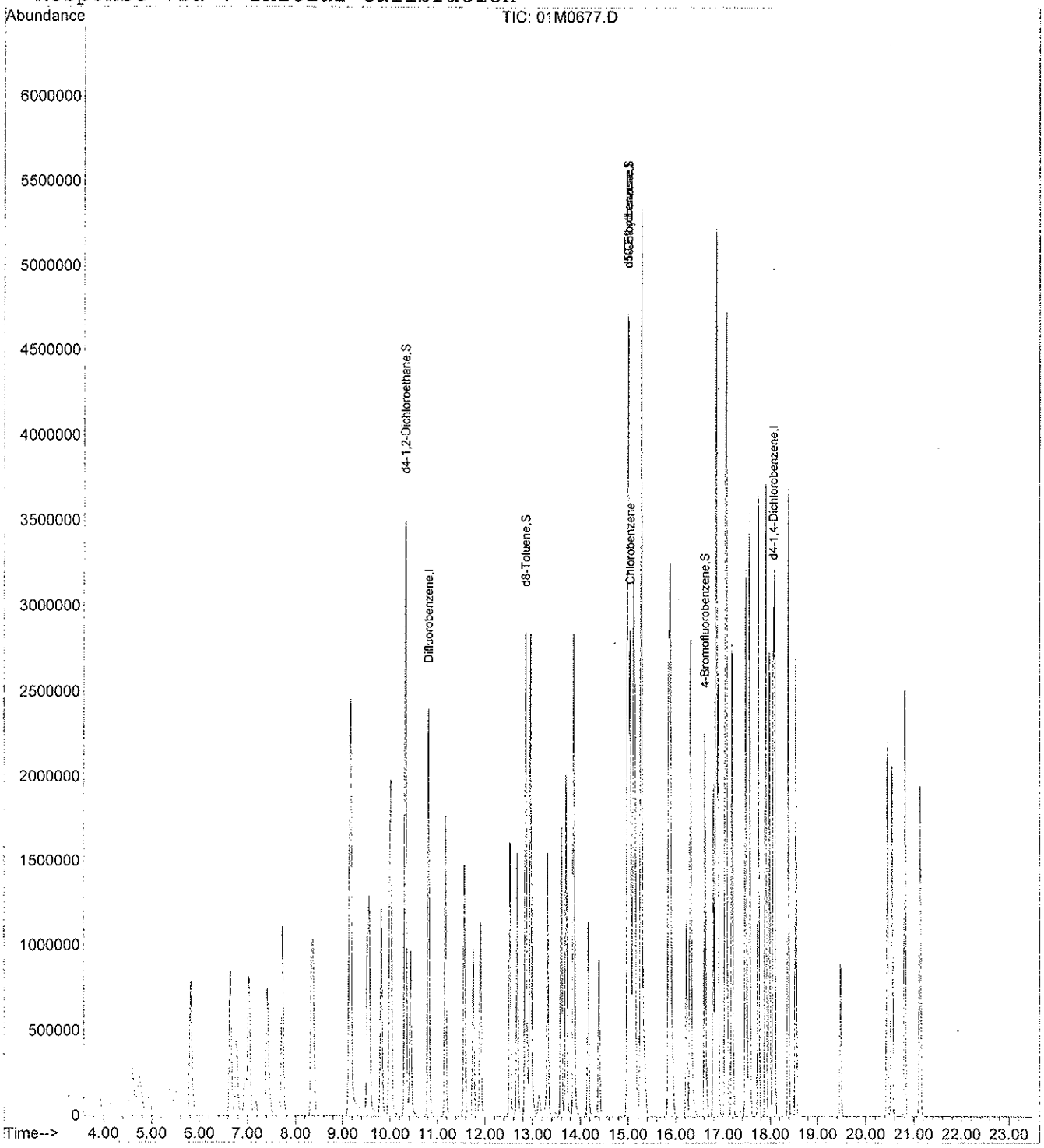
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2525520	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2213576	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	870799	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.32	65	905250	275.23	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 110.09%			
4) d8-Toluene	12.85	98	2760636	245.71	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 98.28%			
5) d10-Ethylbenzene	14.98	98	2626300	209.41	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 104.71%			
7) 4-Bromofluorobenzene	16.62	174	823705	251.90	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 100.76%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	1978284	252.27	ng	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0677.D Vial: 4
Acq On : 11 Jun 2010 10:08 am Operator: MM/DBJ
Sample : 250NG VOST STD Inst : msd1
Misc : 100603YY01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 10:52 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration

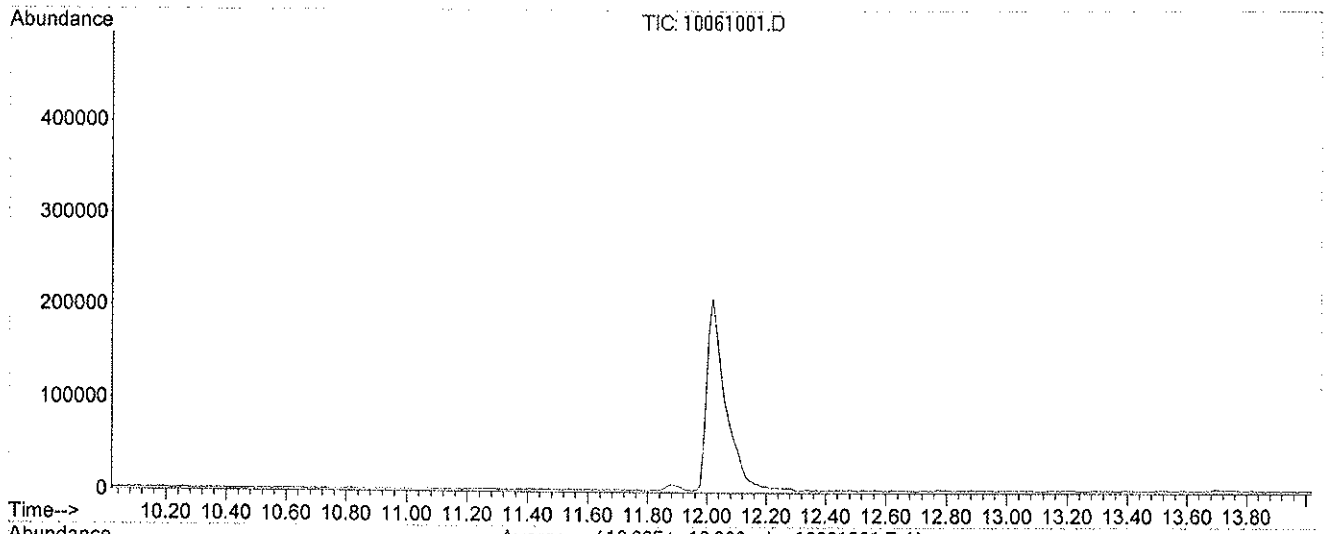


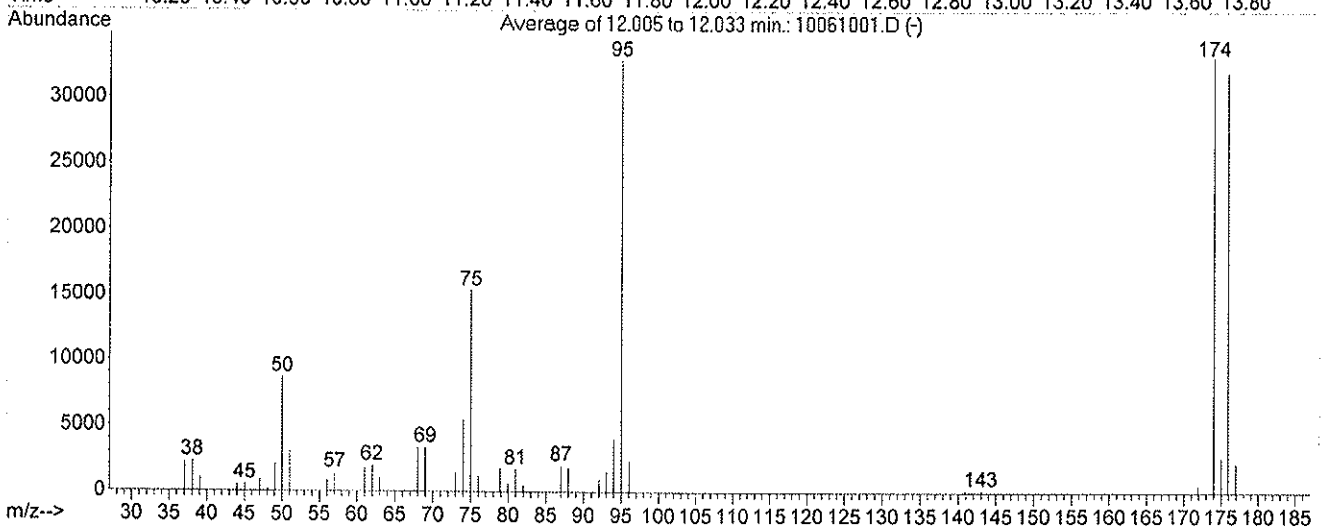
BFB

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061001.D
Acq On : 10 Jun 2010 9:34 am
Operator : YY
Sample : BFB
Misc : 100610YY02
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\CB00607.M
Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
Last Update : Wed Jun 09 10:13:57 2010





AutoFind: Scans 654, 655, 656; Background Corrected with Scan 649

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	26.3	8681	PASS
75	95	30	60	46.8	15409	PASS
95	95	100	100	100.0	32946	PASS
96	95	5	9	7.3	2391	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	100.7	33181	PASS
175	174	5	9	8.1	2676	PASS
176	174	95	101	96.5	32024	PASS
177	176	5	9	7.1	2265	PASS

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061001.D
Acq On : 10 Jun 2010 9:34 am
Operator : YY
Sample : BFB
Misc : 100610YY02
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 22 11:43:05 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	0.00	114	0	0.00	ng	-7.63
3) d5-Chlorobenzene	0.00	117	0	0.00	ng	-10.55
8) d4-1,4-Dichlorobenzene	0.00	152	0	0.00	ng	-13.64

System Monitoring Compounds

2) d4-1,2-Dichloroethane	0.00	65	0	0.00	ng	
Spiked Amount 250.000	Range 74 - 122		Recovery = 0.00%#			
4) d10-Ethylbenzene	0.00	98	0	0.00	ng	
Spiked Amount 200.000	Range 54 - 152		Recovery = 0.00%#			
6) d8-Toluene	0.00	98	0	0.00	ng	
Spiked Amount 250.000	Range 80 - 114		Recovery = 0.00%#			
7) 4-Bromofluorobenzene	12.02	174	178251	0.00	ng	0.01
Spiked Amount 250.000	Range 36 - 141		Recovery = 0.00%#			

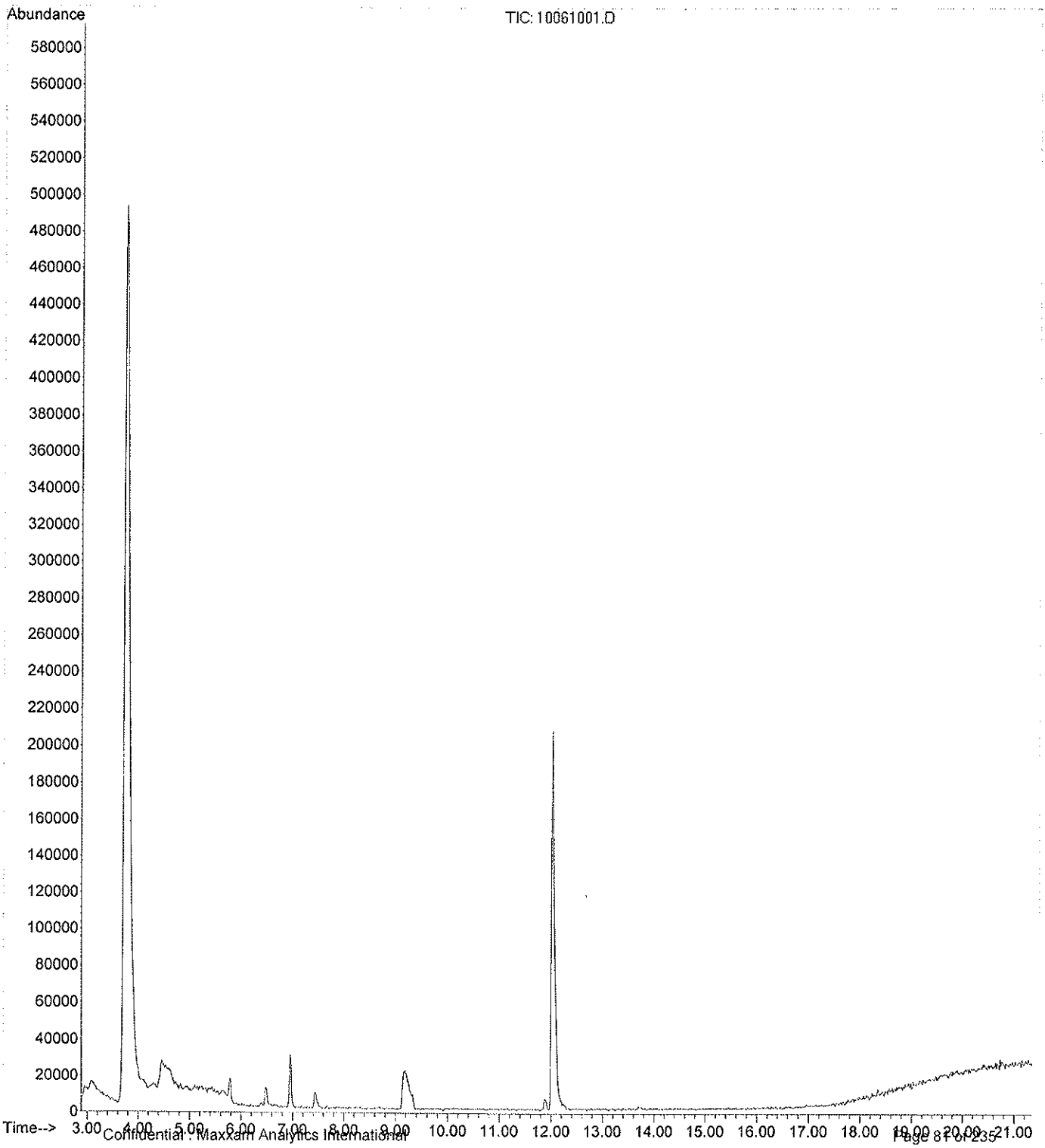
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061001.D
Acq On : 10 Jun 2010 9:34 am
Operator : YY
Sample : BFB
Misc : 100610YY02
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 22 11:43:05 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061004.D
Acq On : 10 Jun 2010 12:12 pm
Operator : YY
Sample : 250NG VOST STD
Misc : 100603YY02
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 10 12:38:35 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Difluorobenzene	1.000	1.000	0.0	101	-0.01
2	S	d4-1,2-Dichloroethane	0.373	0.366	1.9	98	0.00
3	IR	d5-Chlorobenzene	1.000	1.000	0.0	106	0.00
4	S	d10-Ethylbenzene	1.515	1.511	0.3	103	0.00
5	TMPC	Chlorobenzene	0.954	0.945	0.9	103	0.00
6	S	d8-Toluene	1.118	1.075	3.8	100	0.00
7	S	4-Bromofluorobenzene	0.410	0.402	2.0	106	0.00
8	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	106	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061004.D
Acq On : 10 Jun 2010 12:12 pm
Operator : YY
Sample : 250NG VOST STD
Misc : 100603YY02
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 10 12:38:35 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

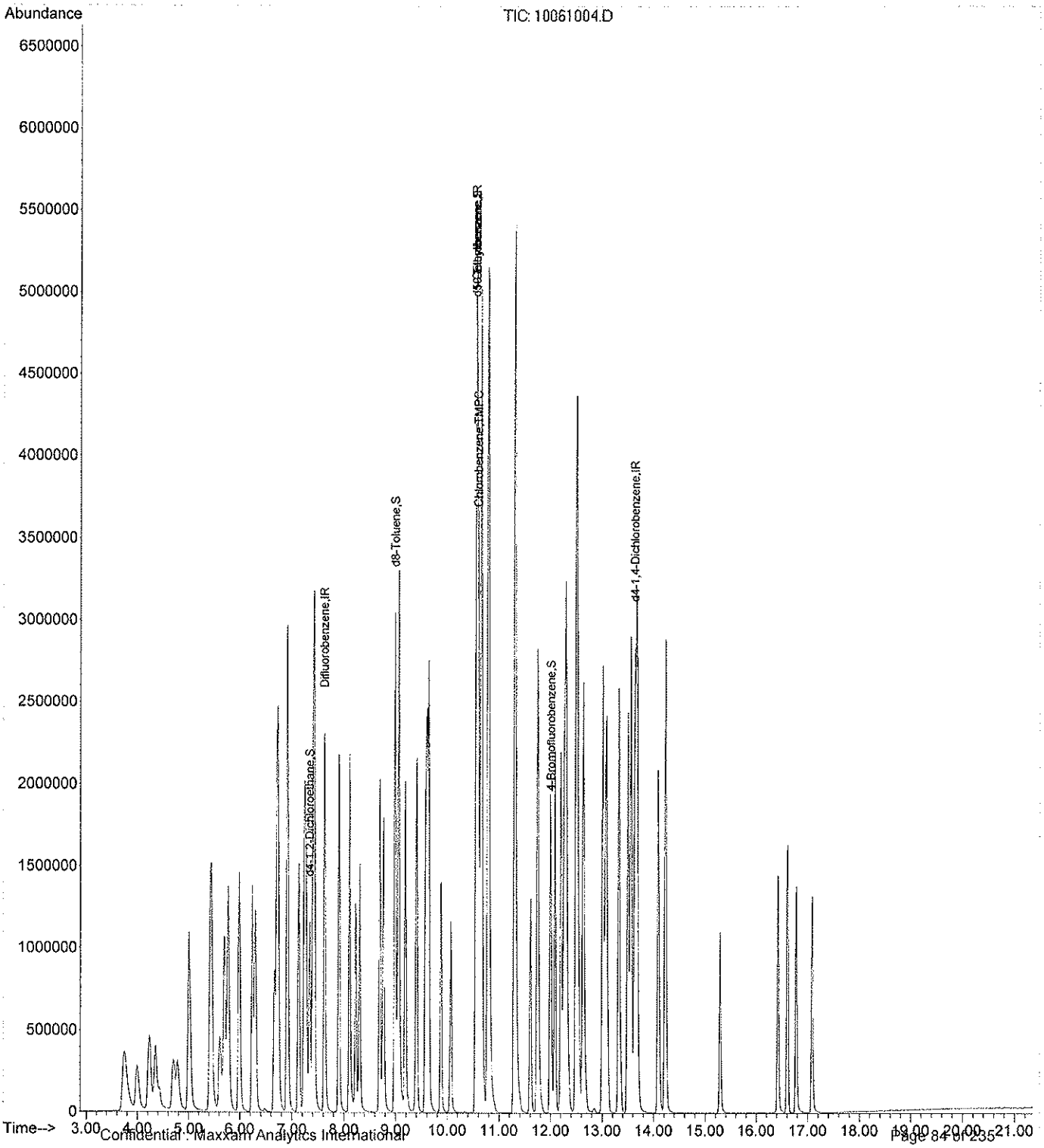
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	2233479	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	2208983	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1086741	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	817791	245.65 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 98.26%		
4) d10-Ethylbenzene	10.55	98	2669487	199.39 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 99.69%		
6) d8-Toluene	8.99	98	2374360	240.45 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 96.18%		
7) 4-Bromofluorobenzene	12.00	174	889077	245.25 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 98.10%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	2086987	247.51 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061004.D
Acq On : 10 Jun 2010 12:12 pm
Operator : YY
Sample : 250NG VOST STD
Misc : 100603YY02
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 10 12:38:35 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

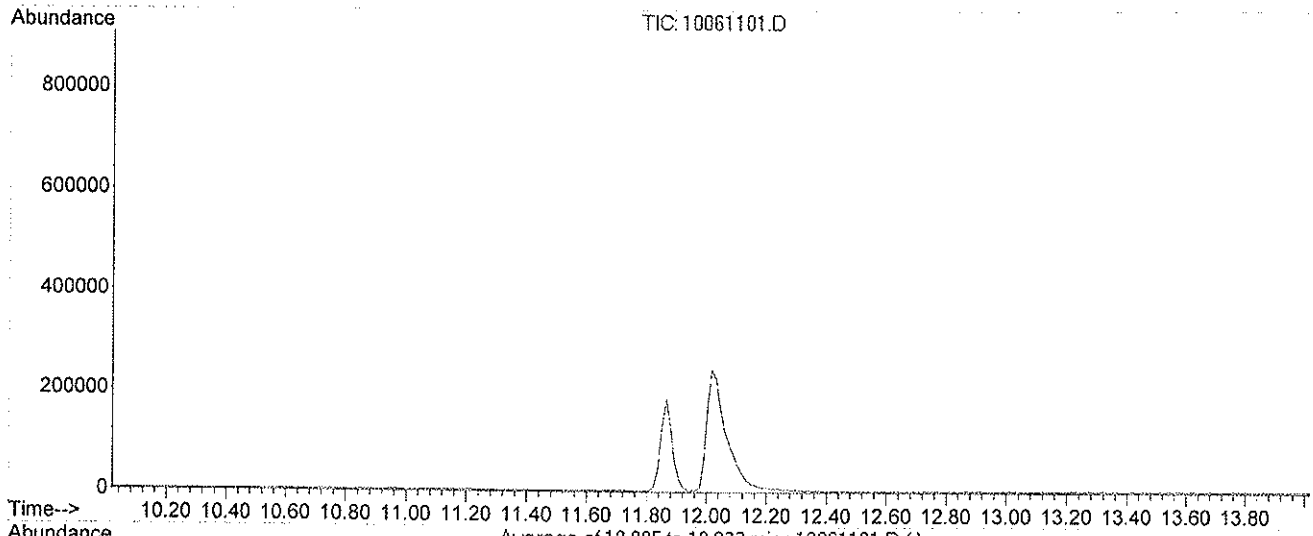


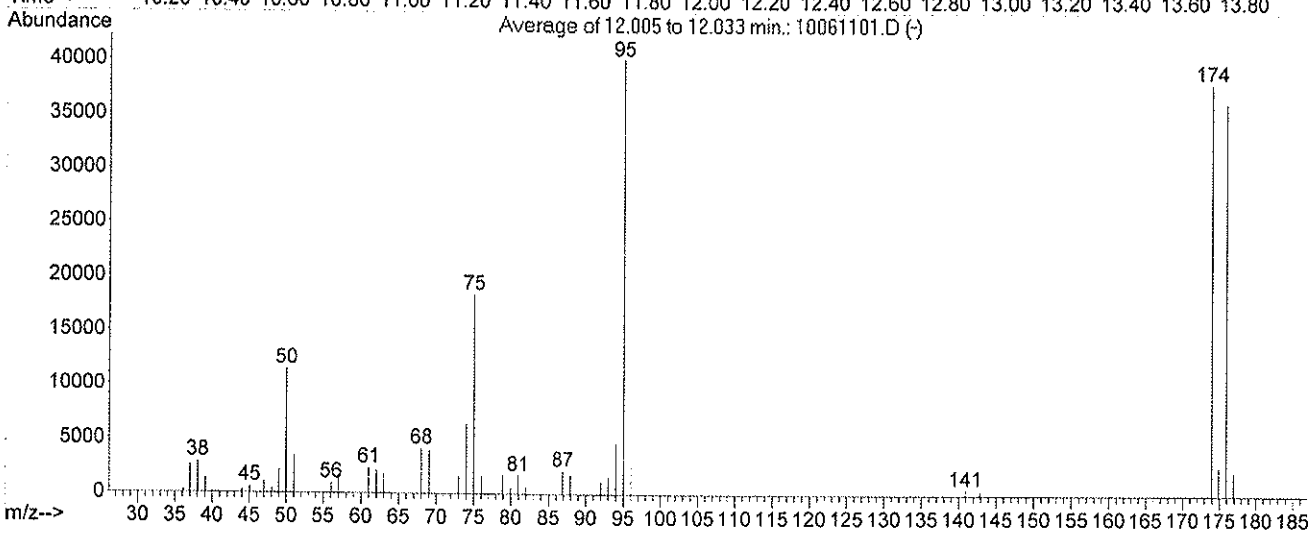
BFB

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061101.D
Acq On : 11 Jun 2010 7:44 am
Operator : YY
Sample : BFB
Misc : 100610Y02
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\MSDCHEM\1\METHODS\CB00607.M
Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
Last Update : Wed Jun 09 10:13:57 2010





AutoFind: Scans 654, 655, 656; Background Corrected with Scan 649

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	28.5	11448	PASS
75	95	30	60	45.8	18406	PASS
95	95	100	100	100.0	40213	PASS
96	95	5	9	7.7	3101	PASS
173	174	0.00	2	0.5	199	PASS
174	95	50	120	94.6	38029	PASS
175	174	5	9	7.1	2719	PASS
176	174	95	101	95.6	36352	PASS
177	176	5	9	5.9	2161	PASS

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061101.D
Acq On : 11 Jun 2010 7:44 am
Operator : YY
Sample : BFB
Misc : 100610Y02
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 22 11:36:03 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	0.00	114	0	0.00 ng	-7.63
3) d5-Chlorobenzene	0.00	117	0	0.00 ng	-10.55
8) d4-1,4-Dichlorobenzene	0.00	152	0	0.00 ng	-13.64

System Monitoring Compounds

2) d4-1,2-Dichloroethane	0.00	65	0	0.00 ng	
Spiked Amount 250.000	Range 74 - 122		Recovery	=	0.00%#
4) d10-Ethylbenzene	0.00	98	0	0.00 ng	
Spiked Amount 200.000	Range 54 - 152		Recovery	=	0.00%#
6) d8-Toluene	0.00	98	0	0.00 ng	
Spiked Amount 250.000	Range 80 - 114		Recovery	=	0.00%#
7) 4-Bromofluorobenzene	12.02	174	212503	0.00 ng	0.01
Spiked Amount 250.000	Range 36 - 141		Recovery	=	0.00%#

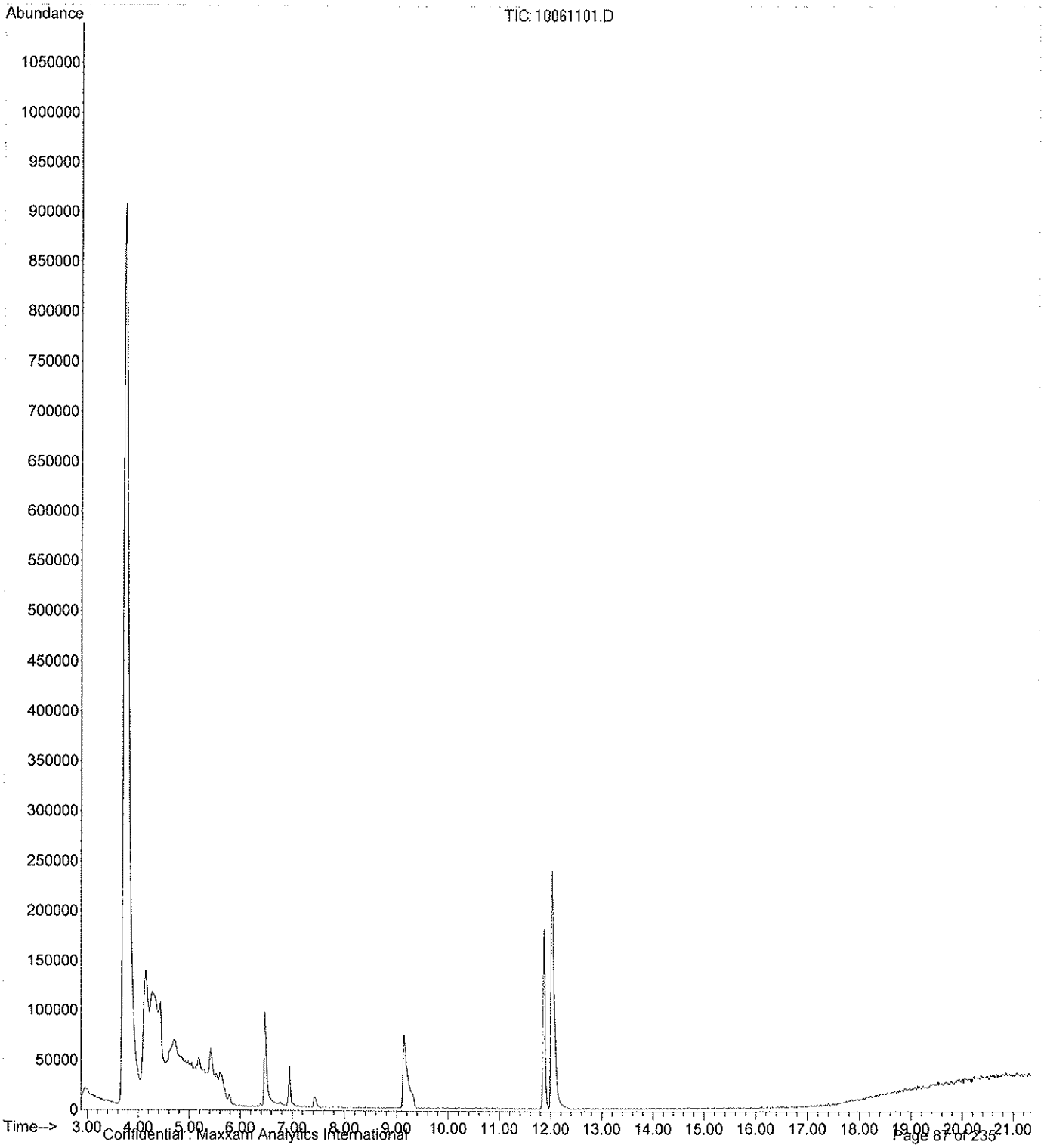
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061101.D
Acq On : 11 Jun 2010 7:44 am
Operator : YY
Sample : BFB
Misc : 100610Y02
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 22 11:36:03 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061103.D
Acq On : 11 Jun 2010 9:46 am
Operator : YY
Sample : 250NG VOST STD
Misc : 100603YY02
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jun 11 10:26:36 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Difluorobenzene	1.000	1.000	0.0	126	-0.01
2	S	d4-1,2-Dichloroethane	0.373	0.369	1.1	123	0.00
3	IR	d5-Chlorobenzene	1.000	1.000	0.0	130	0.00
4	S	d10-Ethylbenzene	1.515	1.492	1.5	125	0.00
5	TMPC	Chlorobenzene	0.954	0.937	1.8	126	0.00
6	S	d8-Toluene	1.118	1.123	-0.4	129	0.00
7	S	4-Bromofluorobenzene	0.410	0.404	1.5	131	-0.01
8	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	134	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061103.D
Acq On : 11 Jun 2010 9:46 am
Operator : YY
Sample : 250NG VOST STD
Misc : 100603YY02
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jun 11 10:26:36 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

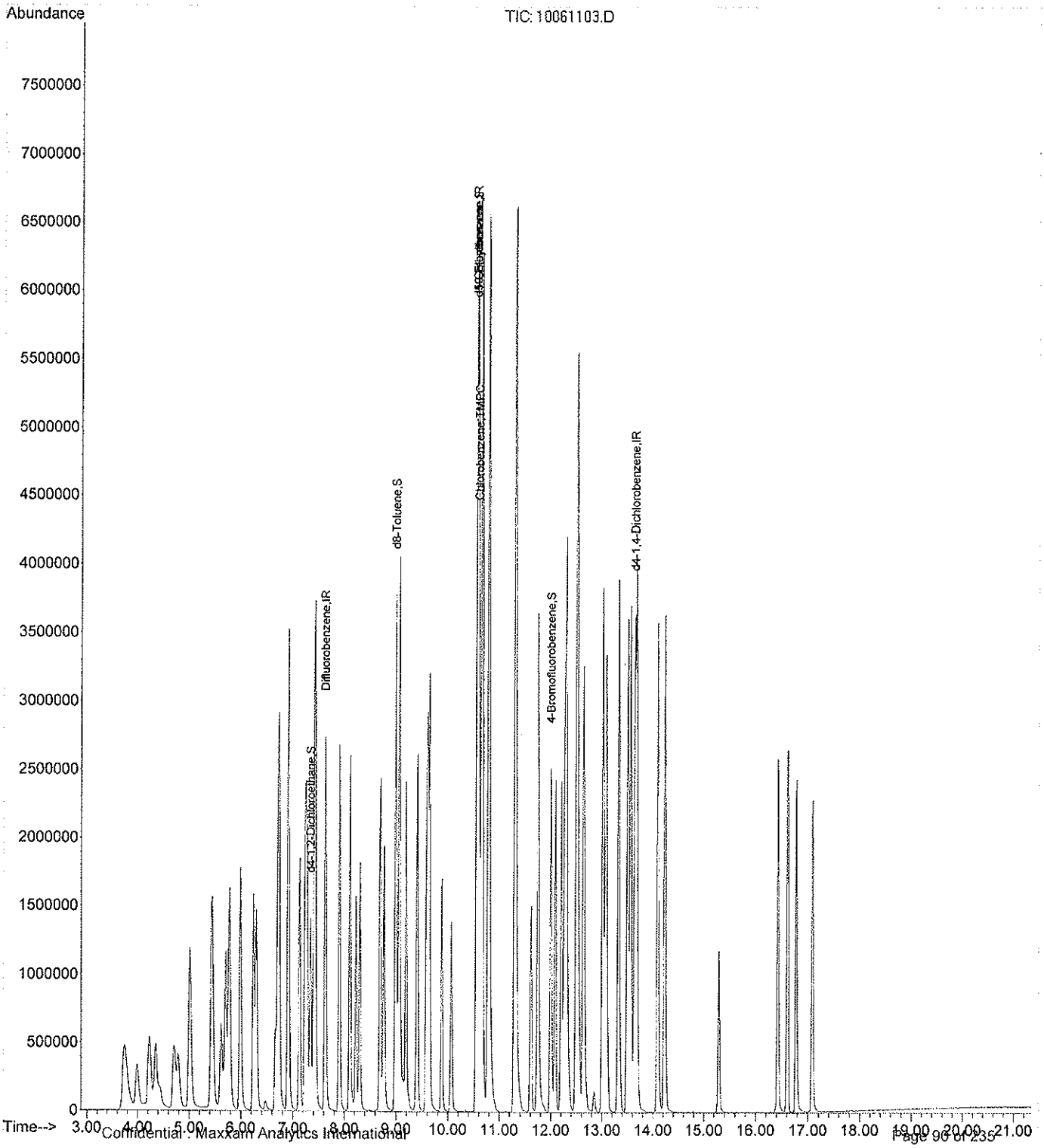
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	7.62	114	2784797	250.00	ng	-0.01
3) d5-Chlorobenzene	10.55	117	2720508	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1373264	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	7.34	65	1027048	247.43	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 98.97%			
4) d10-Ethylbenzene	10.55	98	3246983	196.93	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 98.47%			
6) d8-Toluene	8.99	98	3054280	251.15	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 100.46%			
7) 4-Bromofluorobenzene	11.99	174	1100404	246.47	ng	-0.01
Spiked Amount 250.000	Range 36 - 141		Recovery = 98.59%			
Target Compounds						Qvalue
5) Chlorobenzene	10.59	112	2550117	245.57	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061103.D
Acq On : 11 Jun 2010 9:46 am
Operator : YY
Sample : 250NG VOST STD
Misc : 100603YY02
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jun 11 10:26:36 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Maxxam Analytics

Driven by Service and Science

4.2 QA/QC Data

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

```
Sequence Name: C:\MSDchem\1\sequence\01M10JUN10.S
      Comment: VOST ANALYSIS
     Operator: DBJ
    Data Path: C:\MSDchem\1\DATA\01M10JUN10\
  Pre-Seq Cmd:
 Post-Seq Cmd:

Method Sections To Run      On A Barcode Mismatch
 (X) Full Method              (X) Inject Anyway
 ( ) Reprocessing Only        ( ) Don't Inject
```

Line	Type	Vial	DataFile	Method	Sample Name
1	BFB	1	01M0662	VOS00505	BFB STD
2	BFB	2	01M0663	VOS00505	BFB STD
3	Sample	3	01M0664	VOS00505	250ng VOST STD
4	Sample	4	01M0665	VOS00505	SPIKE REF. STD.
5	Sample	5	01M0666	VOS00505	BLANK
6	Sample	6	01M0667	VOS00505	GC8242 ALLIANCE
7	Sample	7	01M0668	VOS00505	GC8401 ALLIANCE
8	Sample	8	01M0669	VOS00505	SBLANK
9	Sample	9	01M0670	VOS00505	GC8248 ALLIANCE
10	Sample	10	01M0671	VOS00505	GC8252 ALLIANCE
11	Sample	11	01M0672	VOS00505	GC8379 ALLIANCE
12	Sample	12	01M0673	VOS00505	GC8383 ALLIANCE

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0665.D Vial: 4
Acq On : 10 Jun 2010 12:25 pm Operator: DBJ
Sample : SPIKE REF. STD. Inst : msd1
Misc : 100603YY01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 12:51:47 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

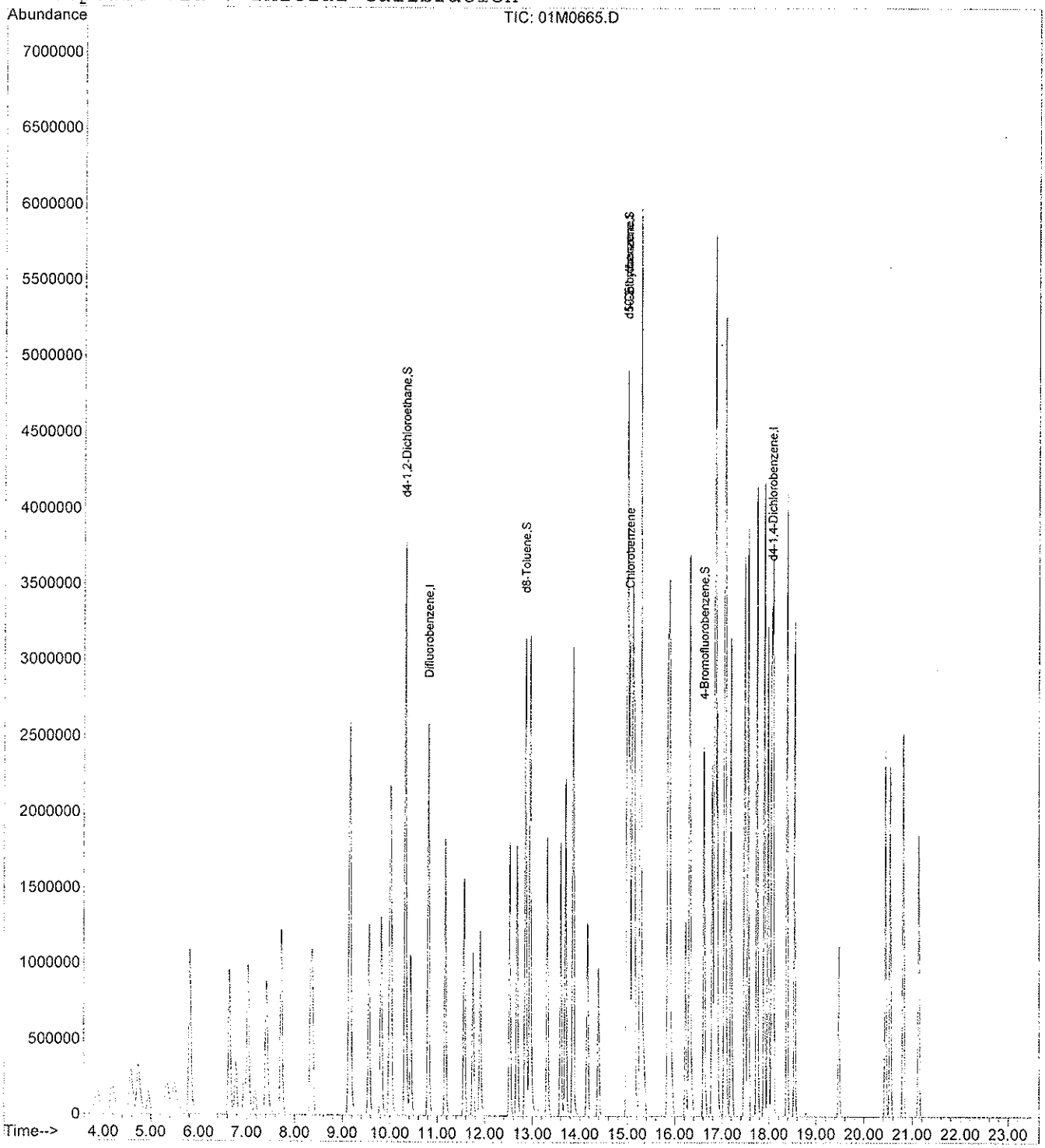
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2744197	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2378969	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	993522	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.32	65	941241	263.37	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 105.35%			
4) d8-Toluene	12.85	98	2997619	248.25	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 99.30%			
5) d10-Ethylbenzene	14.98	98	2568736	190.58	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 95.29%			
7) 4-Bromofluorobenzene	16.61	174	894317	254.48	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 101.79%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	2225943	264.12	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0665.D Vial: 4
Acq On : 10 Jun 2010 12:25 pm Operator: DBJ
Sample : SPIKE REF. STD. Inst : msd1
Misc : 100603YY01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 12:51 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0666.D
Acq On : 10 Jun 2010 1:05 pm
Sample : BLANK
Misc :
MS Integration Params: Lscint.p
Quant Time: Jun 10 13:53:19 2010

Vial: 5
Operator: DBJ
Inst : msd1
Multiplr: 1.00

Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	3048461	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	2593827	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	789281	250.00 ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	10.32	65	1013664	255.33 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 102.13%		
4) d8-Toluene	12.85	98	3192927	242.52 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 97.01%		
5) d10-Ethylbenzene	14.99	98	3167497	215.54 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 107.77%		
7) 4-Bromofluorobenzene	16.62	174	825985	215.57 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 86.23%		

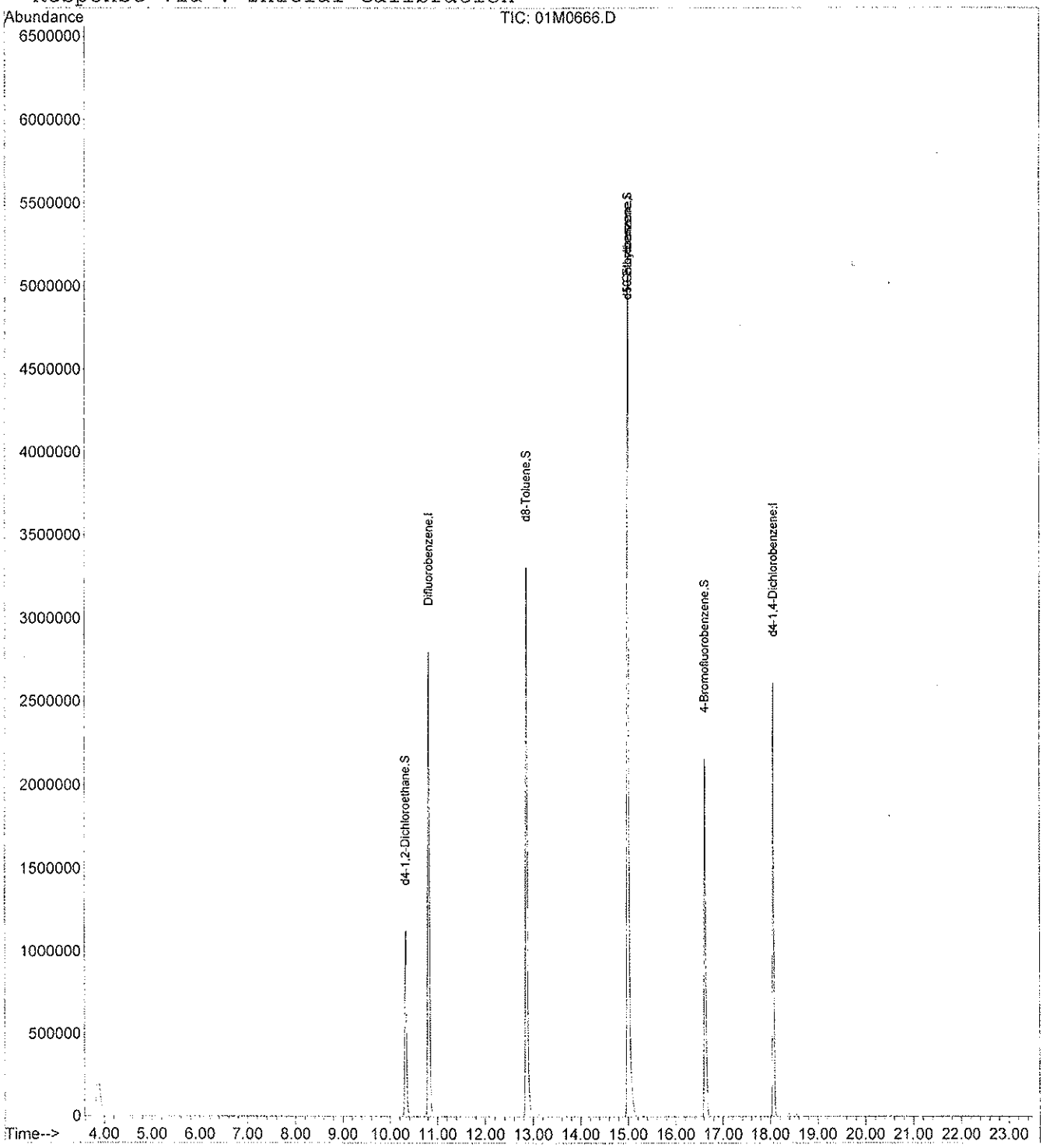
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0666.D Vial: 5
Acq On : 10 Jun 2010 1:05 pm Operator: DBJ
Sample : BLANK Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 13:53 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



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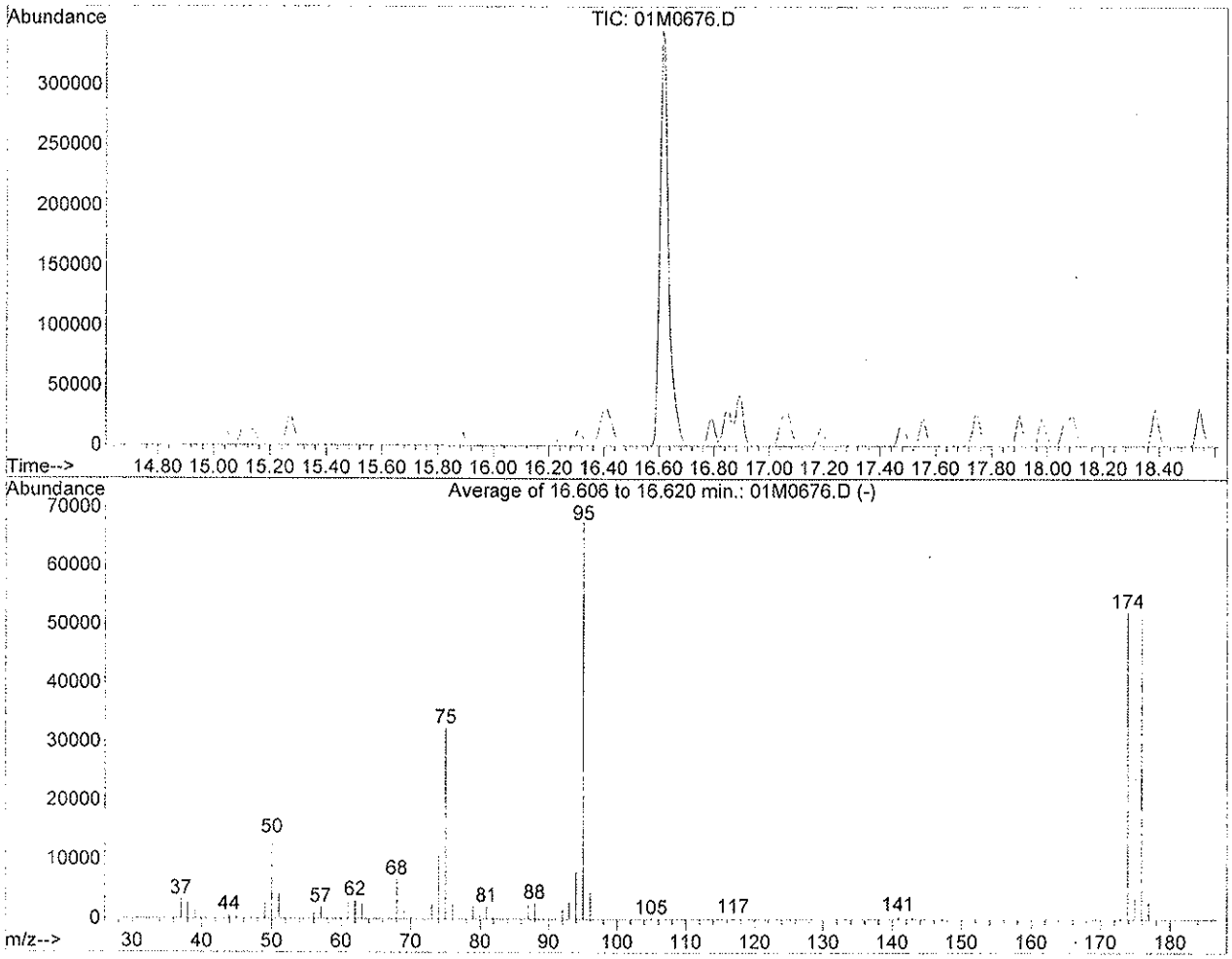
```
Sequence Name: C:\MSDchem\1\sequence\01M10JUN11.S
      Comment: VOST ANALYSIS
     Operator: MM/DBJ
    Data Path: C:\MSDchem\1\DATA\01M10JUN11\
  Pre-Seq Cmd:
 Post-Seq Cmd:

Method Sections To Run      On A Barcode Mismatch
 (X) Full Method              (X) Inject Anyway
 ( ) Reprocessing Only        ( ) Don't Inject


Line Type       Vial DataFile Method   Sample Name
-----------------------------------------------------------------------
  1 BFB            1 01M0674  VOS00505 BFB STD
  2 Sample         2 01M0675  VOS00505 250NG  VOST STD
  3 BFB            3 01M0676  VOS00505 BFB STD
  4 Sample         4 01M0677  VOS00505 250NG  VOST STD
  5 Sample         5 01M0678  VOS00505 SPIKE    REF. STD.
  6 Sample         6 01M0679  VOS00505 BLANK
  7 Sample         7 01M0680  VOS00505 GC8249    X20   ALLIANCE
  8 Sample         8 01M0681  VOS00505 GC8250    X20   ALLIANCE
  9 Sample         9 01M0682  VOS00505 GC8253    X20   ALLIANCE
 10 Sample        10 01M0683  VOS00505 GC8254    X20   ALLIANCE
 11 Sample        11 01M0684  VOS00505 GC8380    X20   ALLIANCE
 12 Sample        12 01M0685  VOS00505 GC8381    X20   ALLIANCE
 13 Sample        13 01M0686  VOS00505 GC8246    X20   ALLIANCE
```

BFB

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0676.D Vial: 3
Acq On : 11 Jun 2010 9:31 am Operator: MM/DBJ
Sample : BFB STD Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS



AutoFind: Scans 1822, 1823, 1824; Background Corrected with Scan 1816

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.2	13618	PASS
75	95	30	60	47.8	32306	PASS
95	95	100	100	100.0	67560	PASS
96	95	5	9	6.8	4590	PASS
173	174	0.00	2	0.4	196	PASS
174	95	50	120	77.2	52181	PASS
175	174	5	9	7.6	3968	PASS
176	174	95	101	97.9	51090	PASS
177	176	5	9	6.5	3318	PASS

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Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0678.D Vial: 5
Acq On : 11 Jun 2010 11:16 am Operator: MM/DBJ
Sample : SPIKE REF. STD. Inst : msd1
Misc : 100603YY01 Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 11:47:49 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2610265	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2284866	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	915897	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	938903	276.20	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 110.48%			
4) d8-Toluene	12.85	98	2850526	245.79	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 98.32%			
5) d10-Ethylbenzene	14.99	98	2830987	218.69	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 109.35%			
7) 4-Bromofluorobenzene	16.62	174	828964	245.60	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 98.24%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	1919377	237.12	ng	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

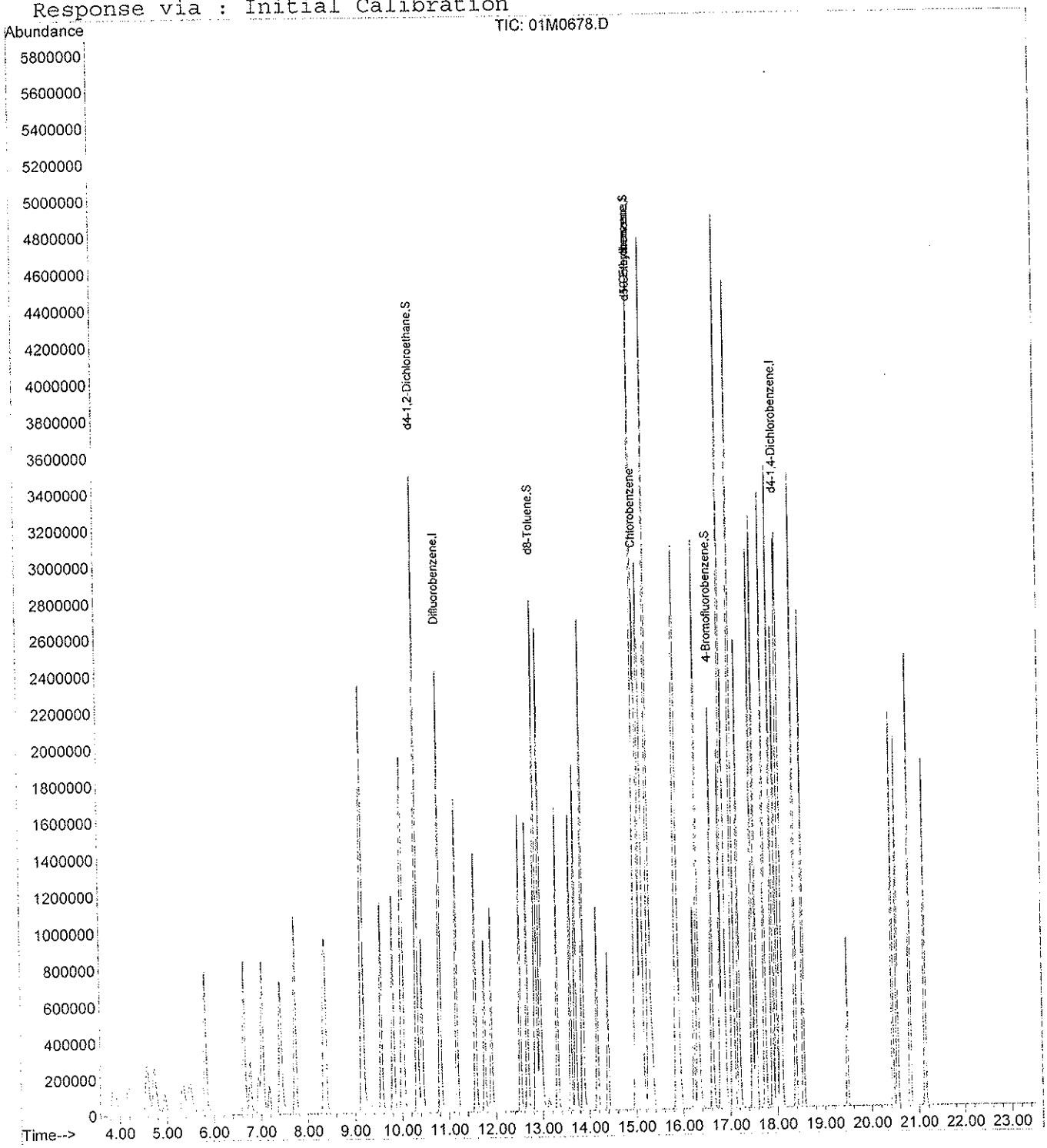
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0678.D
Acq On : 11 Jun 2010 11:16 am
Sample : SPIKE REF. STD.
Misc : 100603YY01
MS Integration Params: Lscint.p
Quant Time: Jun 11 11:47 2010

Vial: 5
Operator: MM/DBJ
Inst : msd1
Multiplr: 1.00

Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0679.D
Acq On : 11 Jun 2010 11:54 am
Sample : BLANK
Misc :
MS Integration Params: Lscint.p
Quant Time: Jun 11 12:23:30 2010

Vial: 6
Operator: MM/DBJ
Inst : msd1
Multiplr: 1.00

Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	2346384	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	2016290	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	612150	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	10.33	65	825007	269.99 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 108.00%		
4) d8-Toluene	12.85	98	2573115	251.43 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 100.57%		
5) d10-Ethylbenzene	14.99	98	2210526	193.51 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 96.75%		
7) 4-Bromofluorobenzene	16.62	174	643468	216.04 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 86.42%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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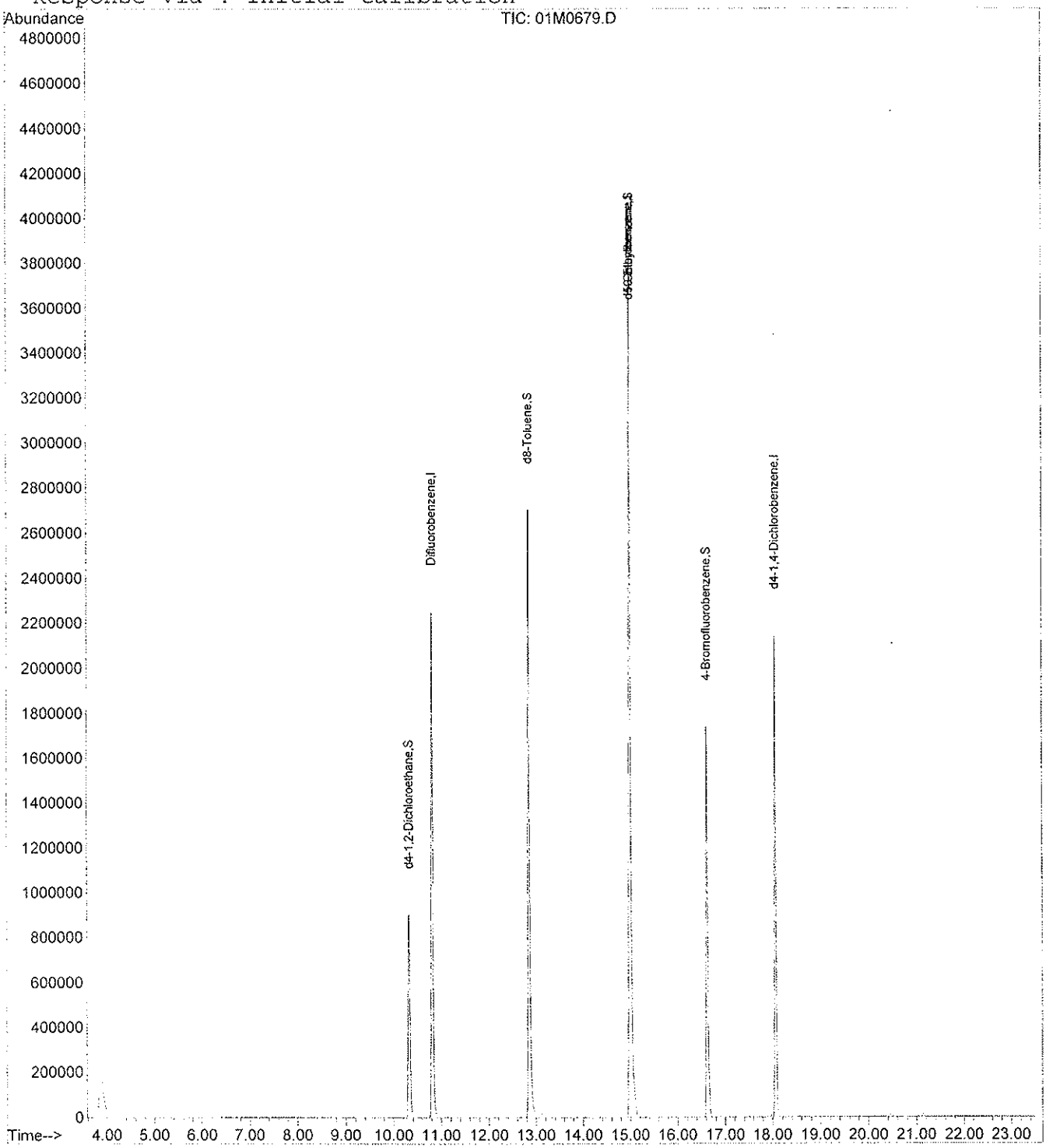
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0679.D Vial: 6
Acq On : 11 Jun 2010 11:54 am Operator: MM/DBJ
Sample : BLANK Inst : msd1
Misc : Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 12:23 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



```
   Sequence Name: C:\MSDChem\1\sequence\20100610.S
         Comment: MSD2
        Operator: YY
       Data Path: C:\DATA\2010\2010_06\2100610\
Top                  Pre-Seq Cmd:
Instrument Control   Pre-Seq Cmd:
Data Analysis        Pre-Seq Cmd:

Top                 Post-Seq Cmd:
Instrument Control  Post-Seq Cmd:
Data Analysis       Post-Seq Cmd:

   Method Sections To Run      On A Barcode Mismatch
    (X) Full Method              (X) Inject Anyway
    ( ) Reprocessing Only        ( ) Don't Inject

   ----------------------------------------------------------------------
   Line                    Sample Name/Misc Info
 1)  BFB            1  10061001 VOS00607 BFB
 2)  Sample         2  10061002 VOS00607 FU0311    RWDI
 3)  Sample         3  10061003 VOS00607 FZ3906    RWDI
 4)  Sample         4  10061004 VOS00607 250NG VOST STD
 5)  Sample         5  10061005 VOS00607 SPIKE    250NG VOST REFSTD
 6)  Sample         6  10061006 VOS00607 BLANK
 7)  Sample         7  10061007 VOS00607 GC8397    ALLIANCE
 8)  Sample         8  10061008 VOS00607 SBLANK
 9)  Sample         9  10061009 VOS00607 GC8244    ALLIANCE
10)  Sample        10  10061010 VOS00607 SBLANK
11)  Sample        11  10061011 VOS00607 GC8375    ALLIANCE
12)  Sample        12  10061012 VOS00607 SBLANK
```

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061005.D
Acq On : 10 Jun 2010 12:46 pm
Operator : YY
Sample : SPIKE 250NG VOST REFSTD
Misc : 100603YY01
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 10 13:29:07 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

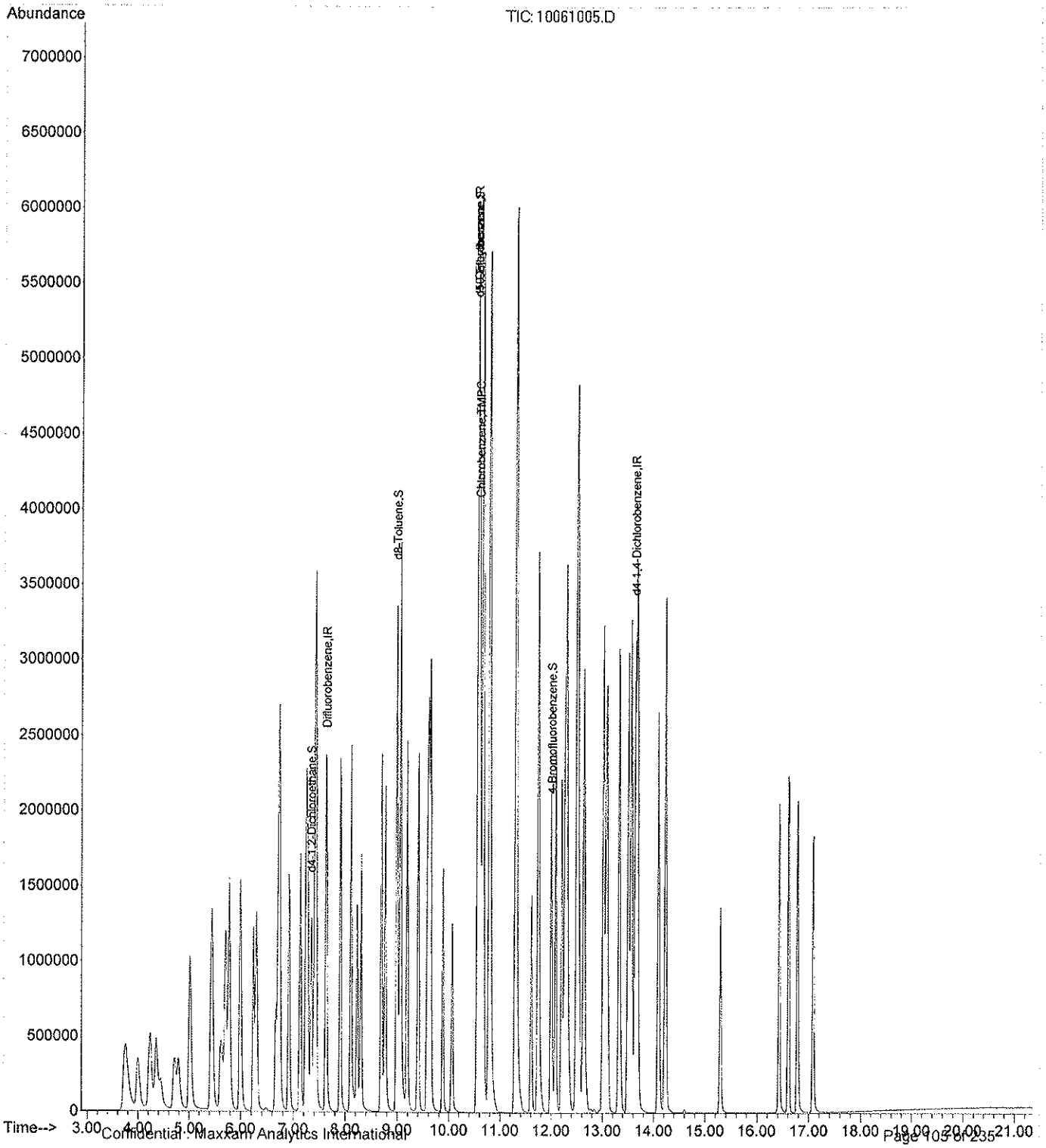
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.63	114	2419957	250.00 ng	0.00
3) d5-Chlorobenzene	10.55	117	2340044	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1179804	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	908602	251.89 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 100.76%		
4) d10-Ethylbenzene	10.55	98	2787584	196.55 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 98.28%		
6) d8-Toluene	8.99	98	2592857	247.87 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 99.15%		
7) 4-Bromofluorobenzene	12.01	174	945300	246.16 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 98.46%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	2343375	262.35 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061005.D
Acq On : 10 Jun 2010 12:46 pm
Operator : YY
Sample : SPIKE 250NG VOST REFSTD
Misc : 100603YY01
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 10 13:29:07 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061006.D
Acq On : 10 Jun 2010 1:47 pm
Operator : YY
Sample : BLANK
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 10 16:57:14 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	7.63	114	2772111	250.00	ng	0.00
3) d5-Chlorobenzene	10.57	117	2564364	250.00	ng	0.01
8) d4-1,4-Dichlorobenzene	13.65	152	792289	250.00	ng	0.01

System Monitoring Compounds

2) d4-1,2-Dichloroethane	7.34	65	1039983	251.69	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 100.68%			
4) d10-Ethylbenzene	10.57	98	2663872	171.40	ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 85.70%			
6) d8-Toluene	8.99	98	2911347	253.97	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 101.59%			
7) 4-Bromofluorobenzene	12.00	174	863332	205.15	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 82.06%			

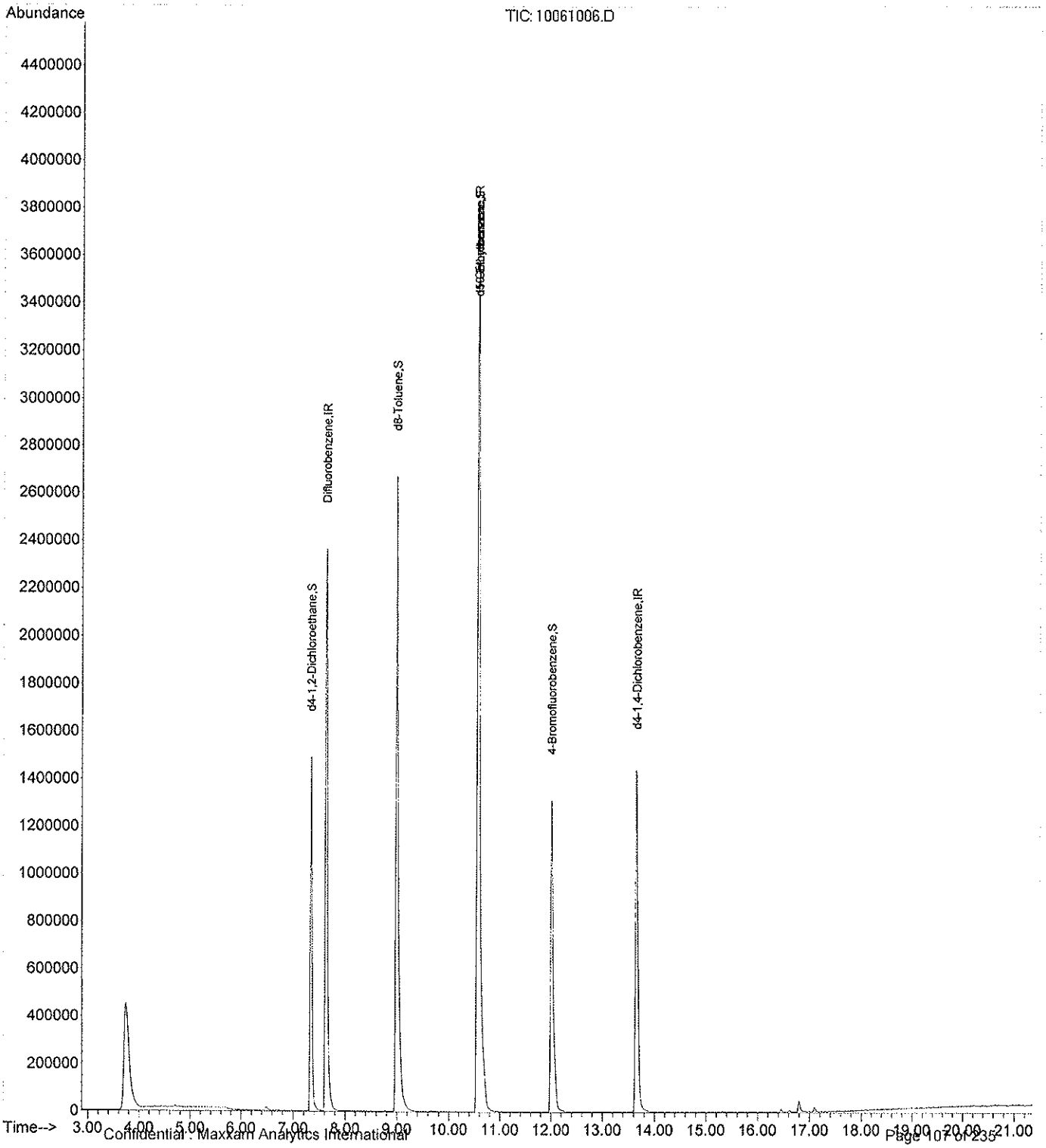
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061006.D
Acq On : 10 Jun 2010 1:47 pm
Operator : YY
Sample : BLANK
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 10 16:57:14 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



```
   Sequence Name: C:\MSDChem\1\sequence\20100611.S
         Comment: MSD2
        Operator: YY
       Data Path: C:\DATA\2010\2010_06\2100611\
Top                  Pre-Seq Cmd:
Instrument Control   Pre-Seq Cmd:
Data Analysis        Pre-Seq Cmd:

Top                 Post-Seq Cmd:
Instrument Control  Post-Seq Cmd:
Data Analysis       Post-Seq Cmd:

   Method Sections To Run      On A Barcode Mismatch
    (X) Full Method              (X) Inject Anyway
    ( ) Reprocessing Only        ( ) Don't Inject

   ----------------------------------------------------------------------
   Line                    Sample Name/Misc Info
 1)  BFB            1  10061101 VOS00607 BFB
 2)  Sample         2  10061102 VOS00607 250NG   VOST STD
 3)  Sample         3  10061103 VOS00607 250NG   VOST STD
 4)  Sample         4  10061104 VOS00607 SPIKE    250NG   VOST REFSTD
 5)  Sample         5  10061105 VOS00607 BLANK
 6)  Sample         6  10061106 VOS00607 GC8402    ALLIANCE  10X
 7)  Sample         7  10061107 VOS00607 GC8245    ALLIANCE  20X
 8)  Sample         8  10061108 VOS00607 GC8247    ALLIANCE  20X
 9)  Sample         9  10061109 VOS00607 GC8376    ALLIANCE  20X
10)  Sample        10  10061110 VOS00607 GC8377    ALLIANCE  20X
11)  Sample        11  10061111 VOS00607 GC8384    ALLIANCE  20X
12)  Sample        12  10061112 VOS00607 GC8385    ALLIANCE  20X
```

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061104.D
Acq On : 11 Jun 2010 10:21 am
Operator : YY
Sample : SPIKE 250NG VOST REFSTD
Misc : 100603YY01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 11 10:52:28 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

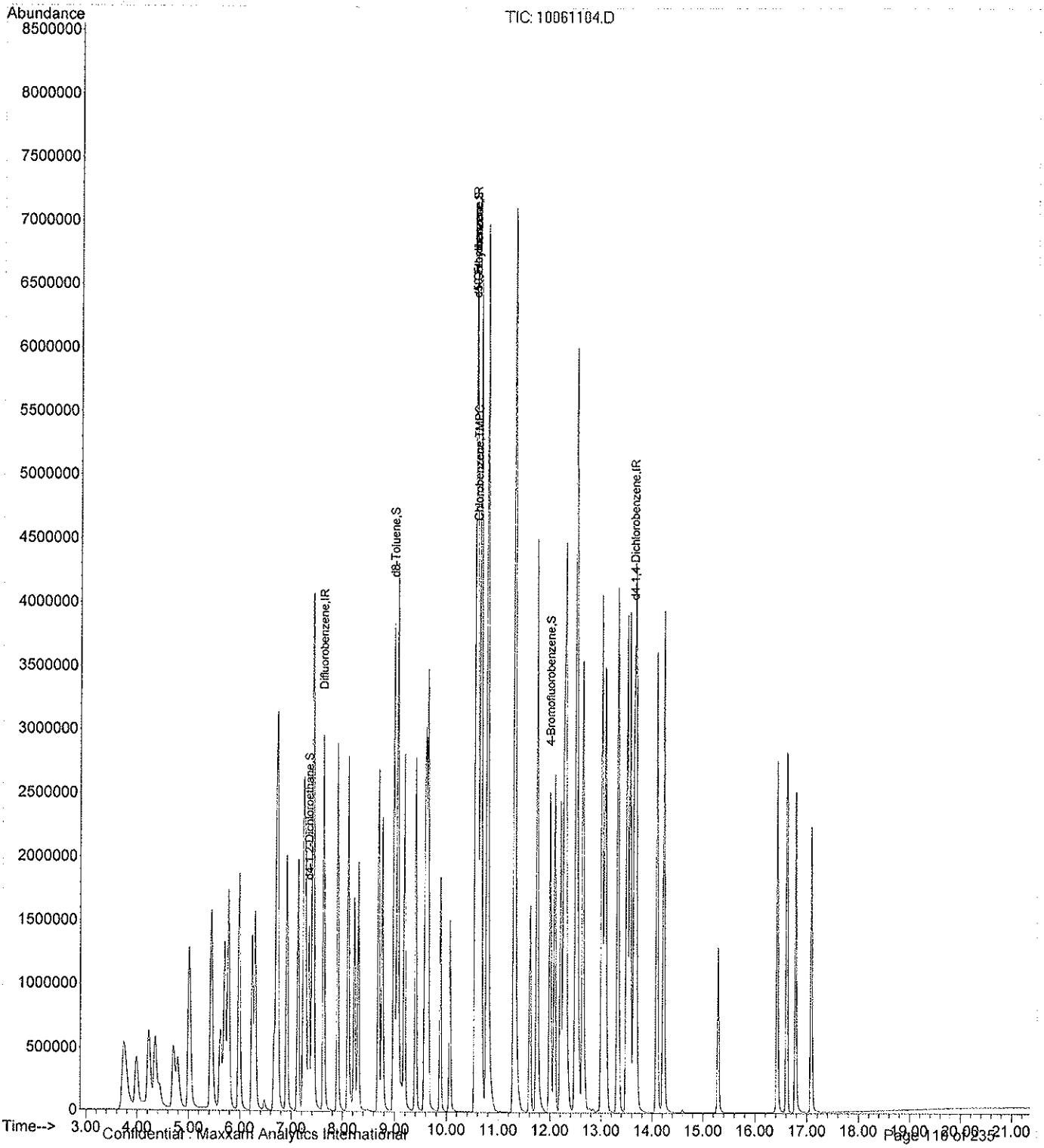
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	2870914	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	2747396	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1372806	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	1070261	250.10 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 100.04%		
4) d10-Ethylbenzene	10.55	98	3422229	205.53 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 102.77%		
6) d8-Toluene	8.99	98	3091462	251.72 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 100.69%		
7) 4-Bromofluorobenzene	11.99	174	1103794	244.81 ng	-0.01
Spiked Amount 250.000	Range 36 - 141		Recovery = 97.92%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	2693329	256.82 ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061104.D
Acq On : 11 Jun 2010 10:21 am
Operator : YY
Sample : SPIKE 250NG VOST REFSTD
Misc : 100603YY01
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 11 10:52:28 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061105.D
Acq On : 11 Jun 2010 10:59 am
Operator : YY
Sample : BLANK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 11 11:26:46 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	7.62	114	3175417	250.00	ng	-0.01
3) d5-Chlorobenzene	10.55	117	2939591	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1048928	250.00	ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	7.34	65	1183285	250.00	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 100.00%			
4) d10-Ethylbenzene	10.57	98	3197758	179.49	ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 89.75%			
6) d8-Toluene	8.99	98	3413438	259.76	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 103.90%			
7) 4-Bromofluorobenzene	12.00	174	1045904	216.81	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 86.72%			

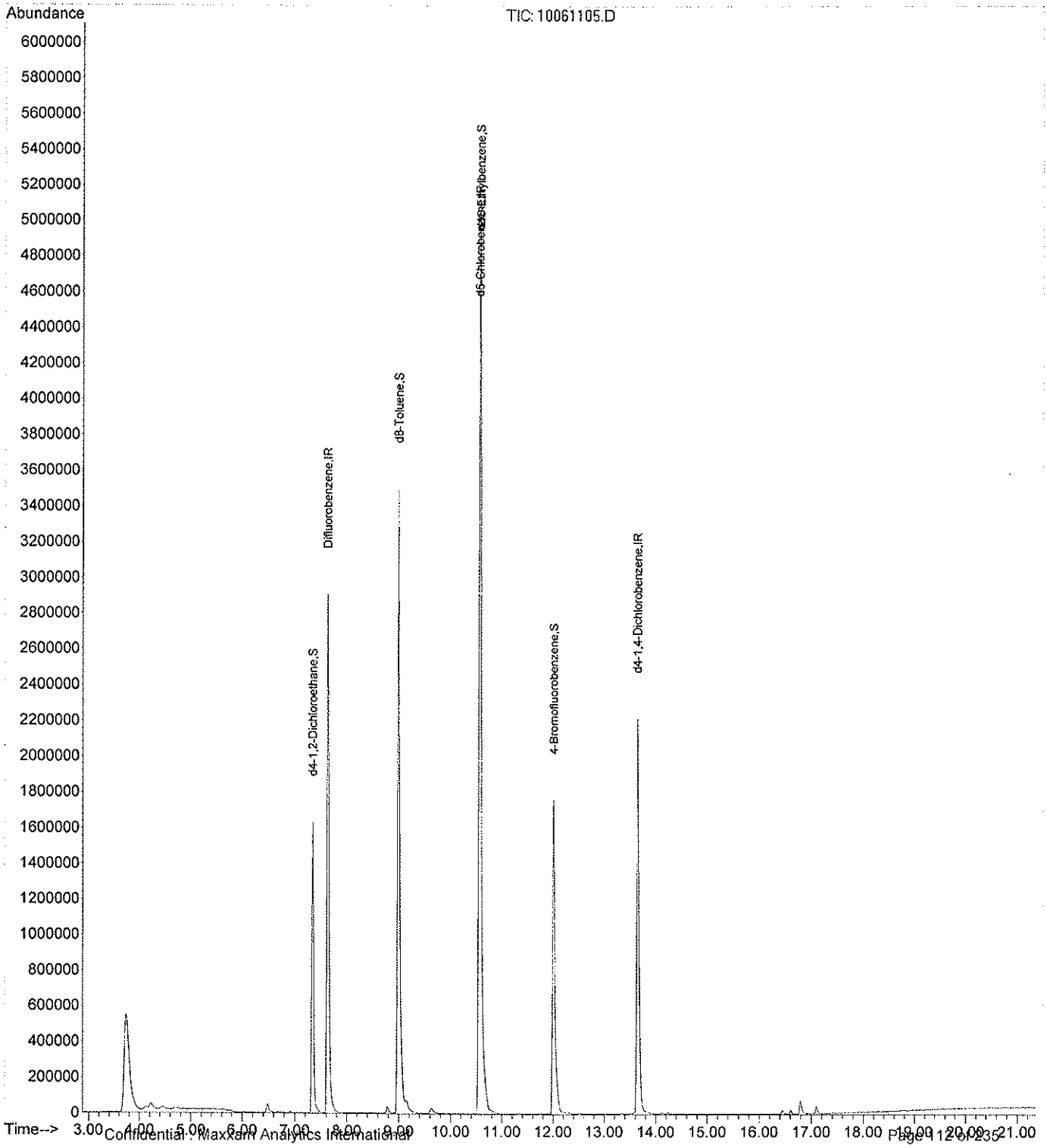
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061105.D
Acq On : 11 Jun 2010 10:59 am
Operator : YY
Sample : BLANK
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 11 11:26:46 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Maxxam Analytics

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4.3 Sample Chromatograms

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0667.D Vial: 6
Acq On : 10 Jun 2010 2:26 pm Operator: DBJ
Sample : GC8242 ALLIANCE Inst : msd1
Misc : FIELD BLANK-TRAP 27 27A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 14:50:20 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	1976202	250.00	ng	-0.01
3) d5-Chlorobenzene	15.00	117	1769855	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	464148	250.00	ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	10.31	65	692856	269.21	ng	-0.01
Spiked Amount 250.000	Range 74 - 122		Recovery = 107.68%			
4) d8-Toluene	12.85	98	2180178	242.69	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 97.08%			
5) d10-Ethylbenzene	14.99	98	2534306	252.74	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 126.37%			
7) 4-Bromofluorobenzene	16.62	174	517764	198.04	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 79.22%			

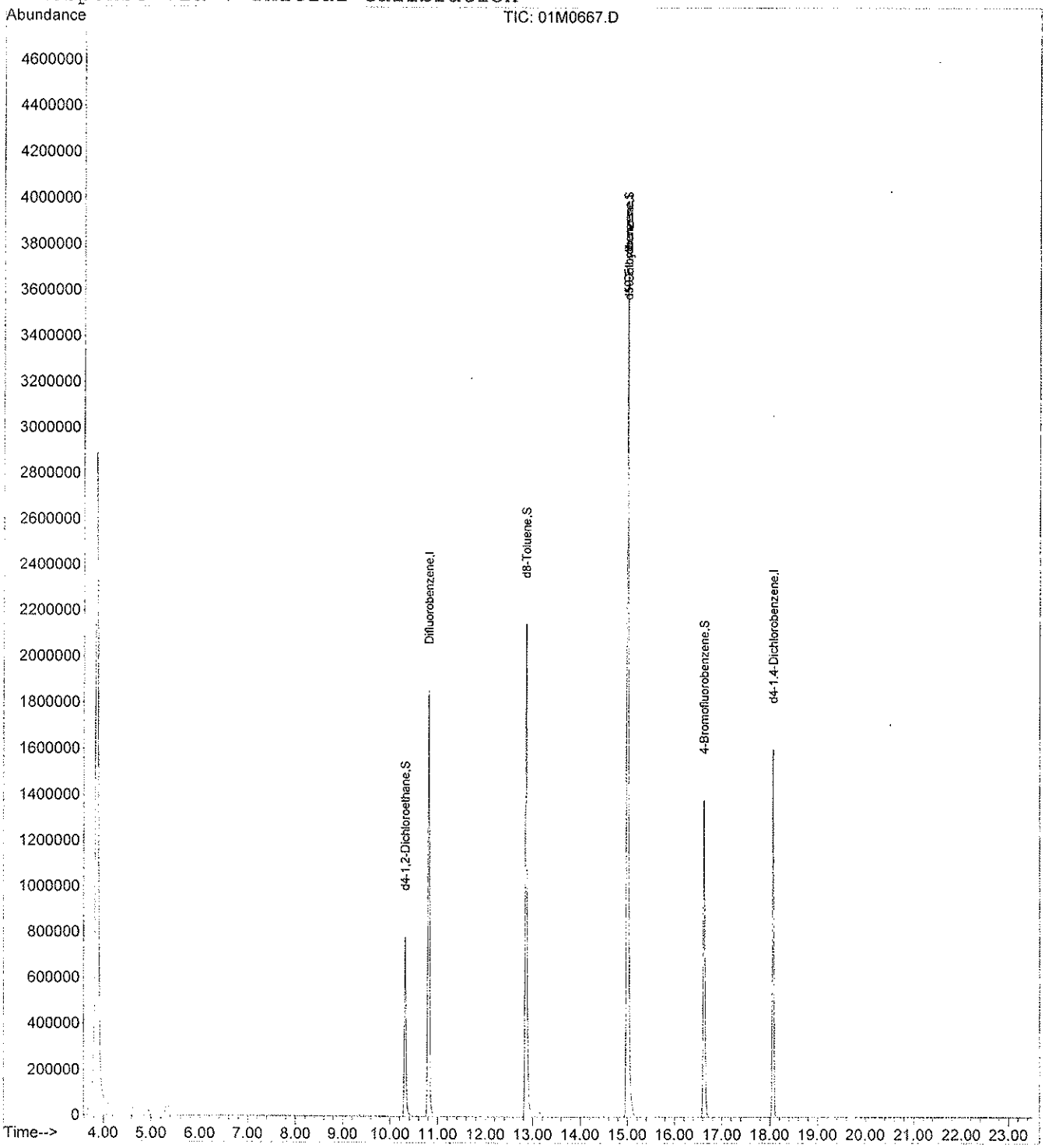
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0667.D Vial: 6
Acq On : 10 Jun 2010 2:26 pm Operator: DBJ
Sample : GC8242 ALLIANCE Inst : msd1
Misc : FIELD BLANK-TRAP 27 27A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 15:06 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0668.D Vial: 7
Acq On : 10 Jun 2010 3:03 pm Operator: DBJ
Sample : GC8401 ALLIANCE Inst : msd1
Misc : RUN 2-AUDIT-TRAP 2 2A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 15:28:47 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

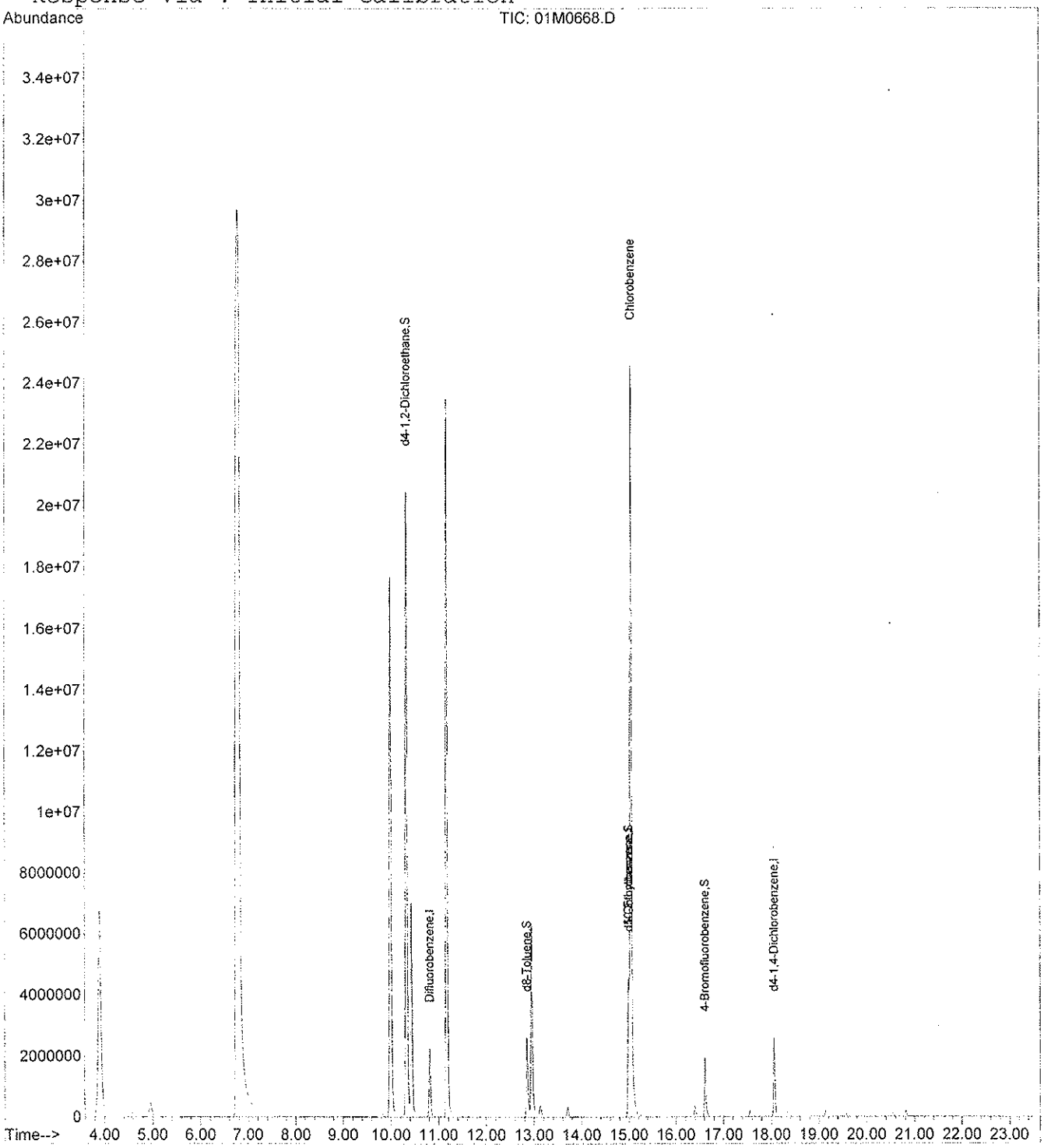
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2399180	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2202183	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	757472	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	1017351	325.60	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 130.24%#			
4) d8-Toluene	12.85	98	2565205	229.50	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 91.80%			
5) d10-Ethylbenzene	14.99	98	2776581	222.54	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 111.27%			
7) 4-Bromofluorobenzene	16.62	174	727708	223.70	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 89.48%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	19367920	2482.56	ng	93

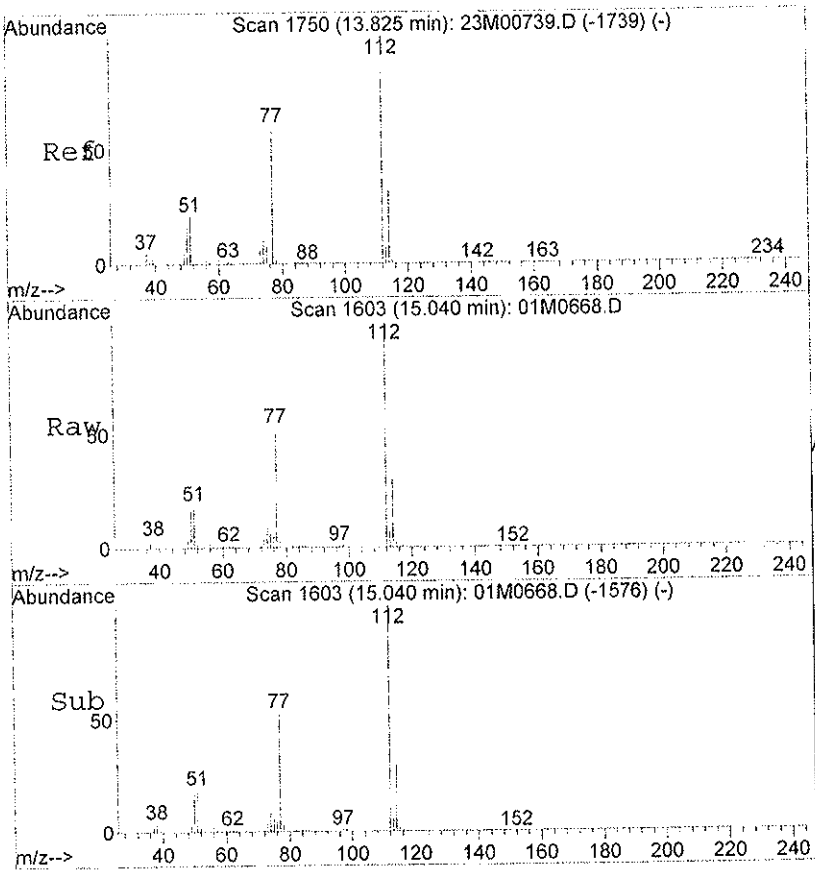
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0668.D Vial: 7
Acq On : 10 Jun 2010 3:03 pm Operator: DBJ
Sample : GC8401 ALLIANCE Inst : msd1
Misc : RUN 2-AUDIT-TRAP 2 2A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 15:28 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration

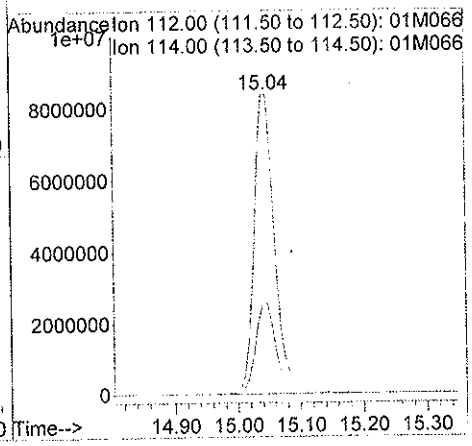




#6
Chlorobenzene
Concen: 2482.56 ng
RT: 15.04 min Scan# 1603
Delta R.T. -0.01 min
Lab File: 01M0668.D
Acq: 10 Jun 2010 3:03 pm

Tgt Ion:112 Resp:19367920

Ion	Ratio	Lower	Upper
112	100		
114	31.3	15.5	55.5



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0670.D Vial: 9
Acq On : 10 Jun 2010 4:24 pm Operator: DBJ
Sample : GC8248 ALLIANCE Inst : msd1
Misc : R2-CONDITION 1-TRAP 1 1A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 16:49:01 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

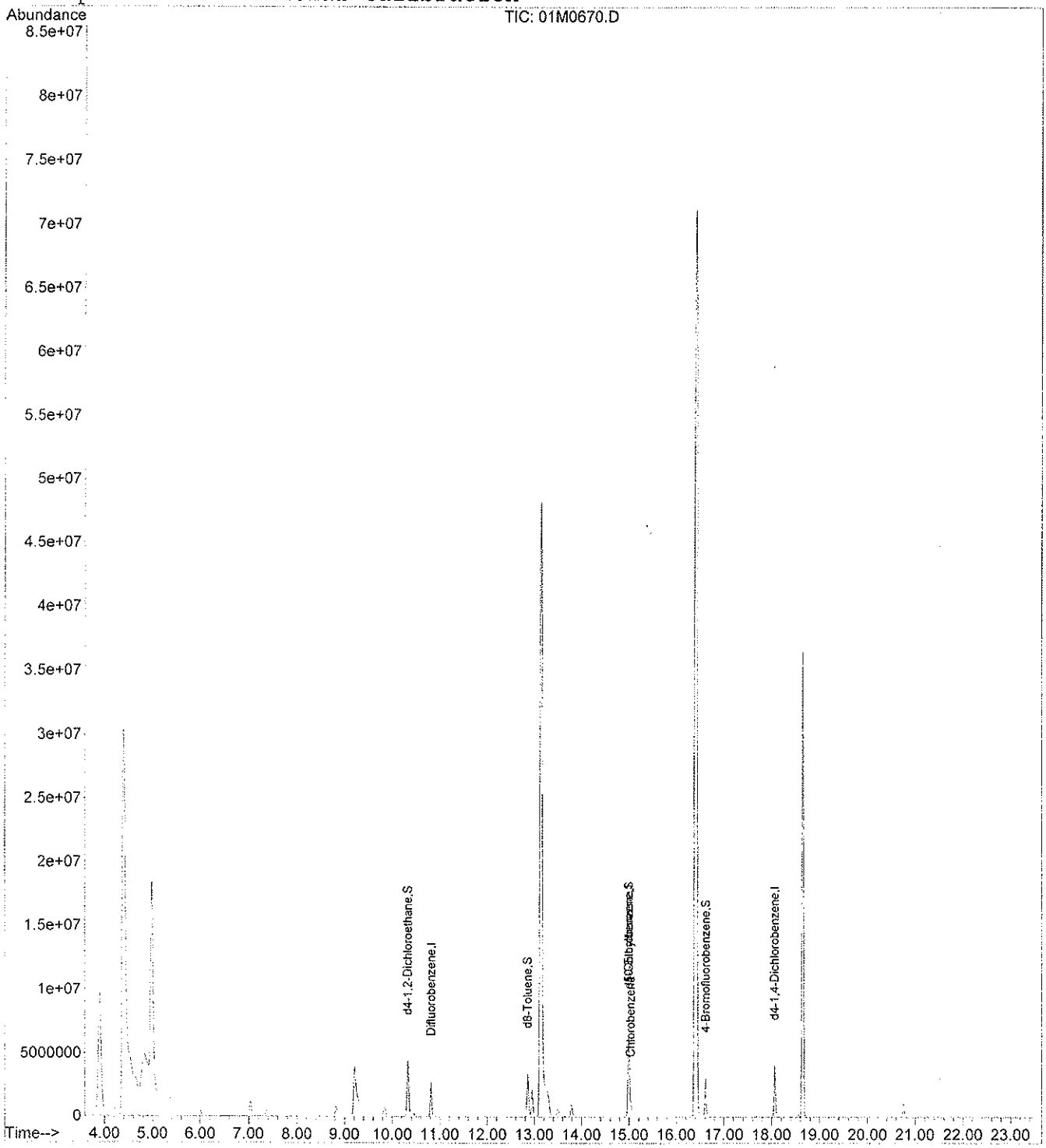
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2926588	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2944574	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	1204786	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	1051384	275.86	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 110.34%			
4) d8-Toluene	12.85	98	3127662	209.27	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 83.71%			
5) d10-Ethylbenzene	14.98	98	3615534	216.72	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 108.36%			
7) 4-Bromofluorobenzene	16.62	174	1119401	257.35	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 102.94%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	533739	51.17	ng	94

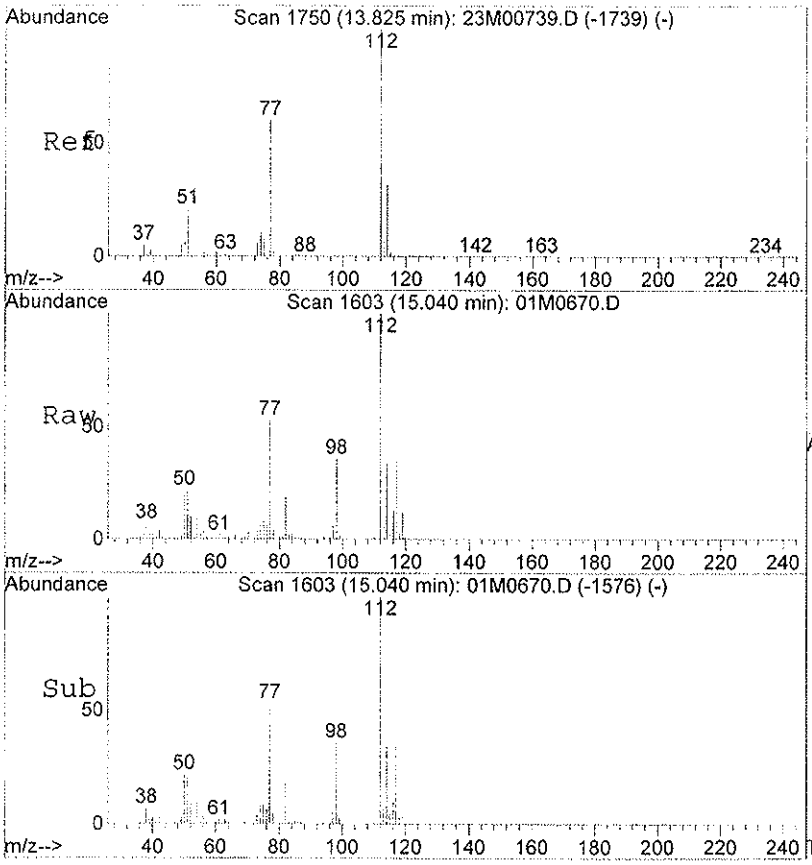
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0670.D Vial: 9
Acq On : 10 Jun 2010 4:24 pm Operator: DBJ
Sample : GC8248 ALLIANCE Inst : msd1
Misc : R2-CONDITION 1-TRAP 1 1A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 16:49 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration

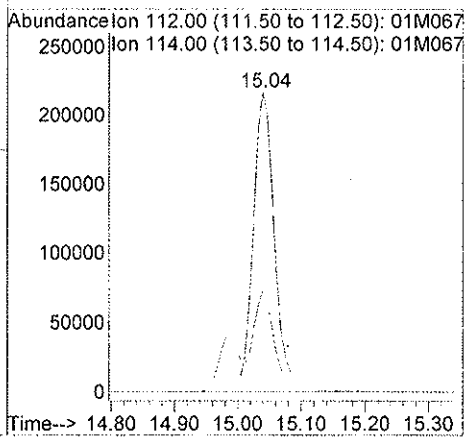




#6
Chlorobenzene
Concen: 51.17 ng
RT: 15.04 min Scan# 1603
Delta R.T. -0.01 min
Lab File: 01M0670.D
Acq: 10 Jun 2010 4:24 pm

Tgt Ion:112 Resp: 533739

Ion	Ratio	Lower	Upper
112	100		
114	32.2	15.5	55.5



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0671.D Vial: 10
Acq On : 10 Jun 2010 5:01 pm Operator: DBJ
Sample : GC8252 ALLIANCE Inst : msd1
Misc : R3-CONDITION 1-TRAP 9 9A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 17:27:23 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

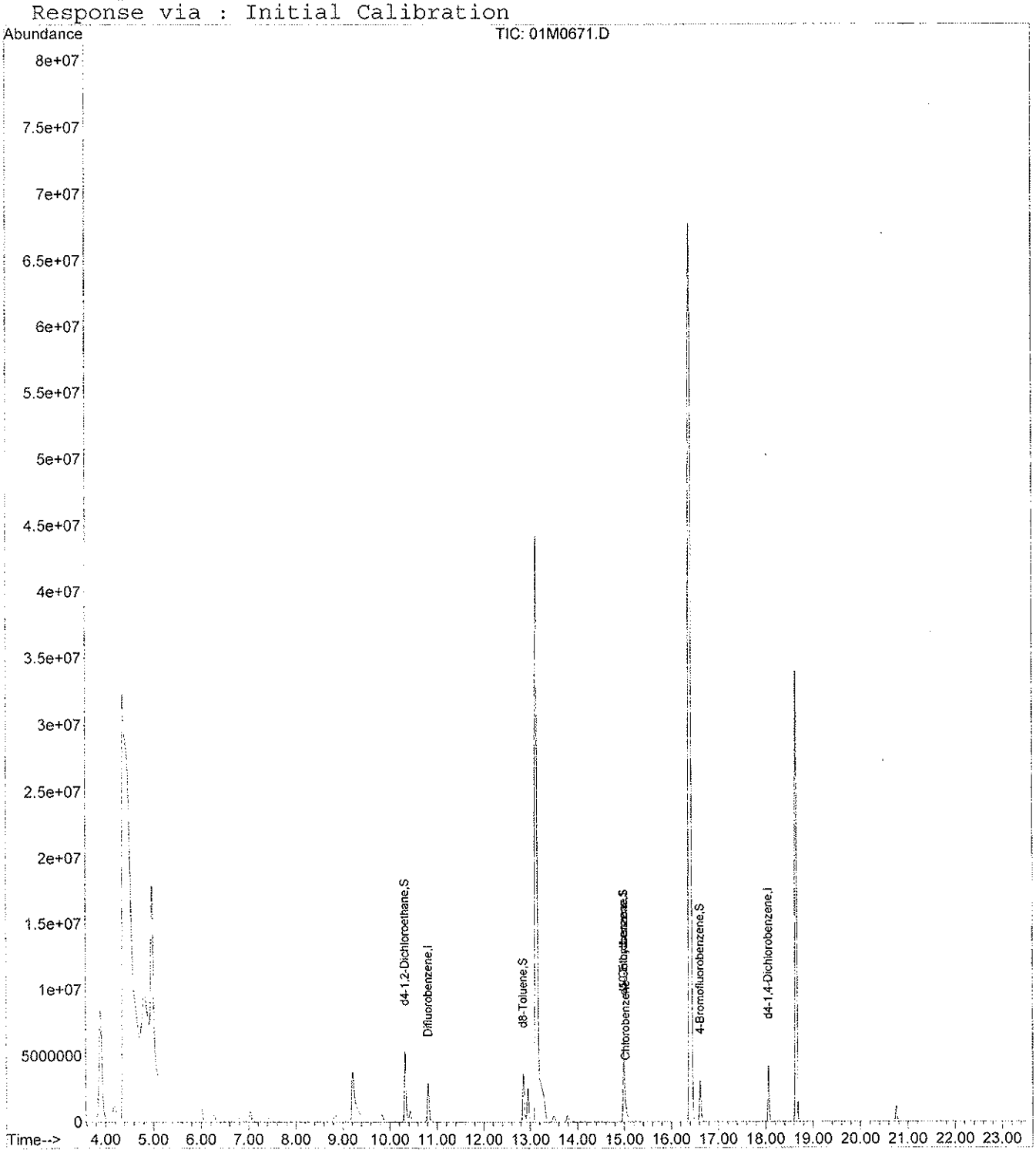
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	3218923	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	3082200	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	1262354	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	10.32	65	1140024	271.95 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 108.78%		
4) d8-Toluene	12.85	98	3401765	217.45 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 86.98%		
5) d10-Ethylbenzene	14.98	98	3128982	179.18 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 89.59%		
7) 4-Bromofluorobenzene	16.61	174	1157608	254.25 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 101.70%		
Target Compounds					Qvalue
6) Chlorobenzene	15.04	112	574309	52.60 ng	94

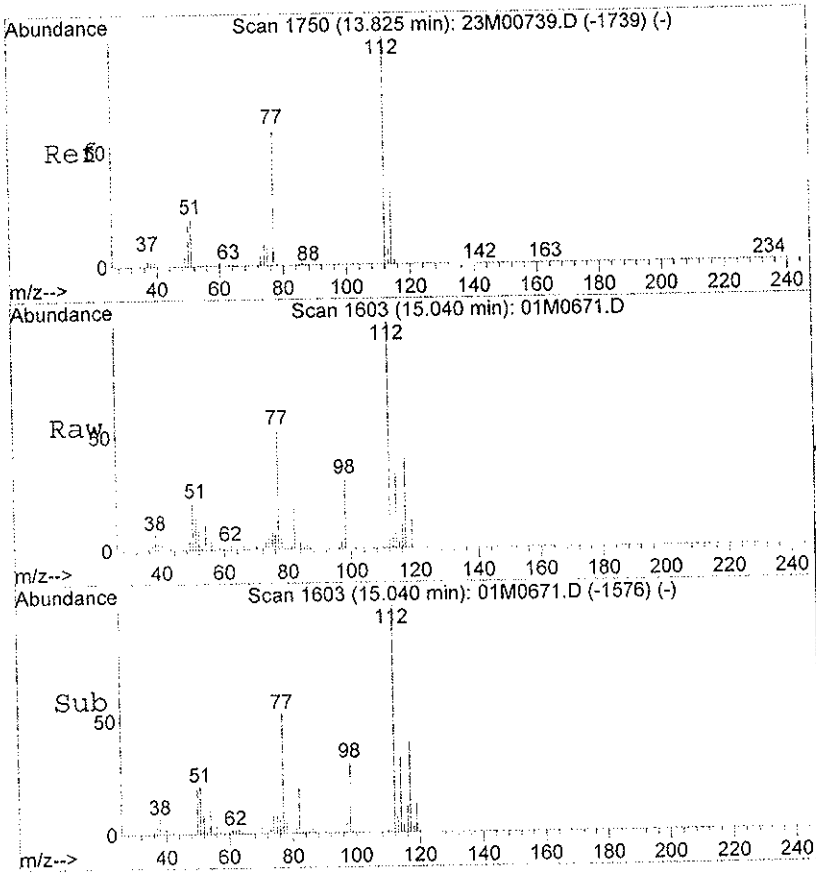
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0671.D Vial: 10
Acq On : 10 Jun 2010 5:01 pm Operator: DBJ
Sample : GC8252 ALLIANCE Inst : msd1
Misc : R3-CONDITION 1-TRAP 9 9A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 17:27 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration

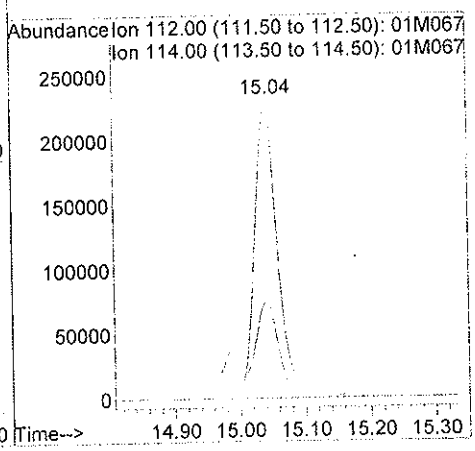




#6
Chlorobenzene
Concen: 52.60 ng
RT: 15.04 min Scan# 1603
Delta R.T. -0.01 min
Lab File: 01M0671.D
Acq: 10 Jun 2010 5:01 pm

Tgt Ion:112 Resp: 574309

Ion	Ratio	Lower	Upper
112	100		
114	32.0	15.5	55.5



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0672.D Vial: 11
Acq On : 10 Jun 2010 5:39 pm Operator: DBJ
Sample : GC8379 ALLIANCE Inst : msd1
Misc : R2-CONDITION 2-TRAP 17 17A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 18:12:48 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2791653	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2789566	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	1145403	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.33	65	1029013	283.04	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 113.22%			
4) d8-Toluene	12.85	98	2993042	211.39	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 84.56%			
5) d10-Ethylbenzene	14.98	98	3585364	226.86	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 113.43%			
7) 4-Bromofluorobenzene	16.61	174	1014994	246.31	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 98.52%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	497879	50.38	ng	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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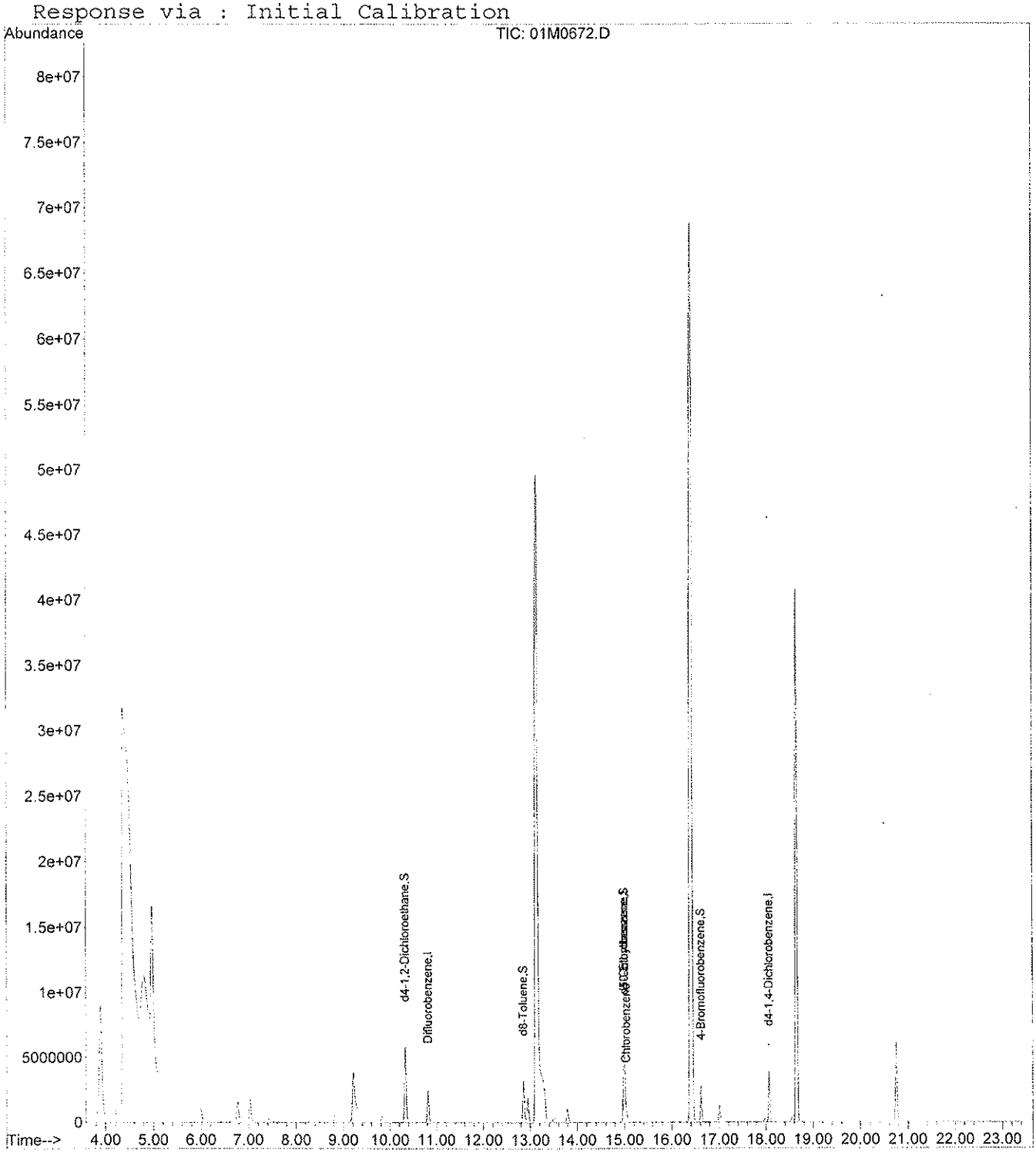
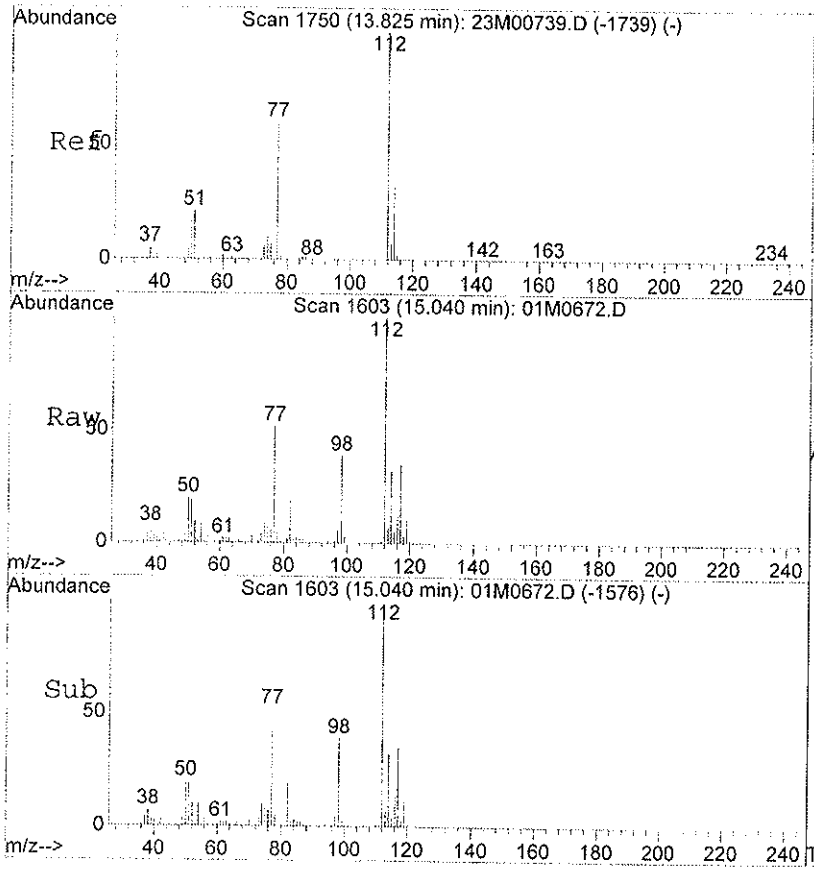
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0672.D Vial: 11
Acq On : 10 Jun 2010 5:39 pm Operator: DBJ
Sample : GC8379 ALLIANCE Inst : msd1
Misc : R2-CONDITION 2-TRAP 17 17A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 18:12 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



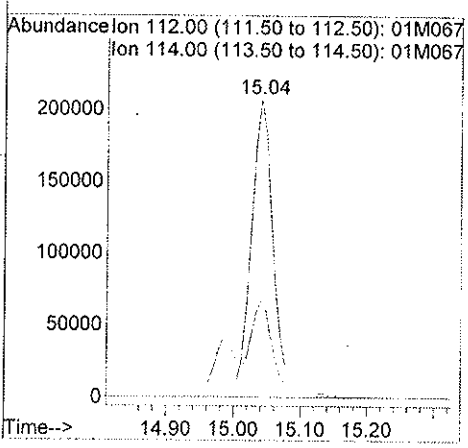
Confidential : Maxxam Analytics International



#6
Chlorobenzene
Concen: 50.38 ng
RT: 15.04 min Scan# 1603
Delta R.T. -0.01 min
Lab File: 01M0672.D
Acq: 10 Jun 2010 5:39 pm

Tgt Ion:112 Resp: 497879

Ion	Ratio	Lower	Upper
112	100		
114	31.9	15.5	55.5



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0673.D Vial: 12
Acq On : 10 Jun 2010 6:16 pm Operator: DBJ
Sample : GC8383 ALLIANCE Inst : msd1
Misc : R3-CONDITION 2-TRAP 21 21A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 18:40:28 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

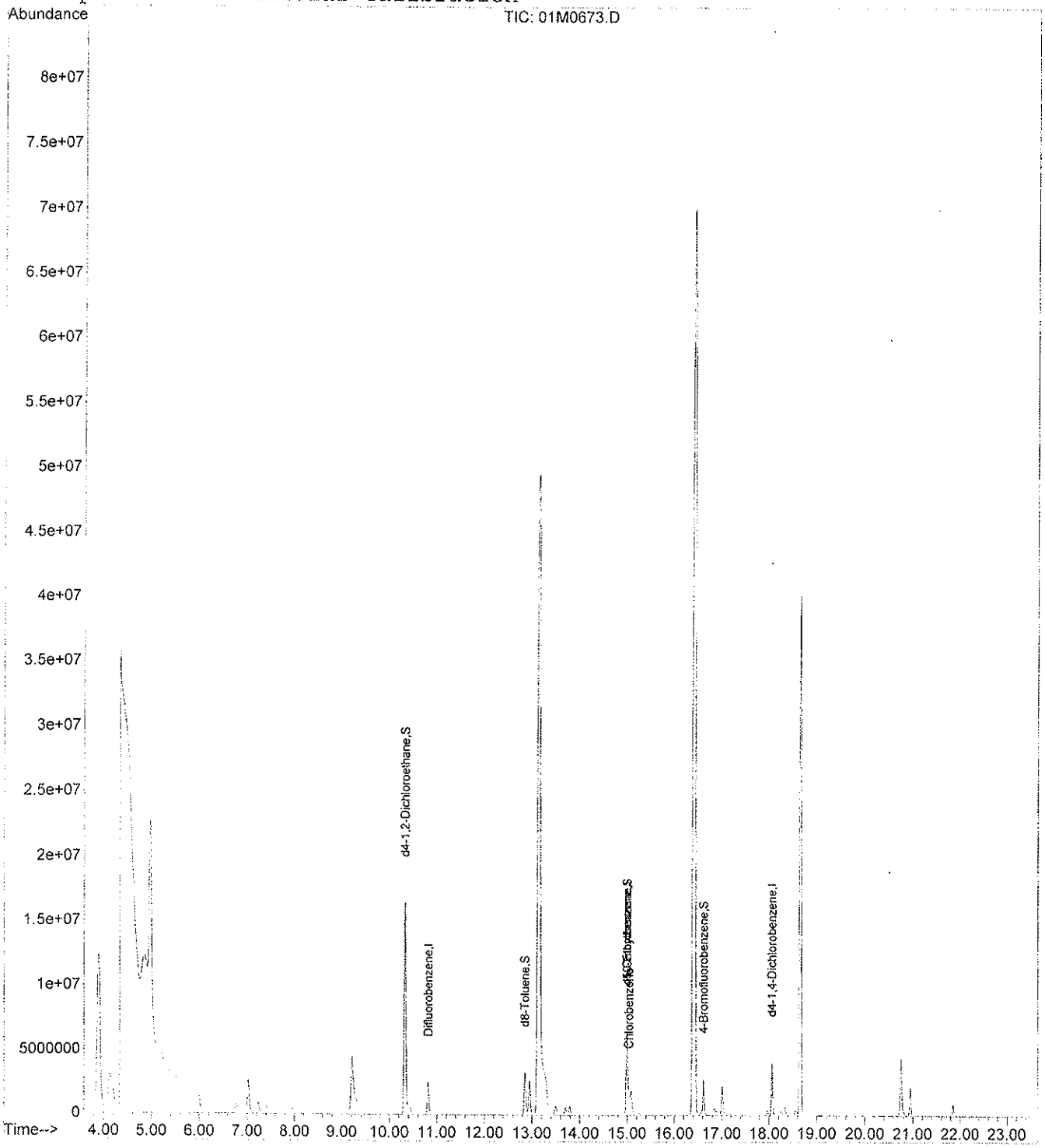
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2718536	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2758394	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	1214617	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	10.32	65	1112767	314.31	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 125.72%#			
4) d8-Toluene	12.85	98	2974434	212.45	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 84.98%			
5) d10-Ethylbenzene	14.98	98	3796481	242.93	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 121.47%			
7) 4-Bromofluorobenzene	16.61	174	1018634	249.99	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 100.00%			
Target Compounds						Qvalue
6) Chlorobenzene	15.04	112	983257	100.62	ng	96

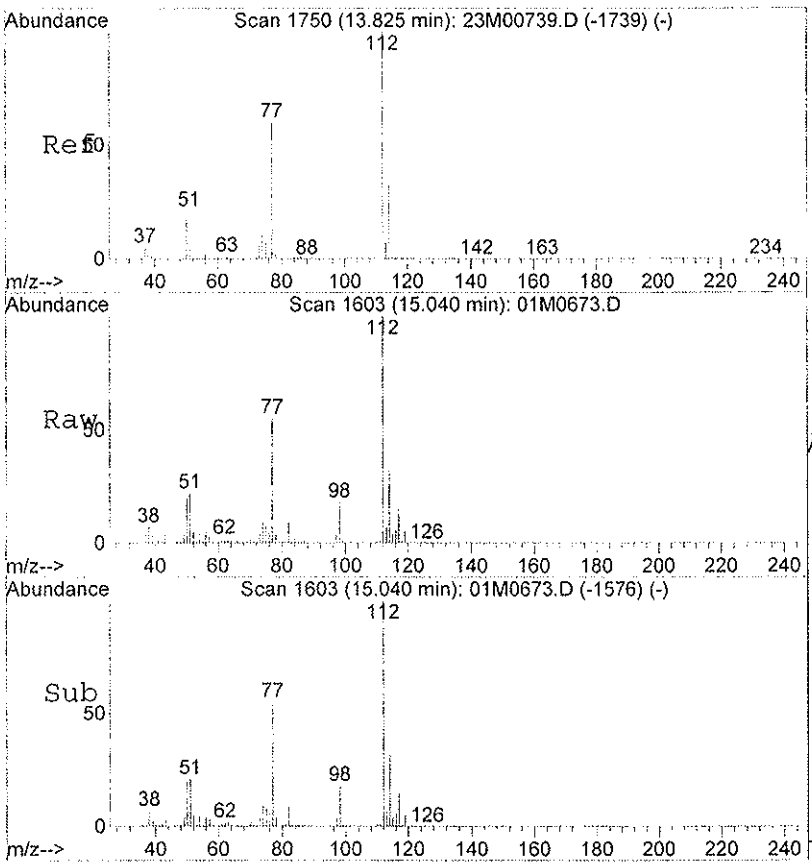
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN10\01M0673.D Vial: 12
Acq On : 10 Jun 2010 6:16 pm Operator: DBJ
Sample : GC8383 ALLIANCE Inst : msd1
Misc : R3-CONDITION 2-TRAP 21 21A,B Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 10 18:40 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration

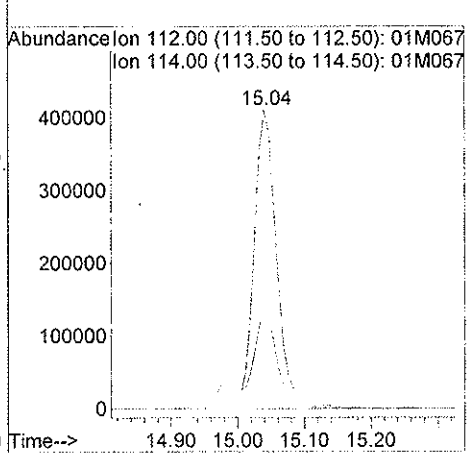




#6
Chlorobenzene
Concen: 100.62 ng
RT: 15.04 min Scan# 1603
Delta R.T. -0.01 min
Lab File: 01M0673.D
Acq: 10 Jun 2010 6:16 pm

Tgt Ion:112 Resp: 983257

Ion	Ratio	Lower	Upper
112	100		
114	33.0	15.5	55.5



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0680.D Vial: 7
Acq On : 11 Jun 2010 1:18 pm Operator: MM/DBJ
Sample : GC8249 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 1-TRAP2 2A,B 20X DILN. Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 13:48:47 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2332376	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	1945196	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	656634	250.00	ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	10.33	65	819512	269.80	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 107.92%			
4) d8-Toluene	12.85	98	2484238	251.61	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 100.64%			
5) d10-Ethylbenzene	14.99	98	137537	12.48	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 6.24%#			
7) 4-Bromofluorobenzene	16.62	174	541234	188.36	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 75.34%			

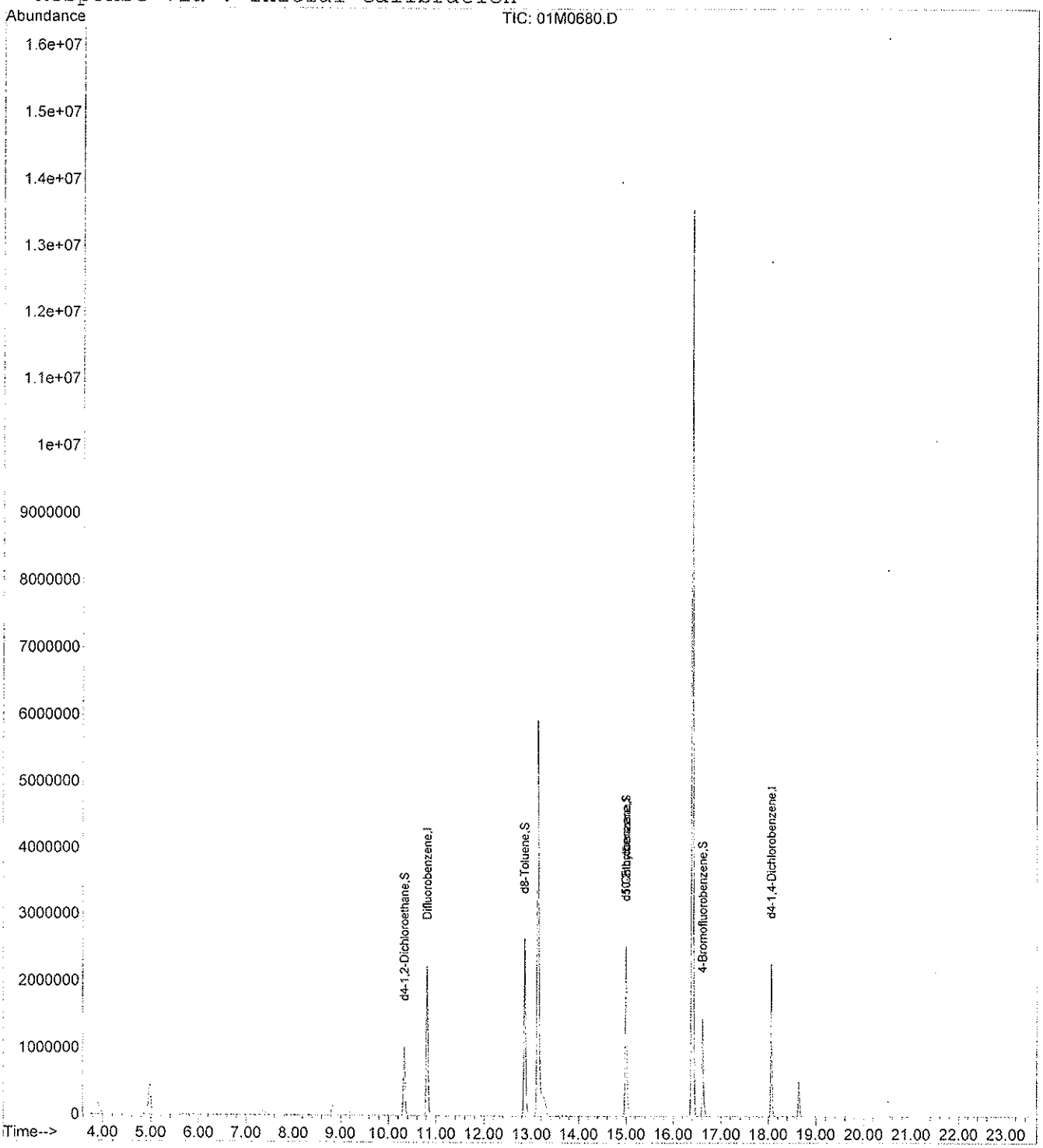
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0680.D Vial: 7
Acq On : 11 Jun 2010 1:18 pm Operator: MM/DBJ
Sample : GC8249 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 1-TRAP2 2A,B 20X DILN. Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 13:49 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0681.D Vial: 8
Acq On : 11 Jun 2010 2:25 pm Operator: MM/DBJ
Sample : GC8250 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 1-TRAP3 3A,B 20X DILN. Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 15:00:55 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	2497208	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	2129045	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	726797	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	10.33	65	704814	216.72 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 86.69%		
4) d8-Toluene	12.85	98	2185430	202.24 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 80.90%		
5) d10-Ethylbenzene	14.99	98	92063	7.63 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.81%#		
7) 4-Bromofluorobenzene	16.62	174	448449	142.59 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 57.04%		

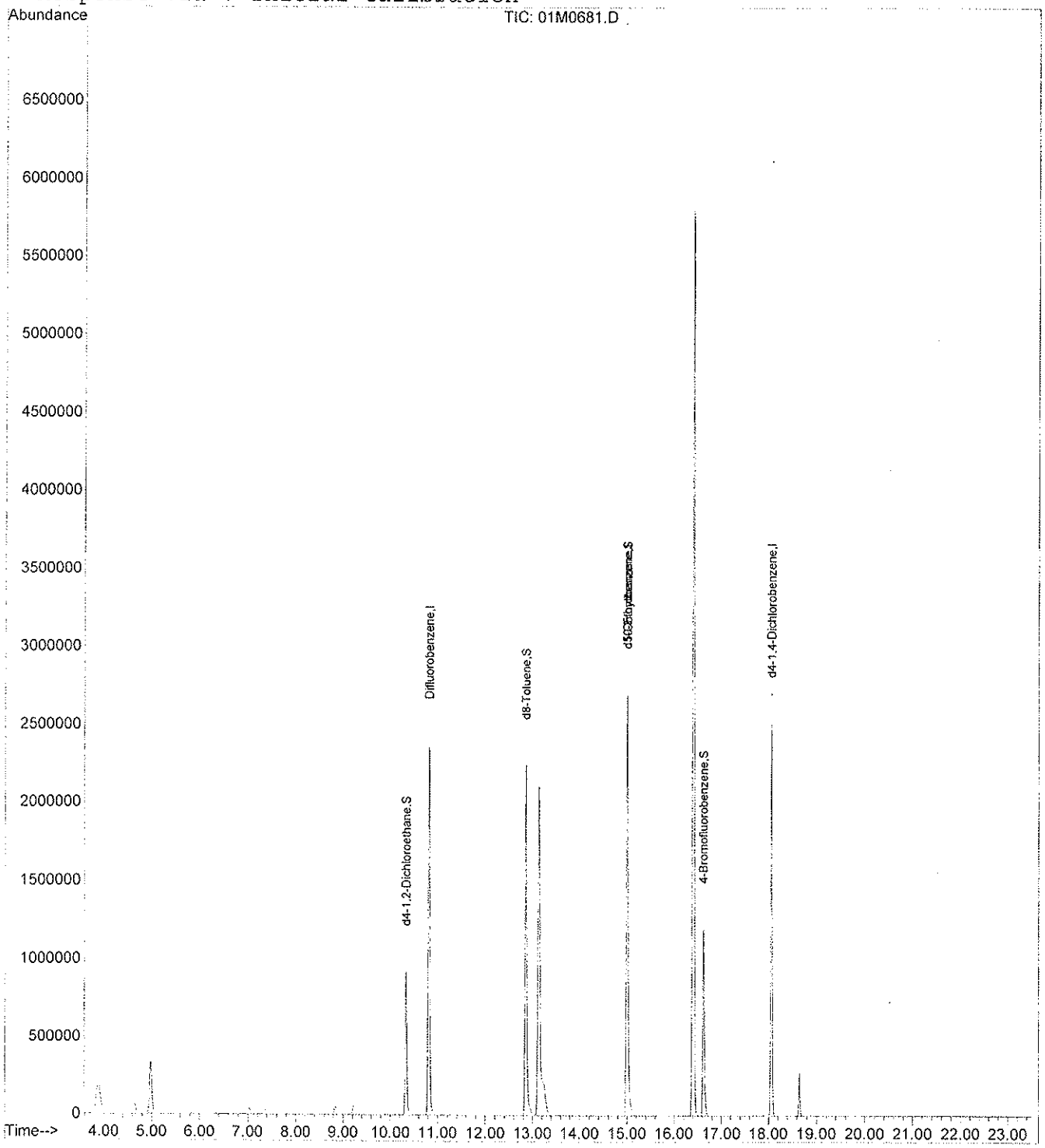
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0681.D Vial: 8
Acq On : 11 Jun 2010 2:25 pm Operator: MM/DBJ
Sample : GC8250 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 1-TRAP3 3A,B 20X DILN. Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 15:01 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0682.D Vial: 9
Acq On : 11 Jun 2010 3:14 pm Operator: MM/DBJ
Sample : GC8253 X20 ALLIANCE Inst : msd1
Misc : R3-CONDITION 1-TRAP10 10A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 16:04:15 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	2340222	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	2005198	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	659112	250.00 ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	10.33	65	784806	257.51 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 103.00%		
4) d8-Toluene	12.85	98	2452287	240.95 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 96.38%		
5) d10-Ethylbenzene	14.98	98	94391	8.31 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 4.16%#		
7) 4-Bromofluorobenzene	16.61	174	553951	187.01 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 74.80%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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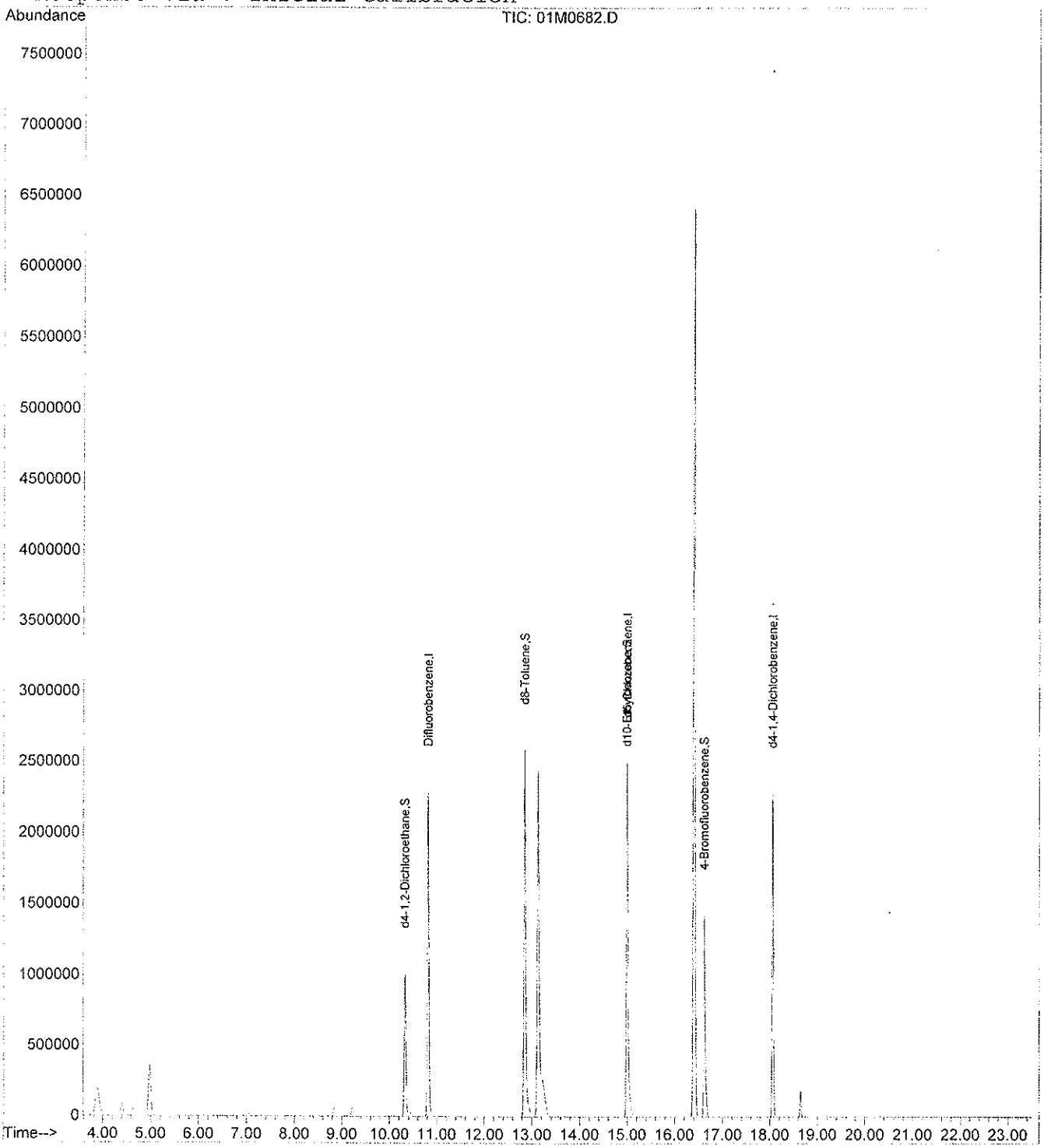
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0682.D Vial: 9
Acq On : 11 Jun 2010 3:14 pm Operator: MM/DBJ
Sample : GC8253 X20 ALLIANCE Inst : msd1
Misc : R3-CONDITION 1-TRAP10 10A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 16:04 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0683.D Vial: 10
Acq On : 11 Jun 2010 3:50 pm Operator: MM/DBJ
Sample : GC8254 X20 ALLIANCE Inst : msd1
Misc : R3-CONDITION 1-TRAP11 11A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 16:29:06 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2495831	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	2116535	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	715951	250.00	ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	10.33	65	779632	239.86	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 95.94%			
4) d8-Toluene	12.85	98	2452367	228.28	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 91.31%			
5) d10-Ethylbenzene	14.98	98	97436	8.13	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 4.07%#			
7) 4-Bromofluorobenzene	16.61	174	543264	173.76	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 69.50%			

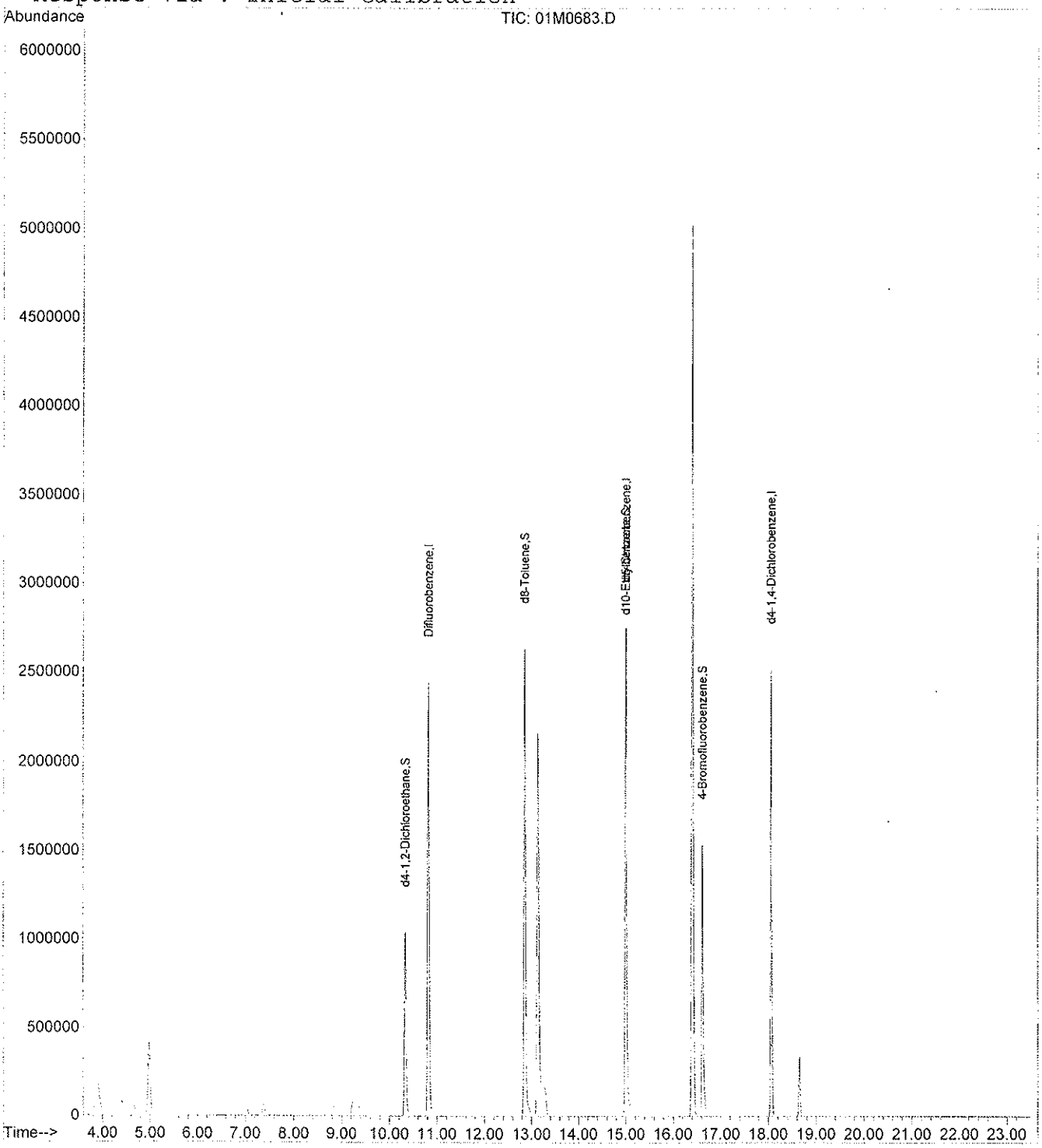
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0683.D Vial: 10
Acq On : 11 Jun 2010 3:50 pm Operator: MM/DBJ
Sample : GC8254 X20 ALLIANCE Inst : msd1
Misc : R3-CONDITION 1-TRAP11 11A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 16:29 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0684.D Vial: 11
Acq On : 11 Jun 2010 4:40 pm Operator: MM/DBJ
Sample : GC8380 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 2-TRAP18 18A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 17:09:22 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	2487187	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	2068261	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	695818	250.00 ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	10.33	65	793836	245.08 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 98.03%		
4) d8-Toluene	12.85	98	2523226	240.36 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 96.14%		
5) d10-Ethylbenzene	14.99	98	92849	7.92 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.96%#		
7) 4-Bromofluorobenzene	16.61	174	549896	179.98 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 71.99%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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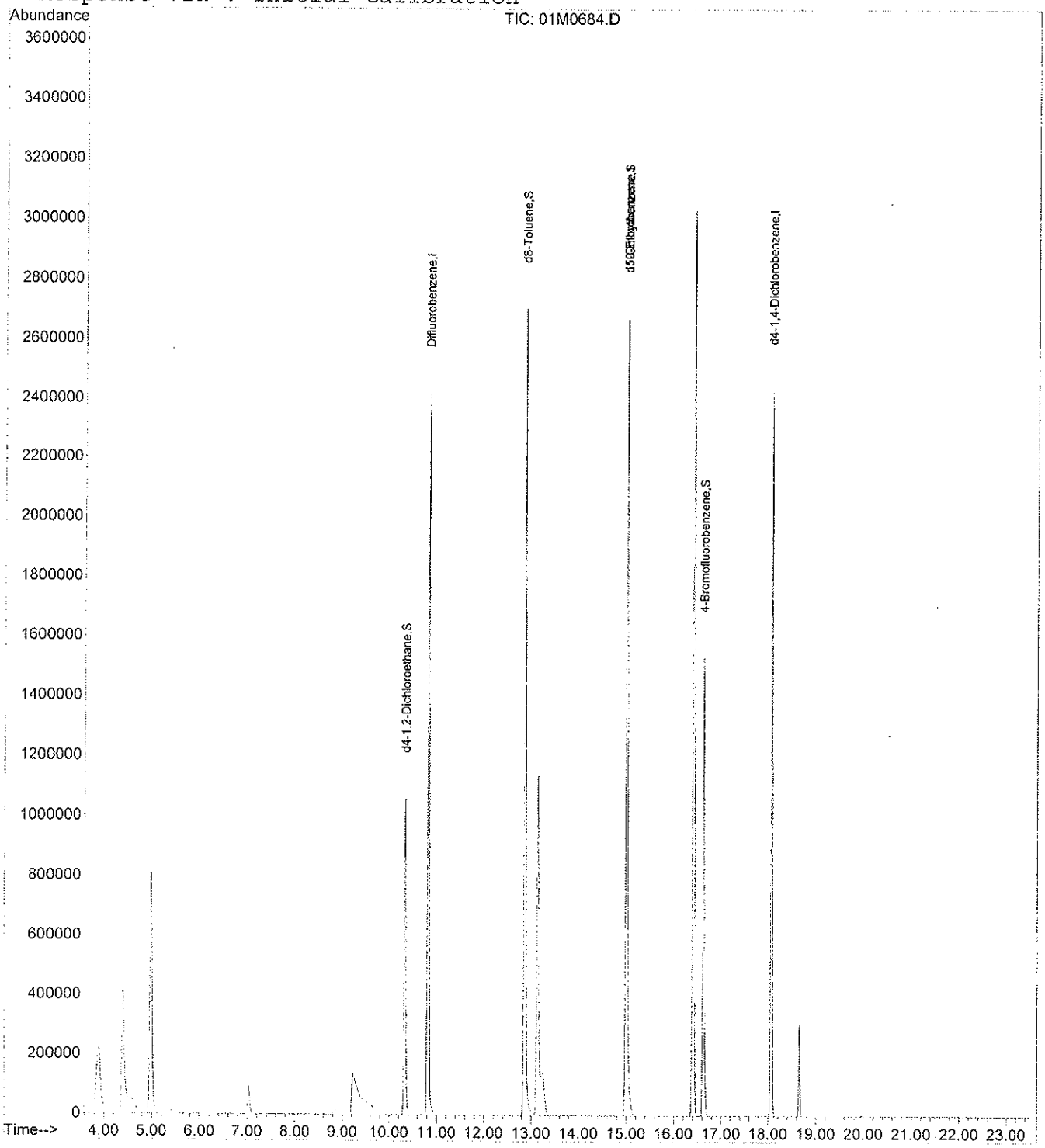
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0684.D Vial: 11
Acq On : 11 Jun 2010 4:40 pm Operator: MM/DBJ
Sample : GC8380 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 2-TRAP18 18A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 17:09 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0685.D Vial: 12
Acq On : 11 Jun 2010 5:22 pm Operator: MM/DBJ
Sample : GC8381 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 2-TRAP19 19A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 17:47:23 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	10.81	114	2272326	250.00 ng	0.00
3) d5-Chlorobenzene	15.00	117	1858663	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	594178	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	10.33	65	697733	235.78 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 94.31%		
4) d8-Toluene	12.85	98	2167136	229.72 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 91.89%		
5) d10-Ethylbenzene	14.99	98	85780	8.15 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 4.08%#		
7) 4-Bromofluorobenzene	16.61	174	436364	158.93 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 63.57%		

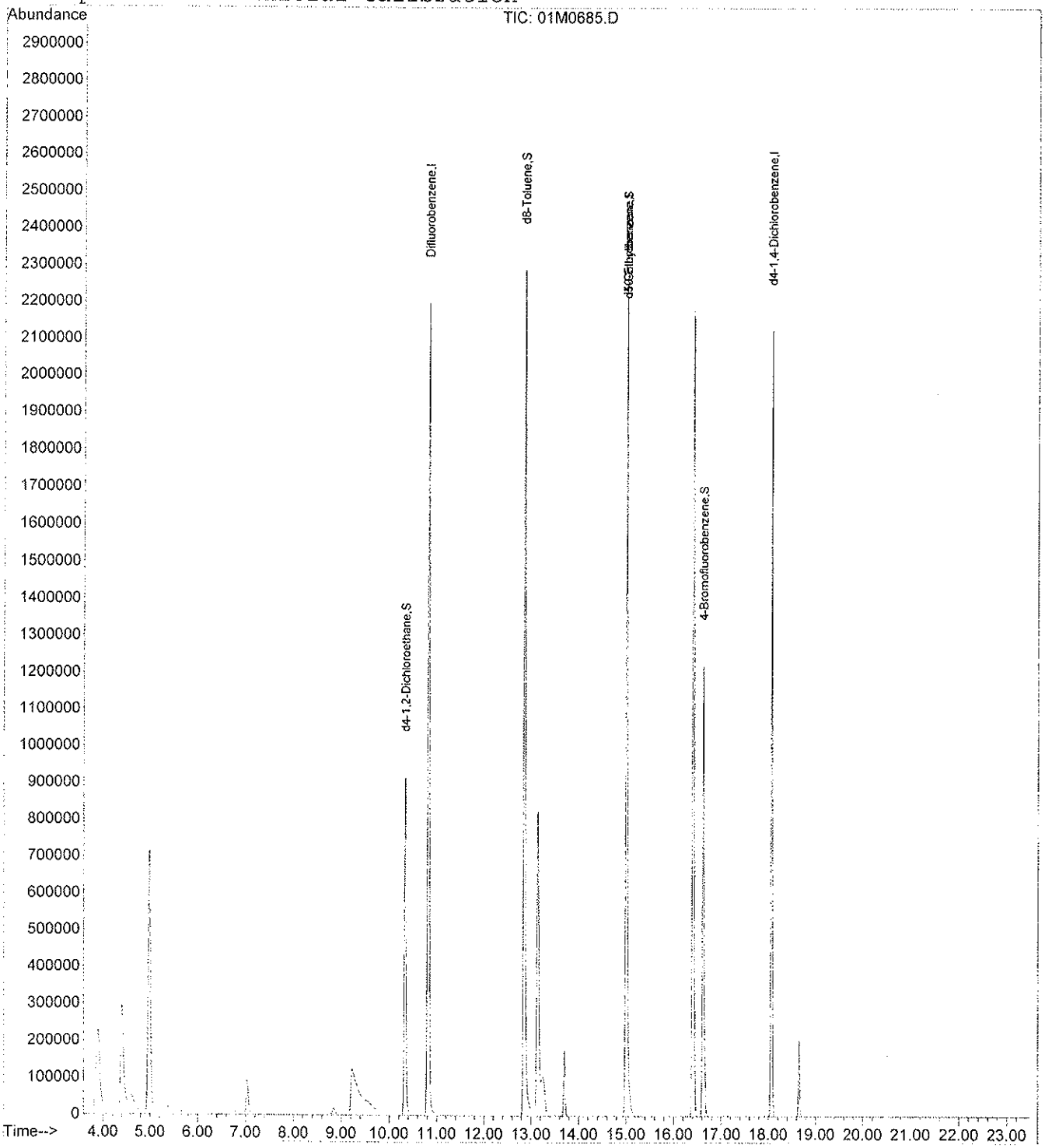
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0685.D Vial: 12
Acq On : 11 Jun 2010 5:22 pm Operator: MM/DBJ
Sample : GC8381 X20 ALLIANCE Inst : msd1
Misc : R2-CONDITION 2-TRAP19 19A,B 20X DIL Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 17:47 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0686.D Vial: 13
Acq On : 11 Jun 2010 5:59 pm Operator: MM/DBJ
Sample : GC8246 X20 ALLIANCE Inst : msd1
Misc : R1-CONDITION 1-TRAP6 6A,B 20X DILN. Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 18:24:09 2010 Quant Results File: CHLORBENZ00505.

Quant Method : C:\MSDCHEM\1...\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration
DataAcq Meth : VOS00505

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	10.81	114	2186103	250.00	ng	0.00
3) d5-Chlorobenzene	15.00	117	1871858	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	18.06	152	610272	250.00	ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	10.33	65	624341	219.30	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 87.72%			
4) d8-Toluene	12.85	98	1983890	208.81	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 83.52%			
5) d10-Ethylbenzene	14.98	98	69556	6.56	ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.28%#			
7) 4-Bromofluorobenzene	16.61	174	416064	150.47	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 60.19%			

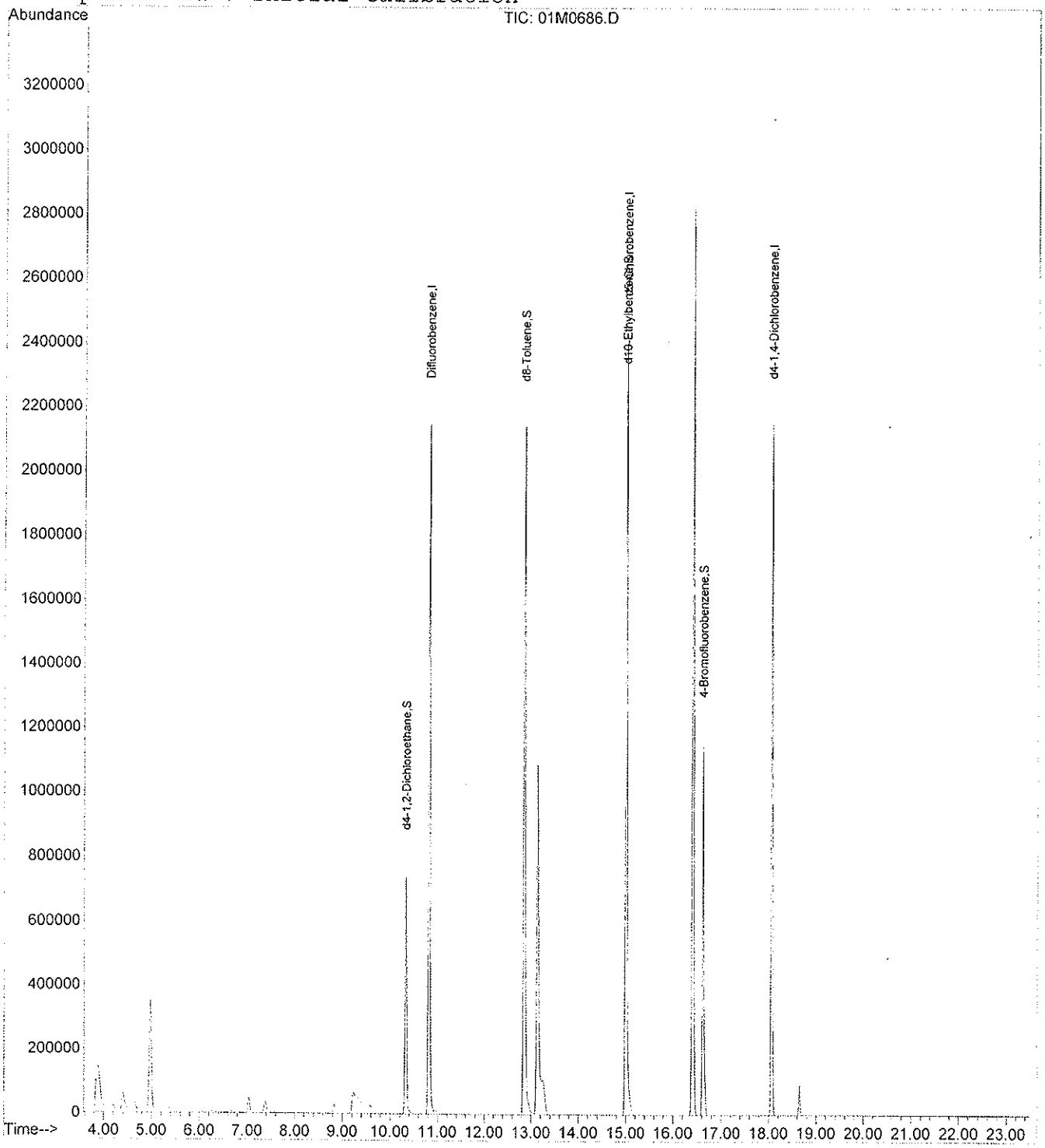
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\01M10JUN11\01M0686.D Vial: 13
Acq On : 11 Jun 2010 5:59 pm Operator: MM/DBJ
Sample : GC8246 X20 ALLIANCE Inst : msd1
Misc : R1-CONDITION 1-TRAP6 6A,B 20X DILN. Multiplr: 1.00
MS Integration Params: Lscint.p
Quant Time: Jun 11 18:24 2010 Quant Results File: CHLORBENZ005

Method : C:\MSDCHEM\1\METHODS\CHLORBENZ00505.M (RTE Integrator)
Title : VOST BY GC/MS
Last Update : Thu Jun 10 11:41:00 2010
Response via : Initial Calibration



Confidential : Maxxam Analytics International

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061007.D
Acq On : 10 Jun 2010 2:24 pm
Operator : YY
Sample : GC8397 ALLIANCE
Misc : RUN 1-AUDIT-TRAP1 1A+B
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 10 16:57:37 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

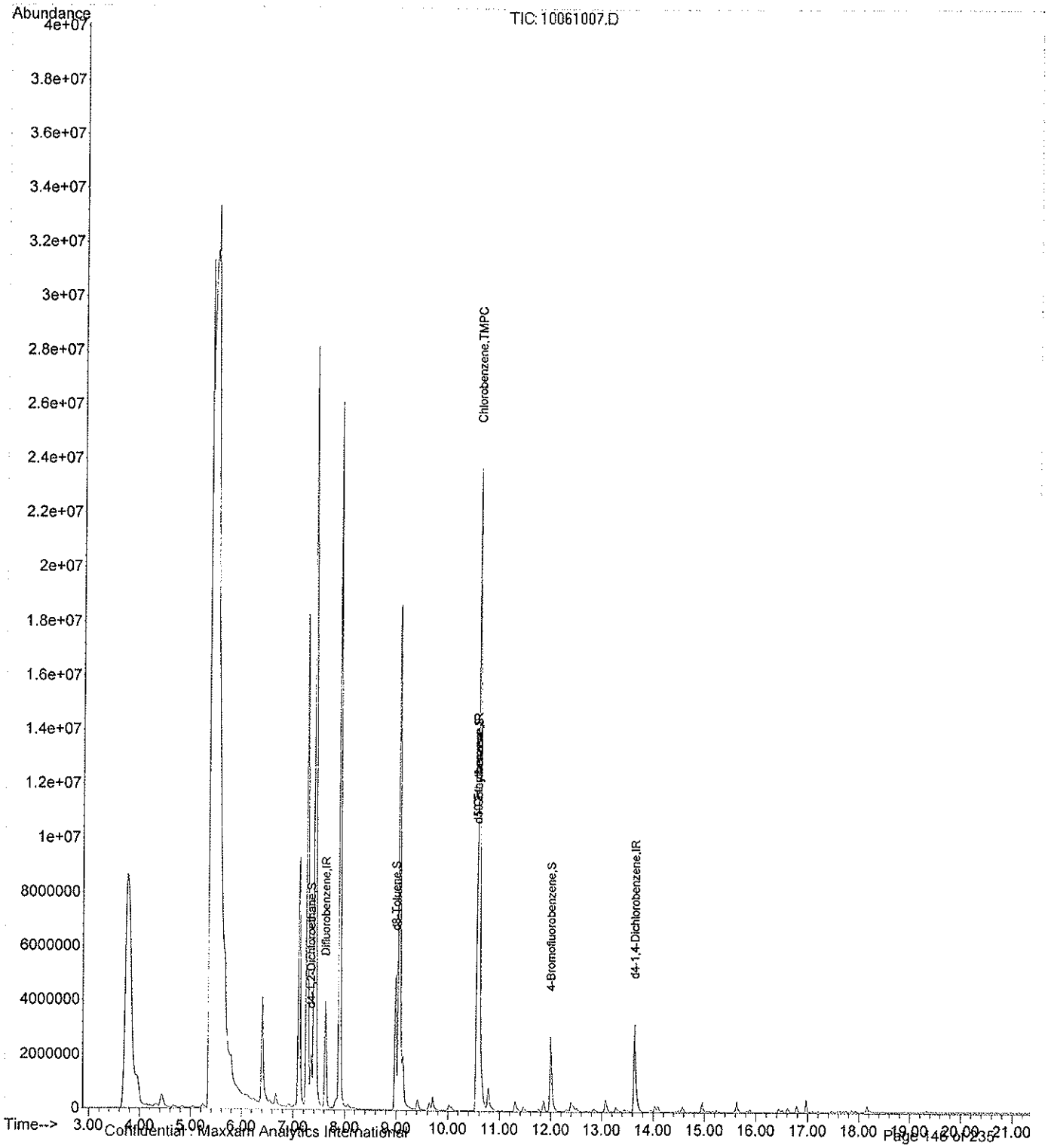
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	4052452	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	3716950	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1472770	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	1695132	280.63 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 112.25%		
4) d10-Ethylbenzene	10.55	98	4020415	178.47 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 89.23%		
6) d8-Toluene	8.99	98	4270476	257.01 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 102.80%		
7) 4-Bromofluorobenzene	11.99	174	1385137	227.08 ng	-0.01
Spiked Amount 250.000	Range 36 - 141		Recovery = 90.83%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	17437365	1229.02 ng	98

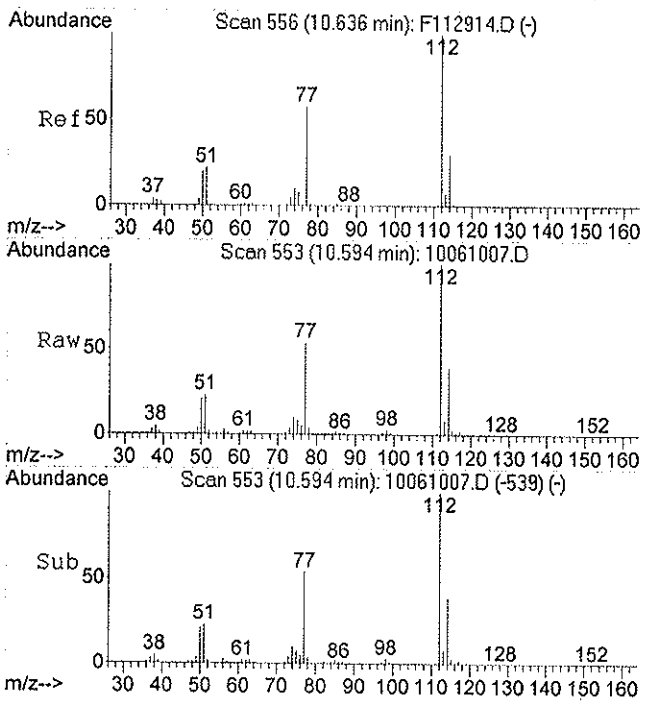
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061007.D
Acq On : 10 Jun 2010 2:24 pm
Operator : YY
Sample : GC8397 ALLIANCE
Misc : RUN 1-AUDIT-TRAP1 1A+B
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 10 16:57:37 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

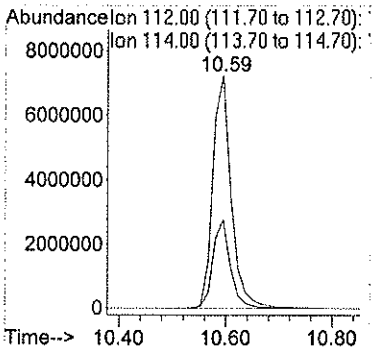




#5
Chlorobenzene
Concen: 1229.02 ng
RT: 10.59 min Scan# 553
Delta R.T. -0.00 min
Lab File: 10061007.D
Acq: 10 Jun 2010 2:24 pm

Tgt Ion:112 Resp:17437365

Ion	Ratio	Lower	Upper
112	100		
114	36.8	15.6	55.6



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061009.D
Acq On : 10 Jun 2010 3:49 pm
Operator : YY
Sample : GC8244 ALLIANCE
Misc : R1-CONDITION 1-TRAP8 8A+B
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 10 16:58:45 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

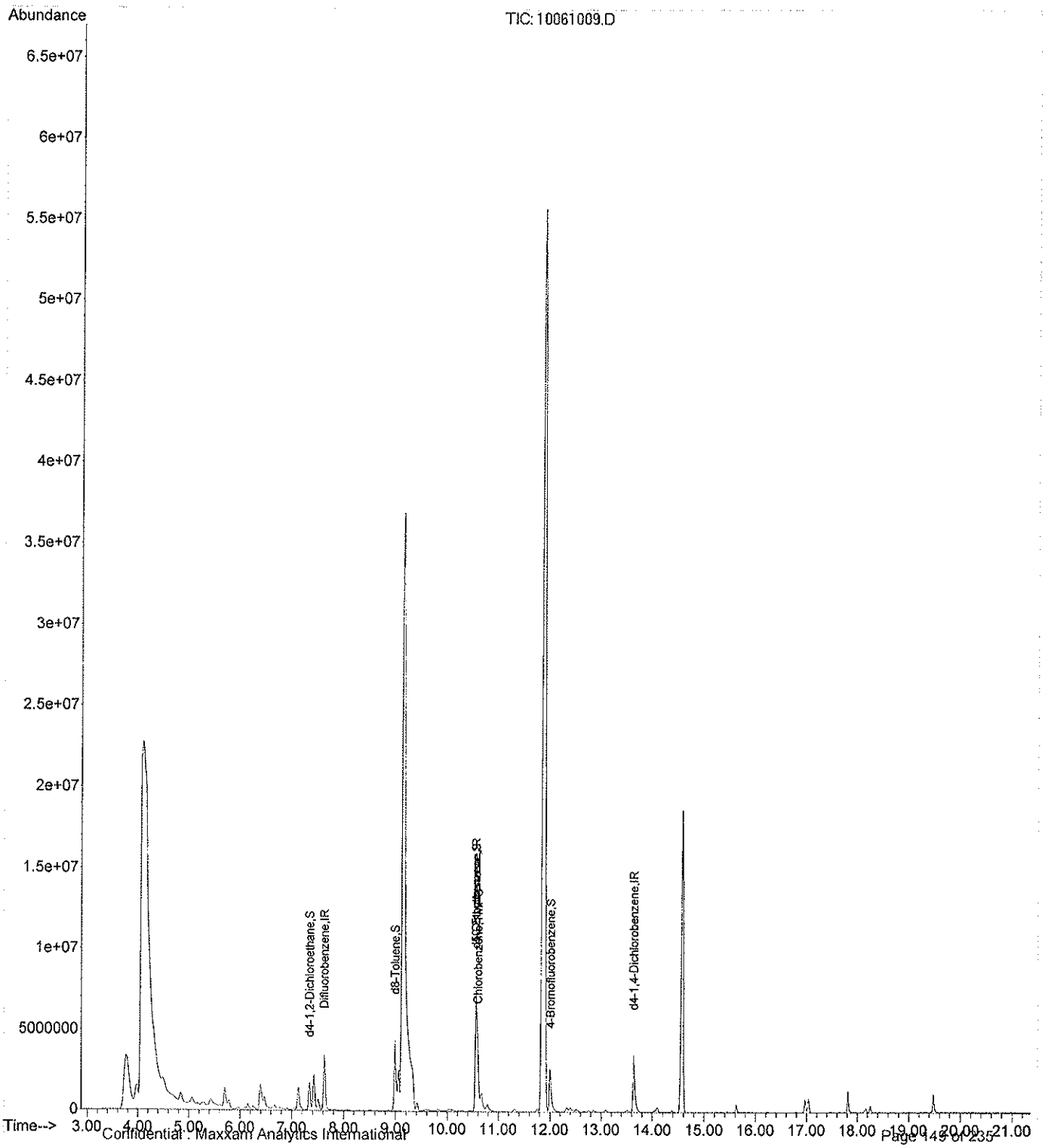
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	3399159	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	3555085	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1525912	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	1273923	251.43 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 100.57%		
4) d10-Ethylbenzene	10.55	98	3579700	166.14 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 83.07%		
6) d8-Toluene	8.99	98	3618228	227.67 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 91.07%		
7) 4-Bromofluorobenzene	12.01	174	1425305	244.30 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 97.72%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	2161940	159.32 ng	98

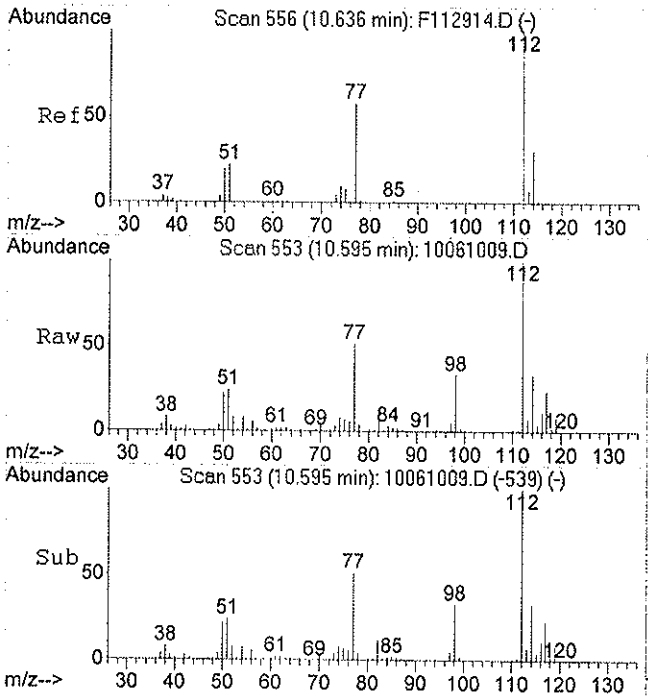
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061009.D
Acq On : 10 Jun 2010 3:49 pm
Operator : YY
Sample : GC8244 ALLIANCE
Misc : R1-CONDITION 1-TRAP8 8A+B
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 10 16:58:45 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

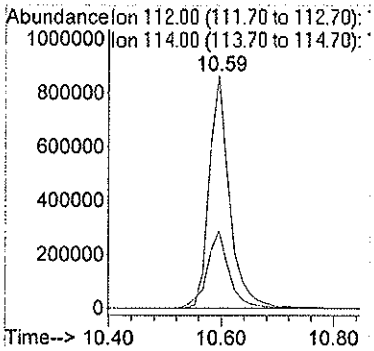




#5
Chlorobenzene
Concen: 159.32 ng
RT: 10.59 min Scan# 553
Delta R.T. 0.00 min
Lab File: 10061009.D
Acq: 10 Jun 2010 3:49 pm

Tgt Ion:112 Resp: 2161940

Ion	Ratio	Lower	Upper
112	100		
114	36.7	15.6	55.6



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061011.D
Acq On : 10 Jun 2010 5:04 pm
Operator : YY
Sample : GC8375 ALLIANCE
Misc : R1-CONDITION 2-TRAP13 13A+B
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 10 17:35:03 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

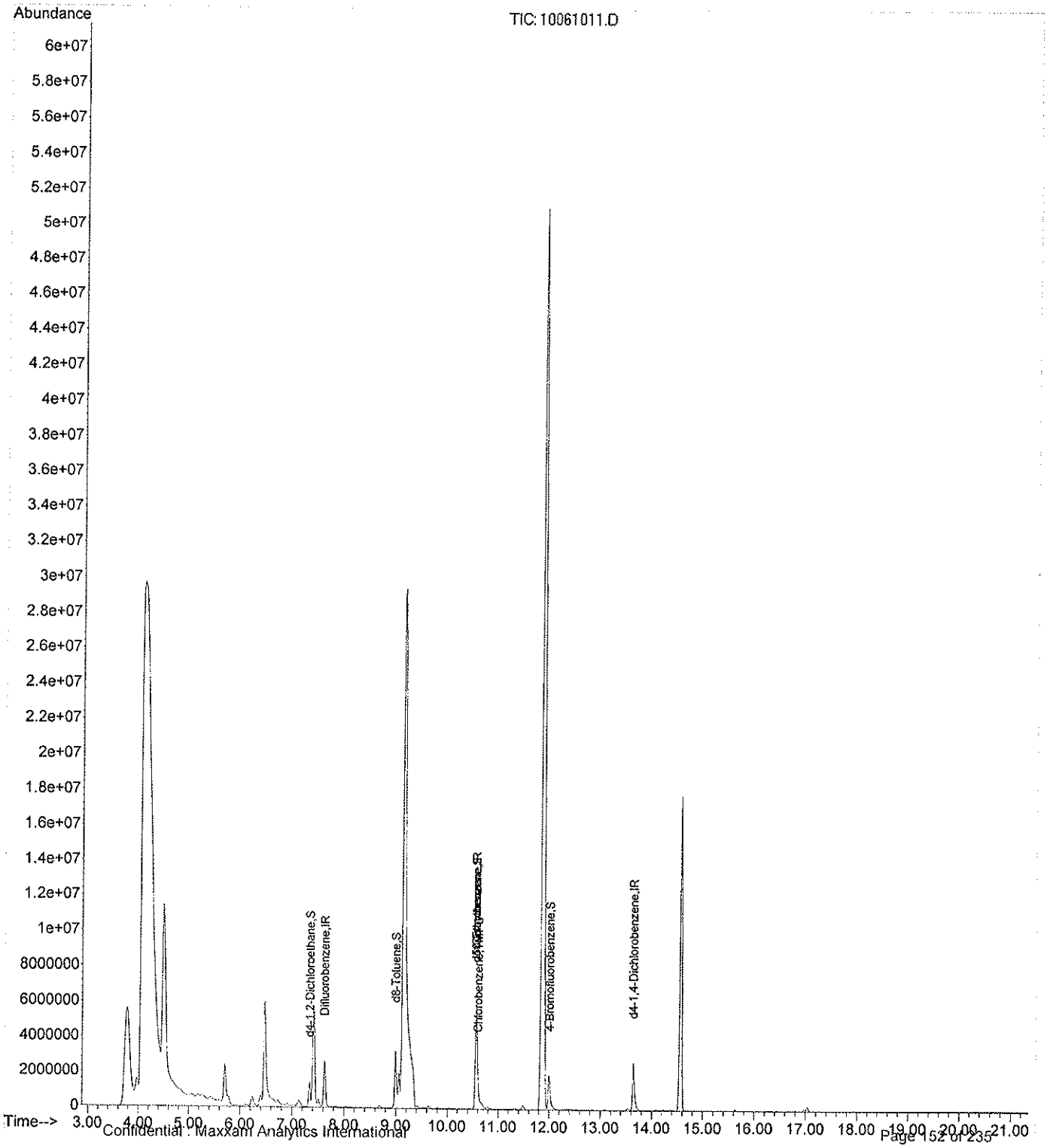
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	2673419	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	2802578	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	1202935	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	1070731	268.70 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 107.48%		
4) d10-Ethylbenzene	10.55	98	3385261	199.30 ng	0.00
Spiked Amount 200.000	Range 54 - 152		Recovery = 99.65%		
6) d8-Toluene	8.99	98	2905351	231.90 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 92.76%		
7) 4-Bromofluorobenzene	12.00	174	1115013	242.43 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 96.97%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	525532m	49.13 ng	

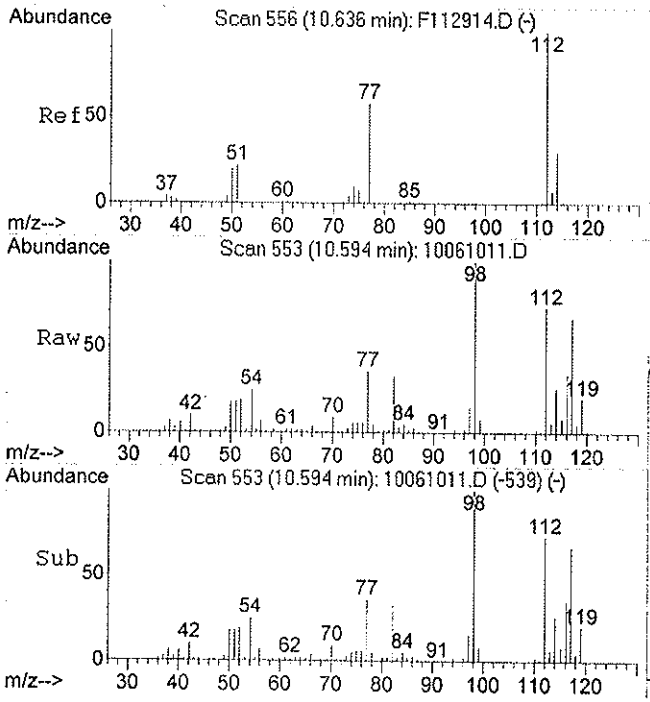
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061011.D
Acq On : 10 Jun 2010 5:04 pm
Operator : YY
Sample : GC8375 ALLIANCE
Misc : R1-CONDITION 2-TRAP13 13A+B
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 10 17:35:03 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

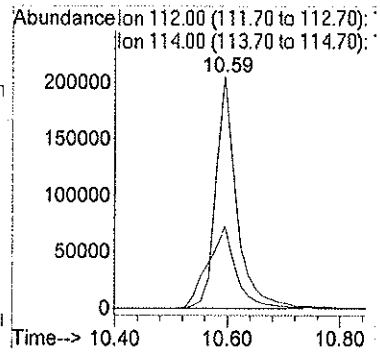




#5
Chlorobenzene
Concen: 49.13 ng m
RT: 10.59 min Scan# 553
Delta R.T. -0.00 min
Lab File: 10061011.D
Acq: 10 Jun 2010 5:04 pm

Tgt Ion:112 Resp: 525532

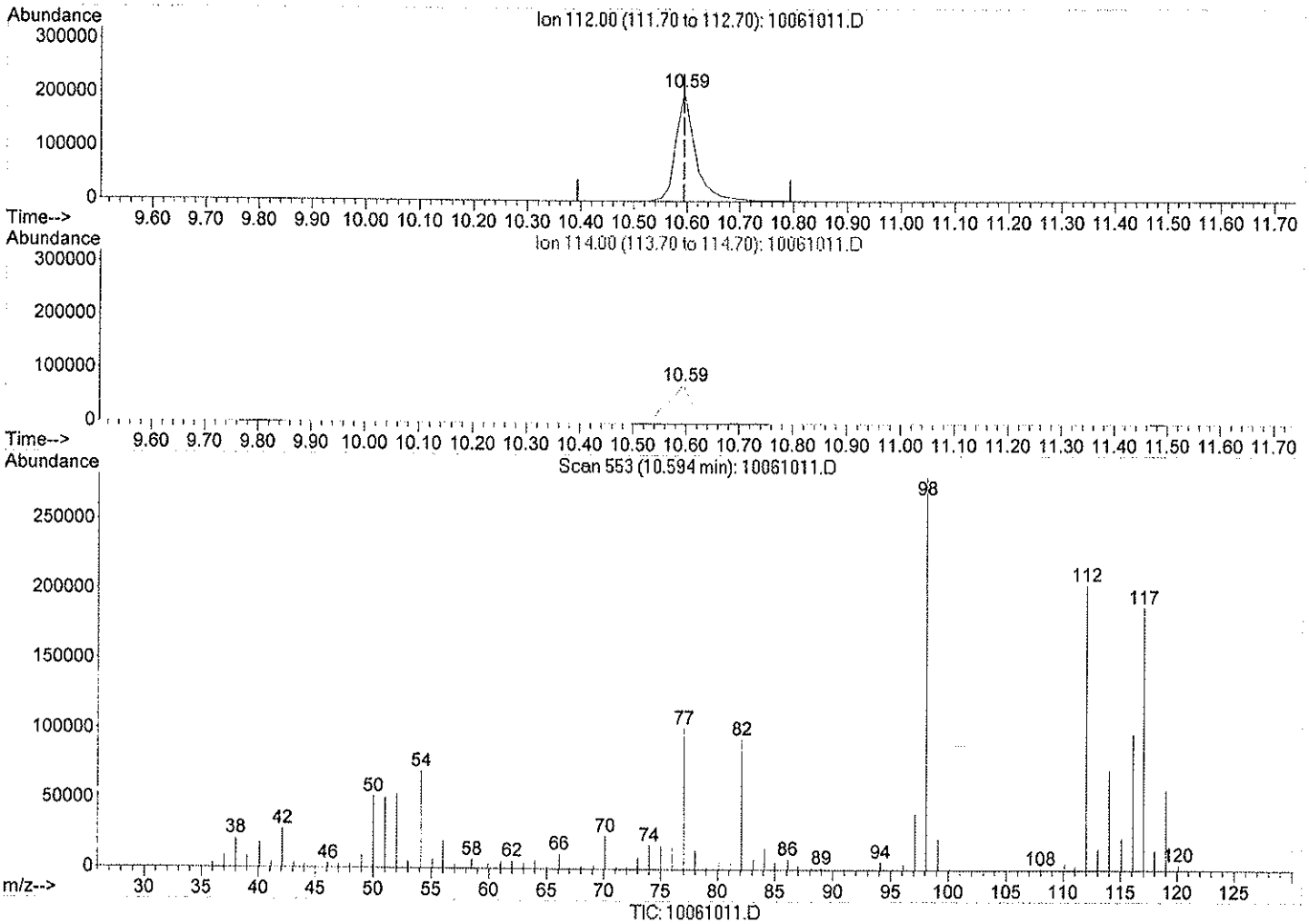
Ion	Ratio	Lower	Upper
112	100		
114	34.9	15.6	55.6



Quantitation Report (Qedit)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061011.D
Acq On : 10 Jun 2010 5:04 pm
Operator : YY
Sample : GC8375 ALLIANCE
Misc : R1-CONDITION 2-TRAP13 13A+B
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 10 17:27:38 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



(5) Chlorobenzene (TMPC)

10.594min (-0.000) 49.13ng

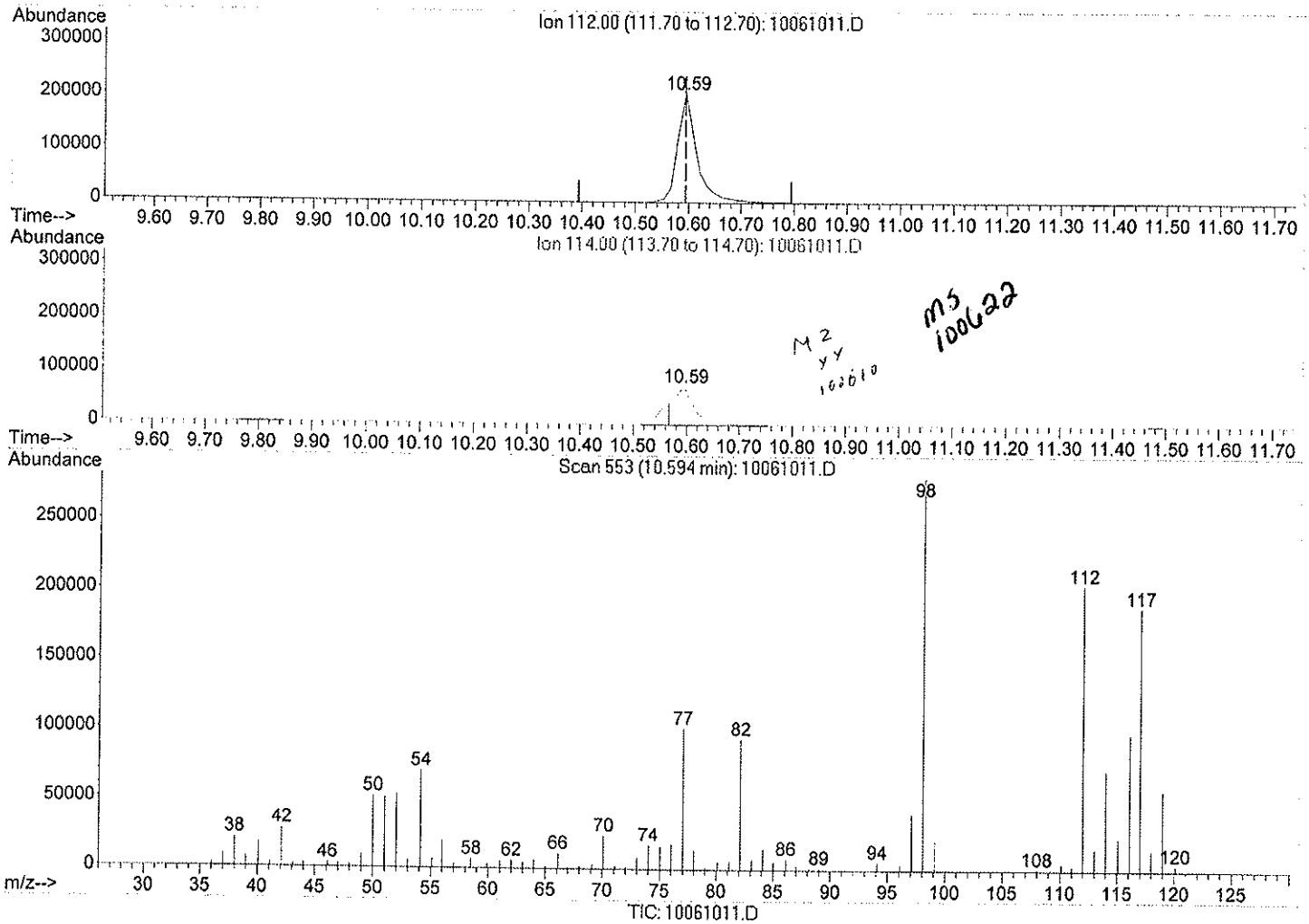
response 525532

Ion	Exp%	Act%
112.00	100	100
114.00	35.60	48.10
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061011.D
Acq On : 10 Jun 2010 5:04 pm
Operator : YY
Sample : GC8375 ALLIANCE
Misc : R1-CONDITION 2-TRAP13 13A+B
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 10 17:27:38 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



(5) Chlorobenzene (TMPC)

10.594min (-0.000) 49.13ng m

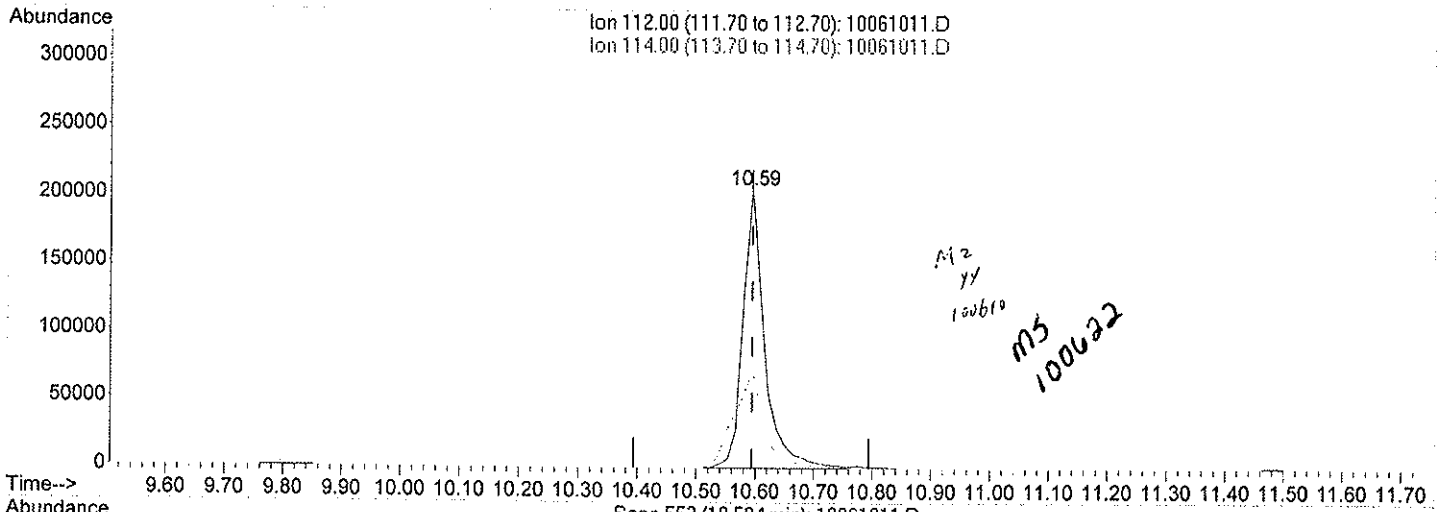
response 525532

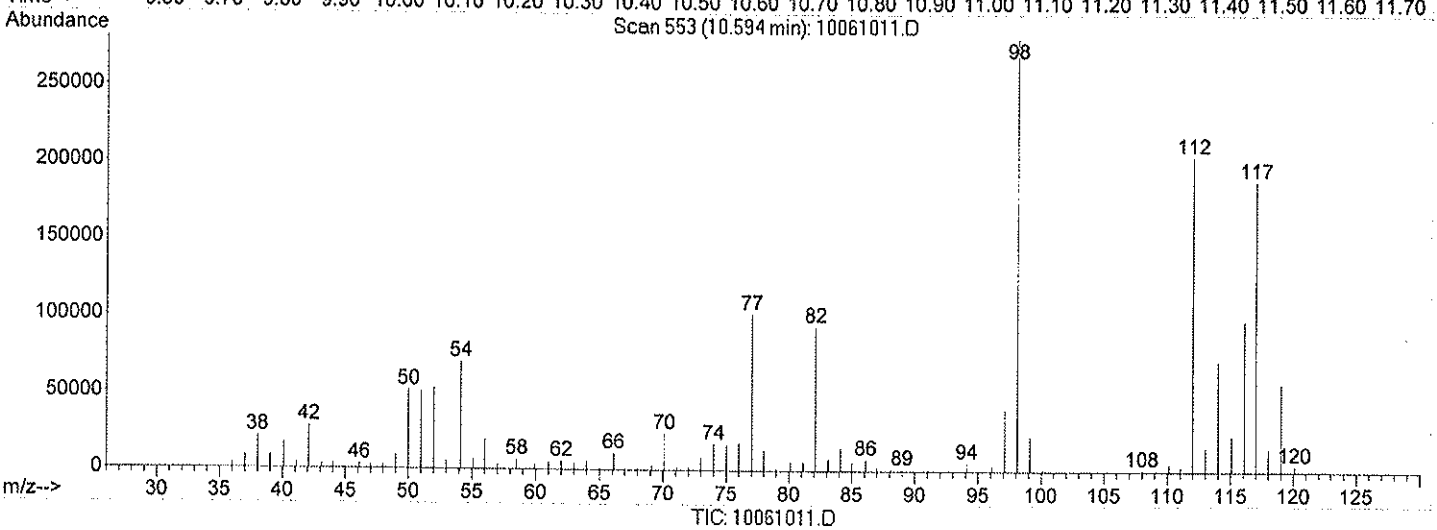
Ion	Exp%	Act%
112.00	100	100
114.00	35.60	34.89
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\DATA\2010\2010_06\2100610\
Data File : 10061011.D
Acq On : 10 Jun 2010 5:04 pm
Operator : YY
Sample : GC8375 ALLIANCE
Misc : R1-CONDITION 2-TRAP13 13A+B
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 10 17:27:38 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration





(5) Chlorobenzene (TMPC)

10.594min (-0.000) 49.13ng m

response 525532

Ion	Exp%	Act%
112.00	100	100
114.00	35.60	34.89
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061106.D
Acq On : 11 Jun 2010 12:00 pm
Operator : YY
Sample : GC8402 ALLIANCE 10X
Misc : RUN 3-AUDIT-TRAP3 3ABC 10XDILN.
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 11 12:29:19 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

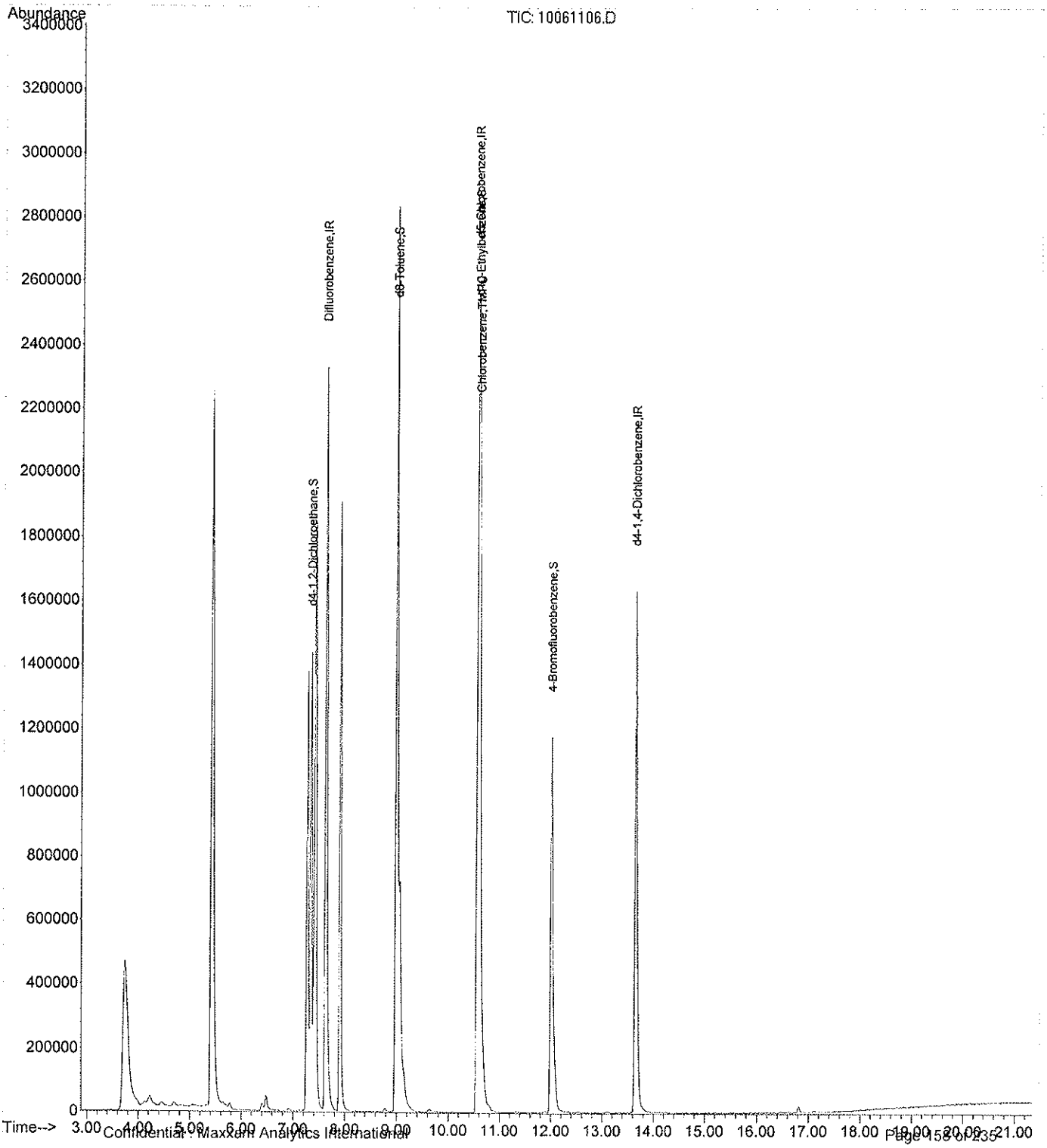
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	7.62	114	2604934	250.00	ng	-0.01
3) d5-Chlorobenzene	10.55	117	2405161	250.00	ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	815120	250.00	ng	0.00
System Monitoring Compounds						
2) d4-1,2-Dichloroethane	7.34	65	1032361	265.88	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 106.35%			
4) d10-Ethylbenzene	10.57	98	315977	21.68	ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 10.84%#			
6) d8-Toluene	8.99	98	2960585	275.36	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 110.14%			
7) 4-Bromofluorobenzene	12.00	174	751209	190.32	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 76.13%			
Target Compounds						Qvalue
5) Chlorobenzene	10.59	112	1323052	144.11	ng	95

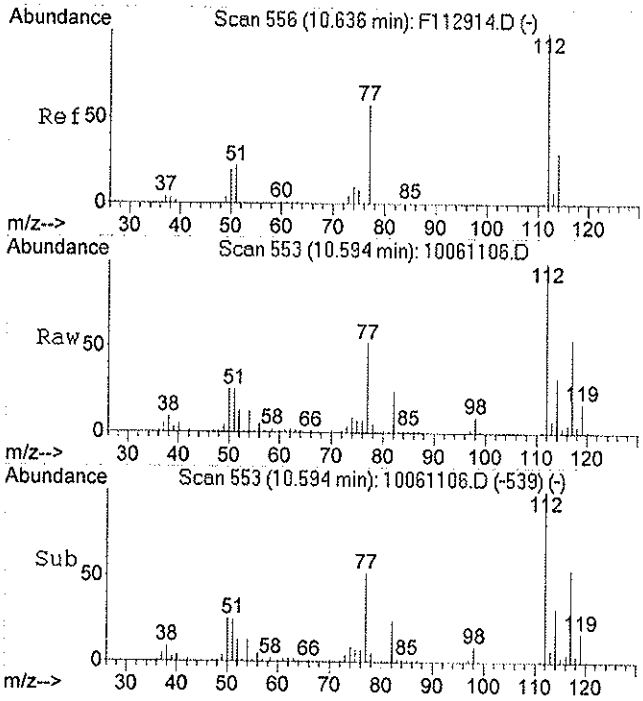
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061106.D
Acq On : 11 Jun 2010 12:00 pm
Operator : YY
Sample : GC8402 ALLIANCE 10X
Misc : RUN 3-AUDIT-TRAP3 3ABC 10XDILN.
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 11 12:29:19 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

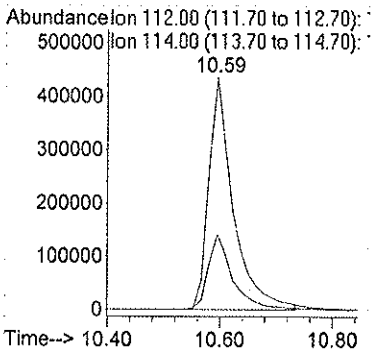




#5
Chlorobenzene
Concen: 144.11 ng
RT: 10.59 min Scan# 553
Delta R.T. -0.00 min
Lab File: 10061106.D
Acq: 11 Jun 2010 12:00 pm

Tgt Ion:112 Resp: 1323052

Ion	Ratio	Lower	Upper
112	100		
114	32.5	15.6	55.6



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061107.D
Acq On : 11 Jun 2010 1:51 pm
Operator : YY
Sample : GC8245 ALLIANCE 20X
Misc : R1-CONDITION 1-TRAP7 7ABC 20XDILN.
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 11 15:12:30 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.63	114	2591922	250.00 ng	0.00
3) d5-Chlorobenzene	10.57	117	2329865	250.00 ng	0.01
8) d4-1,4-Dichlorobenzene	13.65	152	749300	250.00 ng	0.01
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	915139	236.87 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 94.75%		
4) d10-Ethylbenzene	10.57	98	104226	7.38 ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.69%#		
6) d8-Toluene	8.99	98	2651021	254.54 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 101.82%		
7) 4-Bromofluorobenzene	12.00	174	624851	163.42 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 65.37%		

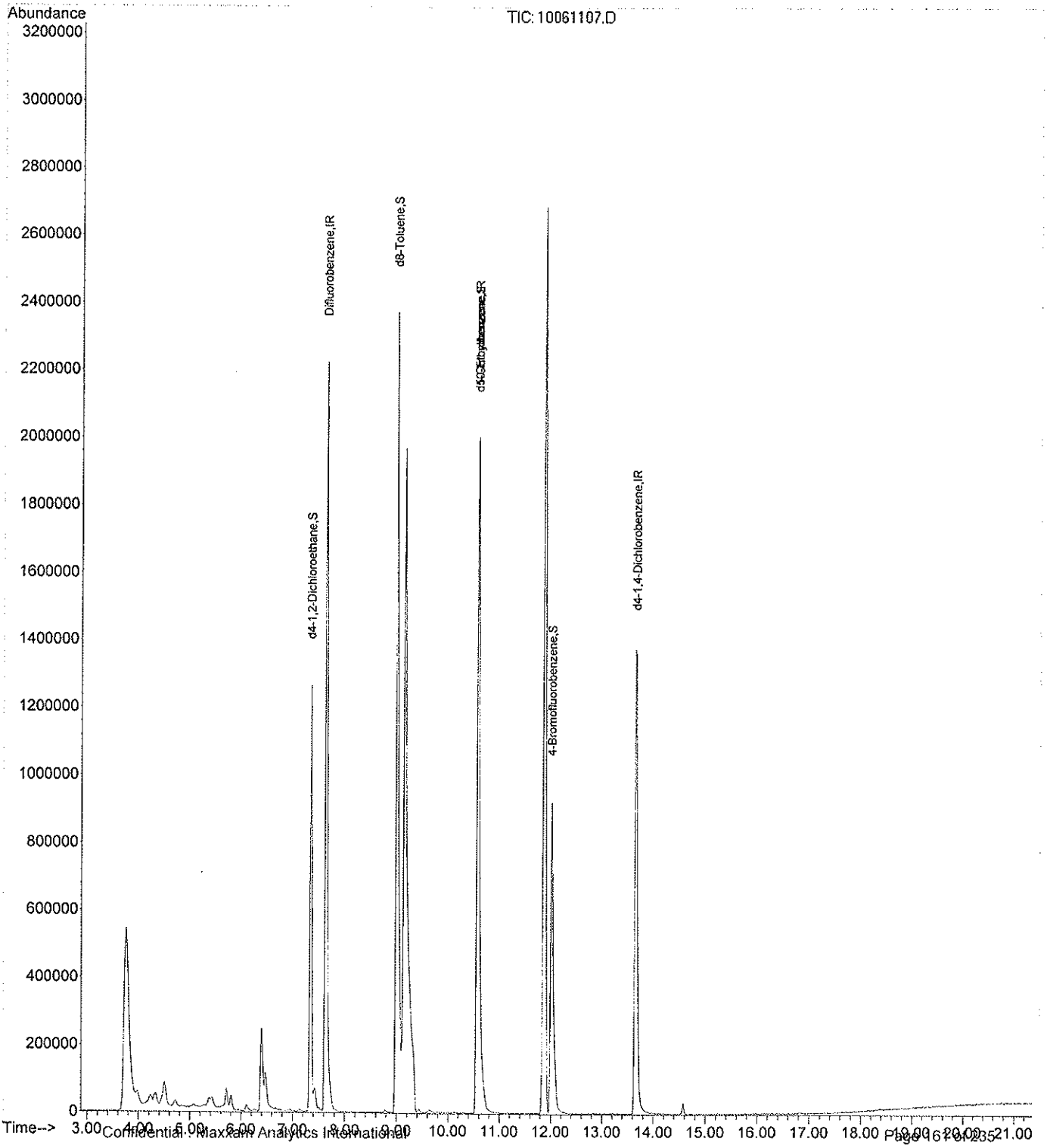
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061107.D
Acq On : 11 Jun 2010 1:51 pm
Operator : YY
Sample : GC8245 ALLIANCE 20X
Misc : R1-CONDITION 1-TRAP7 7ABC 20XDILN.
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 11 15:12:30 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061108.D
Acq On : 11 Jun 2010 2:28 pm
Operator : YY
Sample : GC8247 ALLIANCE 20X
Misc : R1-CONDITION 1-TRAP5 5ABC 20XDILN.
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jun 11 15:13:54 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.63	114	2676238	250.00 ng	0.00
3) d5-Chlorobenzene	10.57	117	2336244	250.00 ng	0.01
8) d4-1,4-Dichlorobenzene	13.65	152	795360	250.00 ng	0.01
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	896192	224.66 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 89.86%		
4) d10-Ethylbenzene	10.57	98	104770	7.40 ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.70%#		
6) d8-Toluene	8.99	98	2531290	242.38 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 96.95%		
7) 4-Bromofluorobenzene	12.00	174	629767	164.26 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 65.70%		

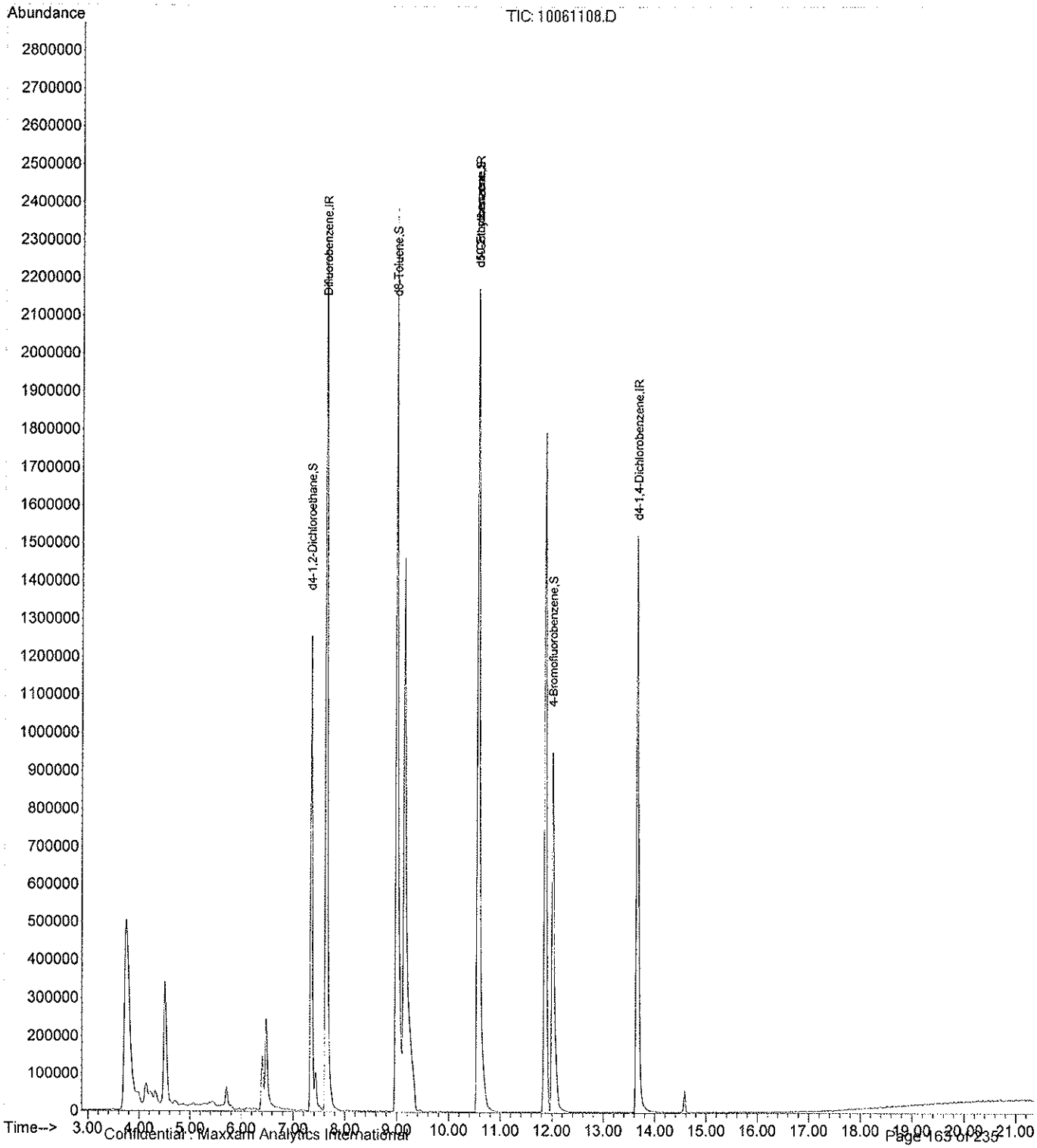
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061108.D
Acq On : 11 Jun 2010 2:28 pm
Operator : YY
Sample : GC8247 ALLIANCE 20X
Misc : R1-CONDITION 1-TRAP5 5ABC 20XDILN.
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jun 11 15:13:54 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061109.D
Acq On : 11 Jun 2010 3:07 pm
Operator : YY
Sample : GC8376 ALLIANCE 20X
Misc : R1-CONDITION 2-TRAP14 14ABC 20XDILN.
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 11 15:31:48 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

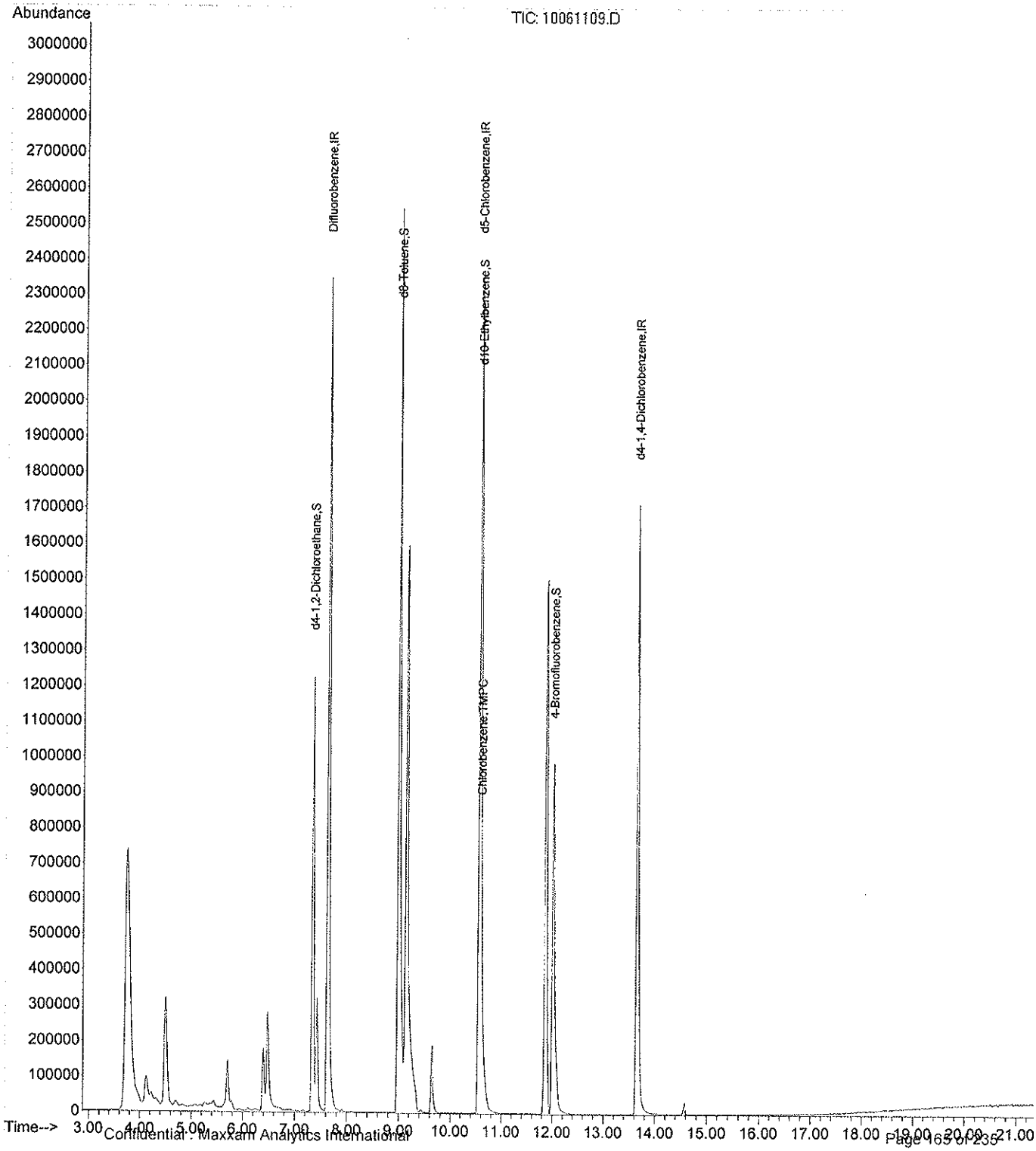
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.62	114	2557503	250.00 ng	-0.01
3) d5-Chlorobenzene	10.55	117	2297196	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	819545	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	863577	226.53 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 90.61%		
4) d10-Ethylbenzene	10.57	98	88308	6.34 ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.17%#		
6) d8-Toluene	8.99	98	2515147	244.93 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 97.97%		
7) 4-Bromofluorobenzene	12.01	174	652081	172.97 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 69.19%		
Target Compounds					Qvalue
5) Chlorobenzene	10.59	112	118892	13.56 ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

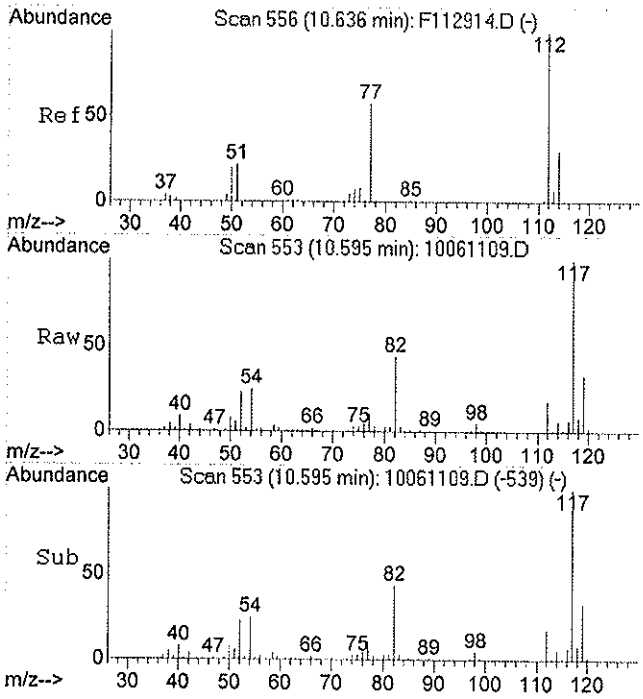
Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061109.D
Acq On : 11 Jun 2010 3:07 pm
Operator : YY
Sample : GC8376 ALLIANCE 20X
Misc : R1-CONDITION 2-TRAP14 14ABC 20XDILN.
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 11 15:31:48 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



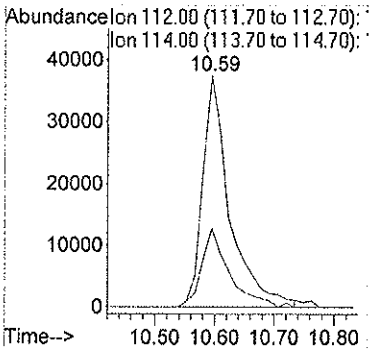
CB00607.M Tue Jun 22 11:39:35 2010 MSD2



#5
Chlorobenzene
Concen: 13.56 ng
RT: 10.59 min Scan# 553
Delta R.T. 0.00 min
Lab File: 10061109.D
Acq: 11 Jun 2010 3:07 pm

Tgt Ion:112 Resp: 118892

Ion	Ratio	Lower	Upper
112	100		
114	34.8	15.6	55.6



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061110.D
Acq On : 11 Jun 2010 3:40 pm
Operator : YY
Sample : GC8377 ALLIANCE 20X
Misc : R1-CONDITION 2-TRAP15 15ABC 20XDILN.
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 11 16:42:53 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.63	114	2394703	250.00 ng	0.00
3) d5-Chlorobenzene	10.55	117	2129289	250.00 ng	0.00
8) d4-1,4-Dichlorobenzene	13.64	152	717072	250.00 ng	0.00
System Monitoring Compounds					
2) d4-1,2-Dichloroethane	7.34	65	857365	240.19 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 96.08%		
4) d10-Ethylbenzene	10.57	98	87481	6.78 ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.39%#		
6) d8-Toluene	8.99	98	2450669	257.47 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 102.99%		
7) 4-Bromofluorobenzene	12.01	174	615800	176.23 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 70.49%		

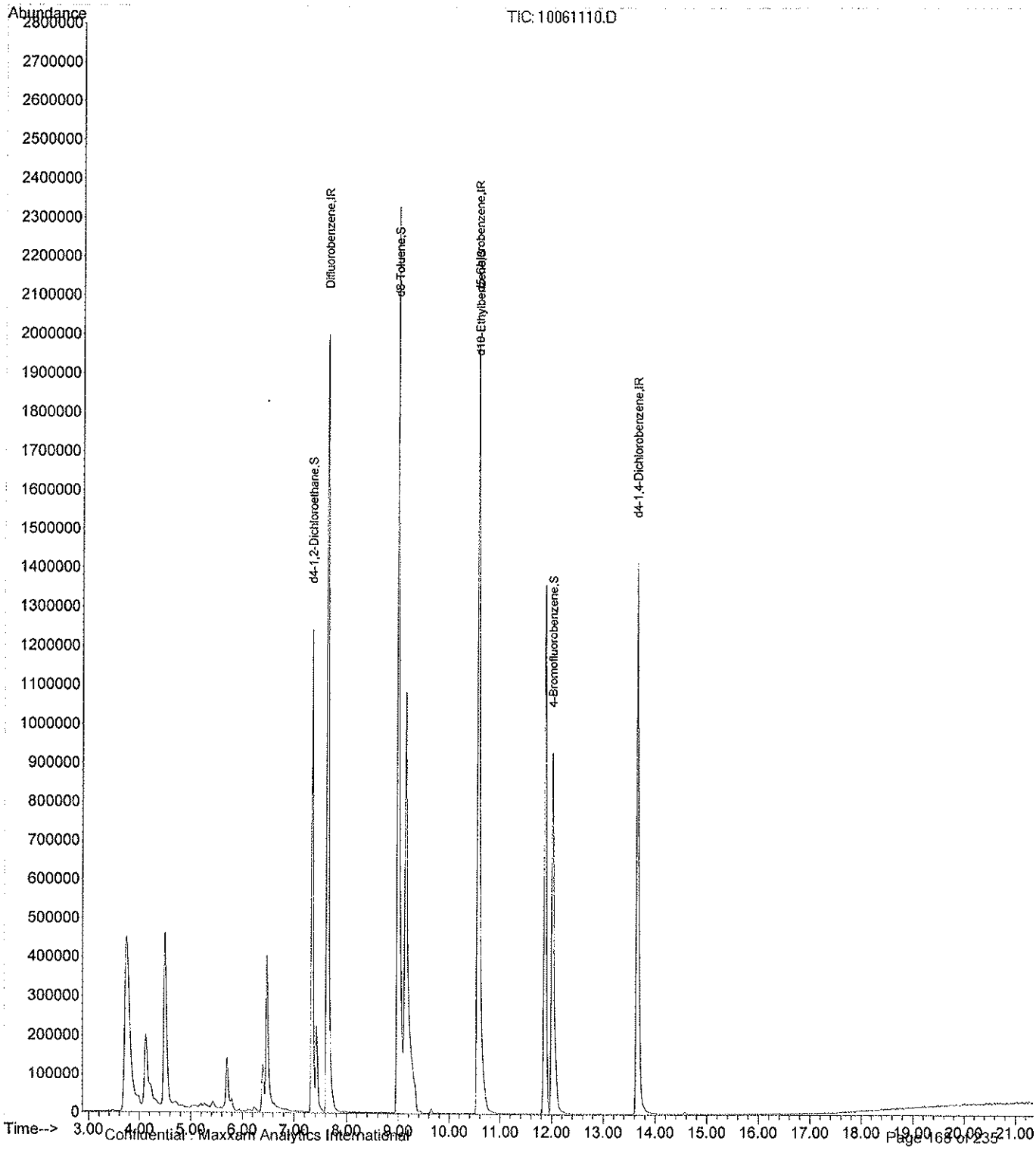
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061110.D
Acq On : 11 Jun 2010 3:40 pm
Operator : YY
Sample : GC8377 ALLIANCE 20X
Misc : R1-CONDITION 2-TRAP15 15ABC 20XDILN.
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 11 16:42:53 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061111.D
Acq On : 11 Jun 2010 4:44 pm
Operator : YY
Sample : GC8384 ALLIANCE 20X
Misc : R3-CONDITION 2-TRAP22 22ABC 20XDILN.
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 11 17:10:05 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Difluorobenzene	7.63	114	2555181	250.00 ng	0.00
3) d5-Chlorobenzene	10.57	117	2299018	250.00 ng	0.01
8) d4-1,4-Dichlorobenzene	13.64	152	777799	250.00 ng	0.00

System Monitoring Compounds

2) d4-1,2-Dichloroethane	7.34	65	737381	193.61 ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 77.44%		
4) d10-Ethylbenzene	10.57	98	86566	6.21 ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.11%#		
6) d8-Toluene	8.99	98	2093704	203.72 ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 81.49%		
7) 4-Bromofluorobenzene	12.00	174	498416	132.10 ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 52.84%		

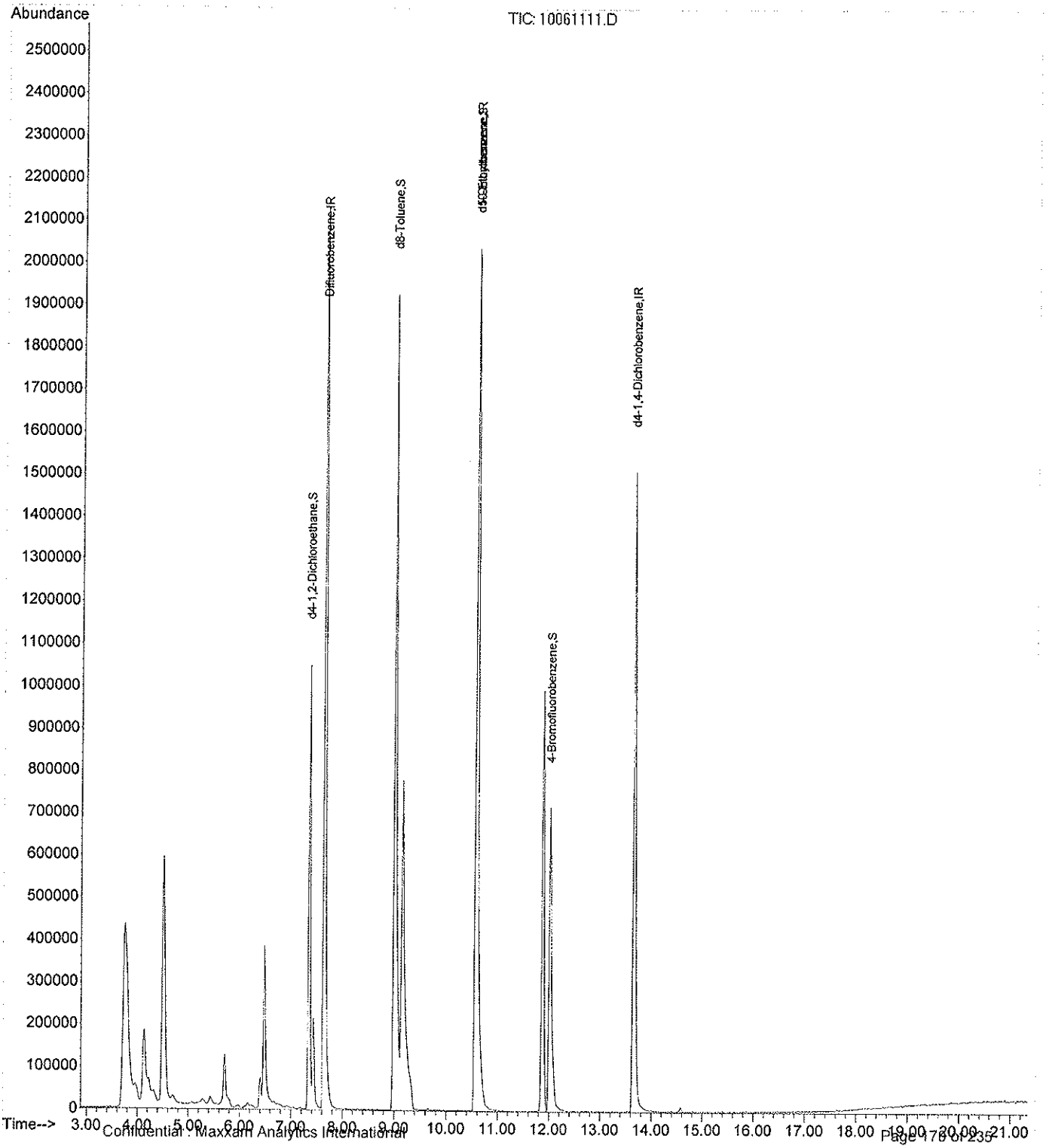
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061111.D
Acq On : 11 Jun 2010 4:44 pm
Operator : YY
Sample : GC8384 ALLIANCE 20X
Misc : R3-CONDITION 2-TRAP22 22ABC 20XDILN.
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 11 17:10:05 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061112.D
Acq On : 11 Jun 2010 5:17 pm
Operator : YY
Sample : GC8385 ALLIANCE 20X
Misc : R3-CONDITION 2-TRAP23 23ABC 20XDILN.
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 14 10:17:17 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Difluorobenzene	7.63	114	2279615	250.00	ng	0.00
3) d5-Chlorobenzene	10.57	117	2051653	250.00	ng	0.01
8) d4-1,4-Dichlorobenzene	13.65	152	707978	250.00	ng	0.01

System Monitoring Compounds

2) d4-1,2-Dichloroethane	7.34	65	803160	236.37	ng	0.00
Spiked Amount 250.000	Range 74 - 122		Recovery = 94.55%			
4) d10-Ethylbenzene	10.57	98	81238	6.53	ng	0.01
Spiked Amount 200.000	Range 54 - 152		Recovery = 3.26%#			
6) d8-Toluene	8.99	98	2332025	254.27	ng	0.00
Spiked Amount 250.000	Range 80 - 114		Recovery = 101.71%			
7) 4-Bromofluorobenzene	12.00	174	605552	179.85	ng	0.00
Spiked Amount 250.000	Range 36 - 141		Recovery = 71.94%			

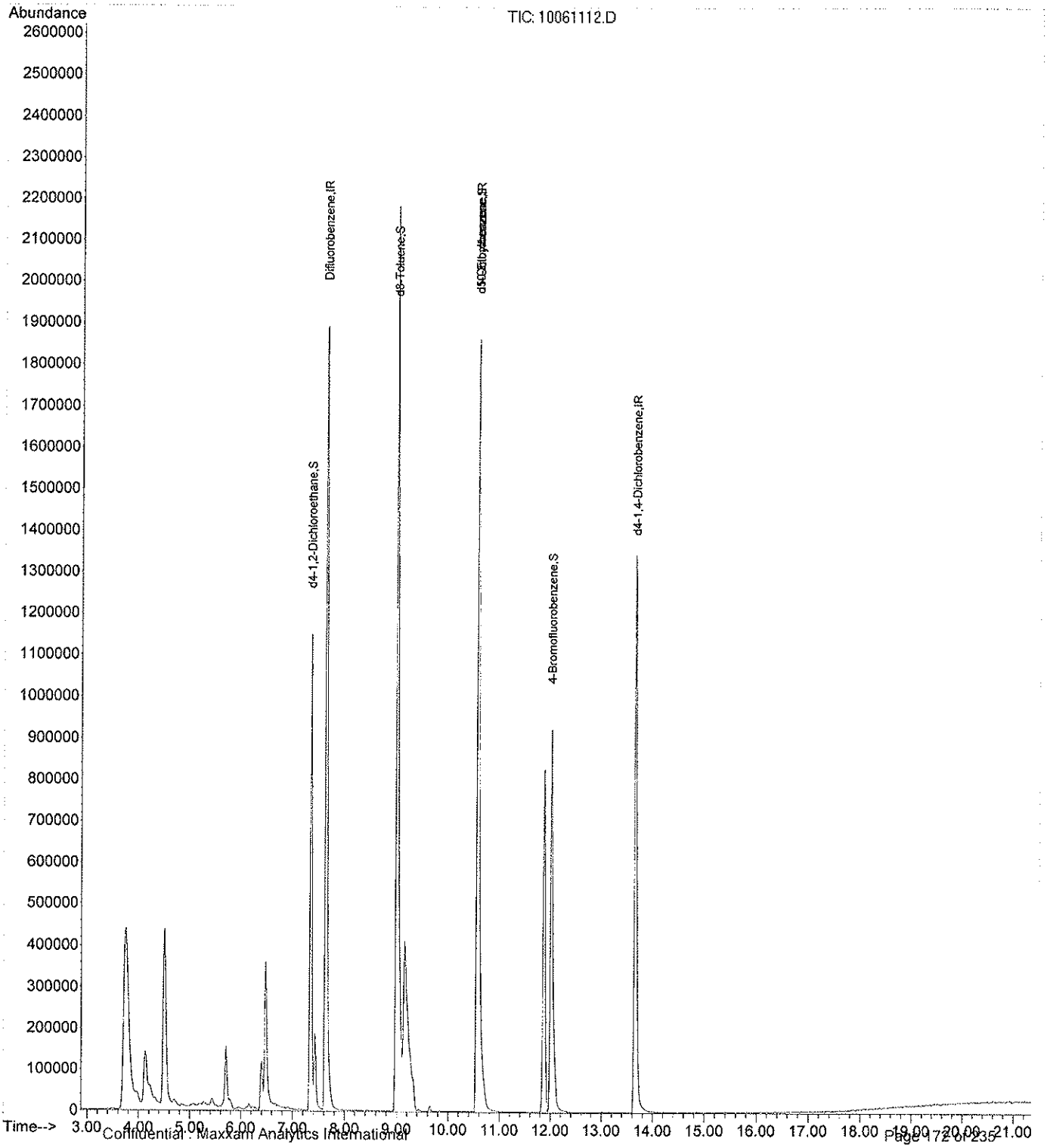
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2010\2010_06\2100611\
Data File : 10061112.D
Acq On : 11 Jun 2010 5:17 pm
Operator : YY
Sample : GC8385 ALLIANCE 20X
Misc : R3-CONDITION 2-TRAP23 23ABC 20XDILN.
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 14 10:17:17 2010
Quant Method : C:\MSDCHEM\1\METHODS\CB00607.M
Quant Title : QUEUE: VUSW VOST GCMS Mon Oct 19 16:42:56Wed Jun 09 10:13:57 2010
QLast Update : Wed Jun 09 10:13:57 2010
Response via : Initial Calibration



Maxxam Analytics

Driven by Service and Science

Method 8260B –Volatile Organic Compounds by GC/MS

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Analytics

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5.0 Initial Calibration Data

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Response Factor Report MSD23

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration

Calibration Files
1 =23M03456.D 2 =23M03457.D 3 =23M03458.D
4 =23M03459.D 5 =23M03460.D 6 =23M03461.D

Compound	1	2	3	4	5	6	Avg	%RSD	Coeff
1) FB	----------ISTD----------								
2) 12-DCA-d4	0.194	0.197	0.199	0.194	0.192	0.183	0.19307	2.95	-
3) Cl-Ben-d5	----------ISTD----------								
4) Toluene-d8	1.403	1.413	1.427	1.402	1.390	1.360	1.39911	1.63	-
5) Cl-Benzene	1.413	1.336	1.424	1.478	1.423	1.392	1.41077	3.29	-
6) 4-BFB	0.417	0.425	0.438	0.434	0.445	0.440	0.43311	2.44	-
7) 12-DCB-d4	----------ISTD----------								

(#) = Out of Range
coeff= Coefficient of Determination for non-Average curve fits

VOST1.M Tue Jul 27 11:37:16 2010

Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03456.D Vial: 3
Acq On : 14 Jun 2010 9:57 am Operator: AGE
Sample : :STD1 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:44:40 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1363879	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	869457	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.63	152	672753	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1061029	402.94	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery	=	100.74%	
4) TOLUENE-d8	11.75	98	1219496	100.25	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery	=	100.25%	
6) 4-BROMOFLUOROBENZENE	15.62	174	724413	192.37	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery	=	96.19%	
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	24563	2.00	ng	98

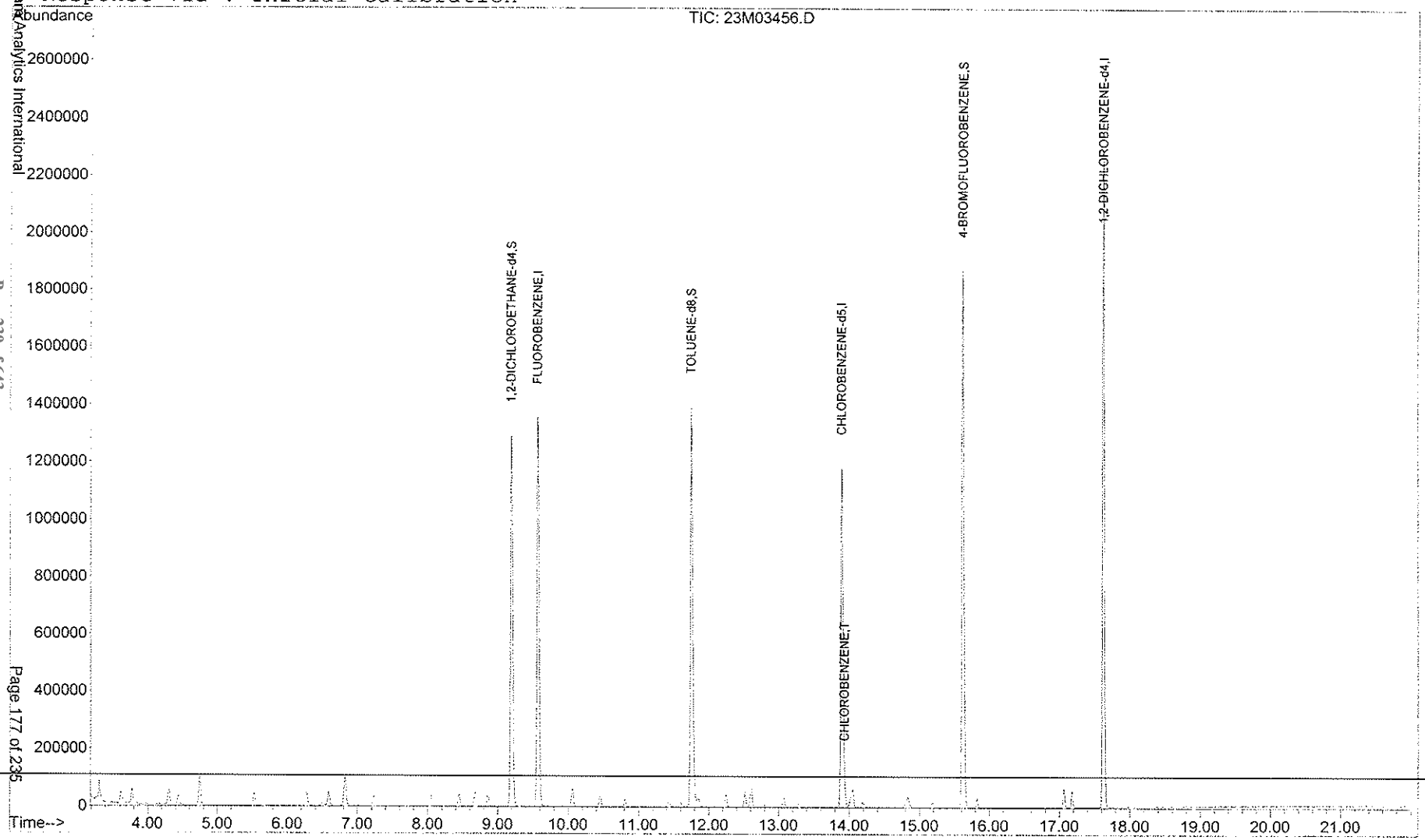
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03456.D
Acq On : 14 Jun 2010 9:57 am
Sample : :STD1
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:40 2010

Vial: 3
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03457.D Vial: 4
Acq On : 14 Jun 2010 10:24 am Operator: AGE
Sample : :STD2 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:45:14 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1367861	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	888503	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	704742	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1078243	408.29	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery	=	102.07%	
4) TOLUENE-d8	11.75	98	1255591	101.00	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery	=	101.00%	
6) 4-BROMOFLUOROBENZENE	15.62	174	755082	196.22	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery	=	98.11%	
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	118674	9.47	ng	93

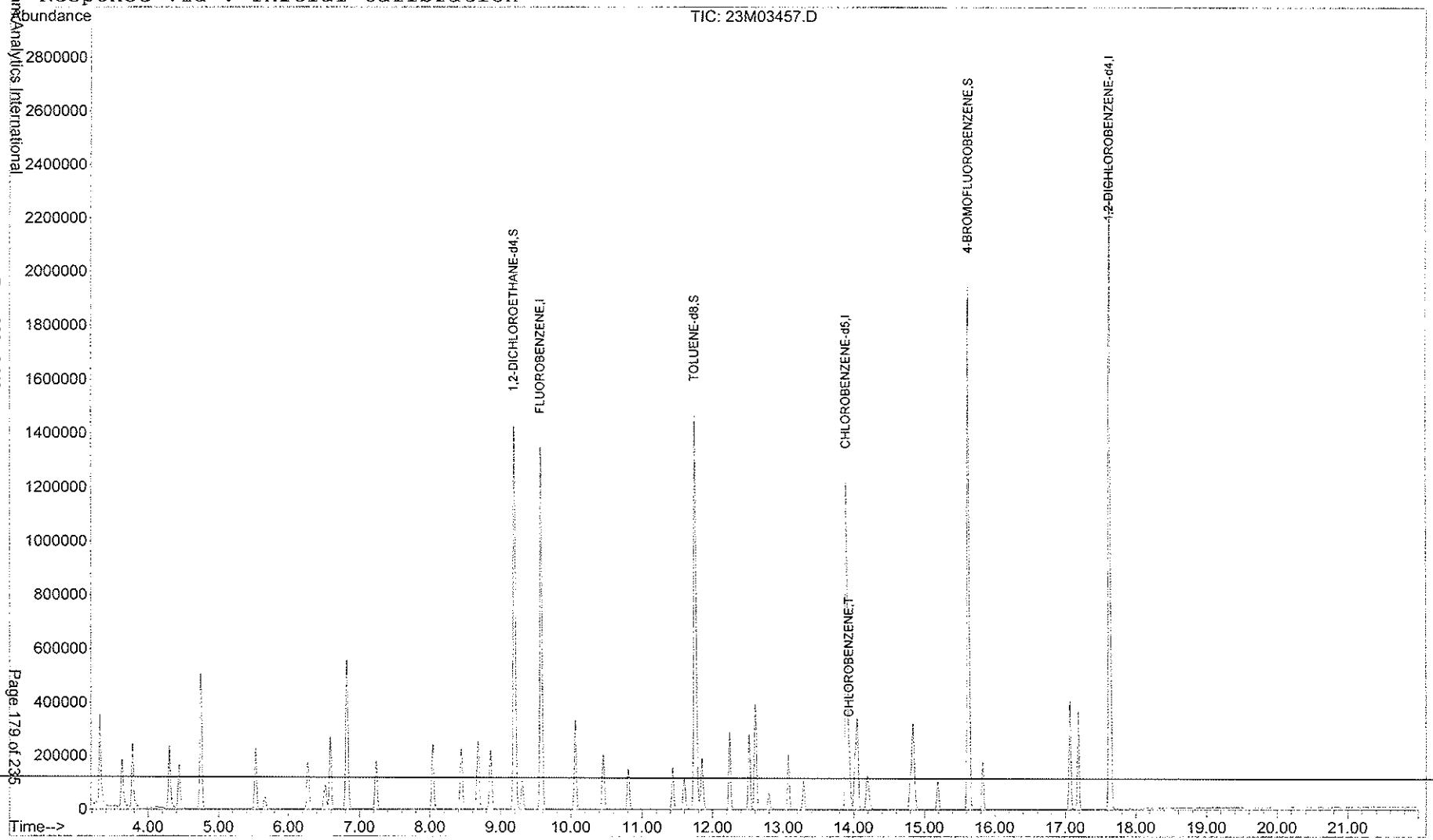
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03457.D
Acq On : 14 Jun 2010 10:24 am
Sample : :STD2
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:40 2010

Vial: 4
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03458.D Vial: 5
Acq On : 14 Jun 2010 10:51 am Operator: AGE
Sample : :STD3 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:45:28 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1421092	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	917345	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	745755	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1130121	411.90	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery	=	102.97%	
4) TOLUENE-d8	11.75	98	1308922	101.98	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery	=	101.98%	
6) 4-BROMOFLUOROBENZENE	15.62	174	804179	202.40	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery	=	101.20%	
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	653004	50.46	ng	98

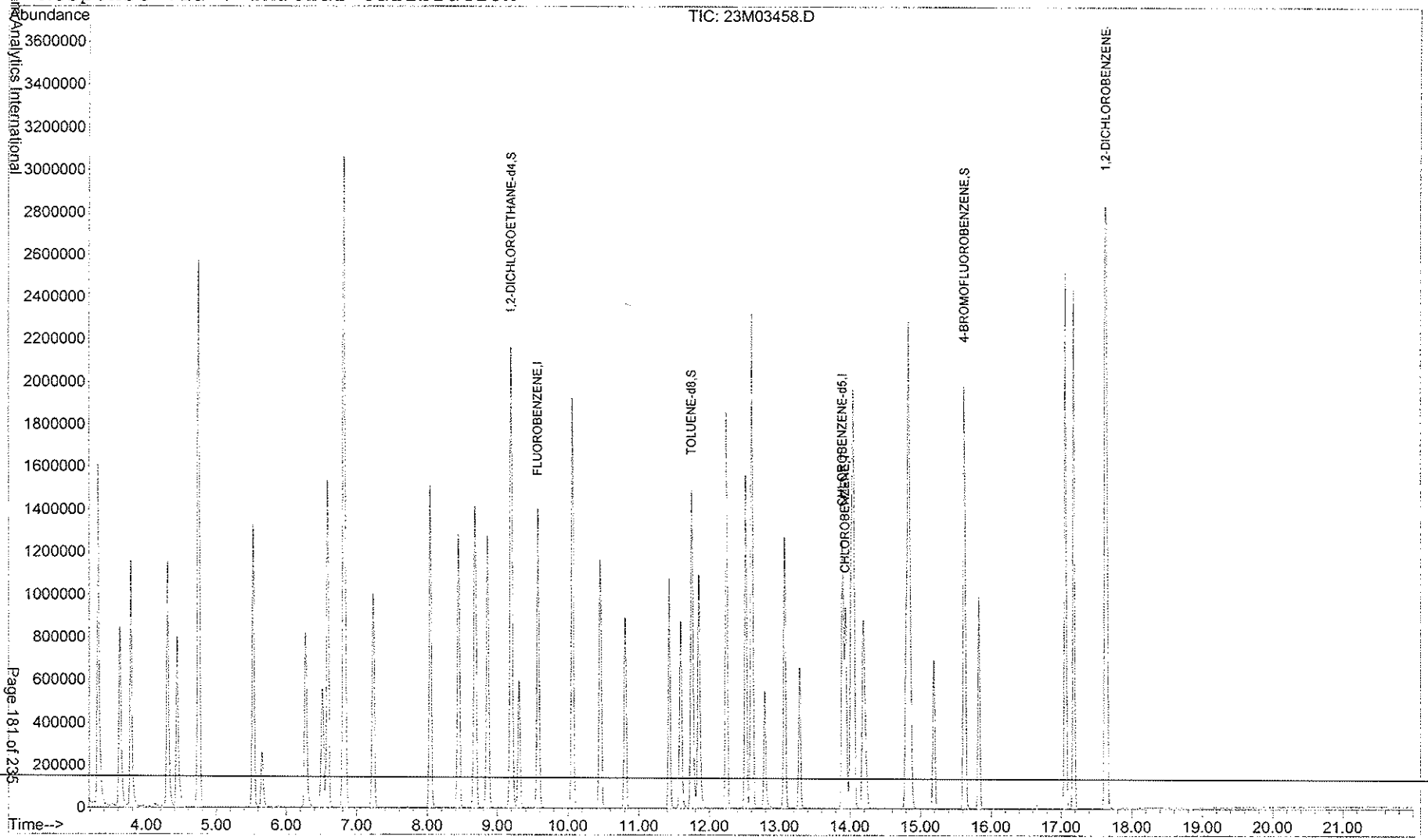
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03458.D
Acq On : 14 Jun 2010 10:51 am
Sample : :STD3
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:40 2010

Vial: 5
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03459.D Vial: 6
Acq On : 14 Jun 2010 11:18 am Operator: AGE
Sample : :STD4 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:45:44 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1536353	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	1035425	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	875147	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1191049	401.54	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery	=	100.39%	
4) TOLUENE-d8	11.75	98	1451462	100.19	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery	=	100.19%	
6) 4-BROMOFLUOROBENZENE	15.62	174	898253	200.30	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery	=	100.15%	
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	1529851	104.73	ng	100

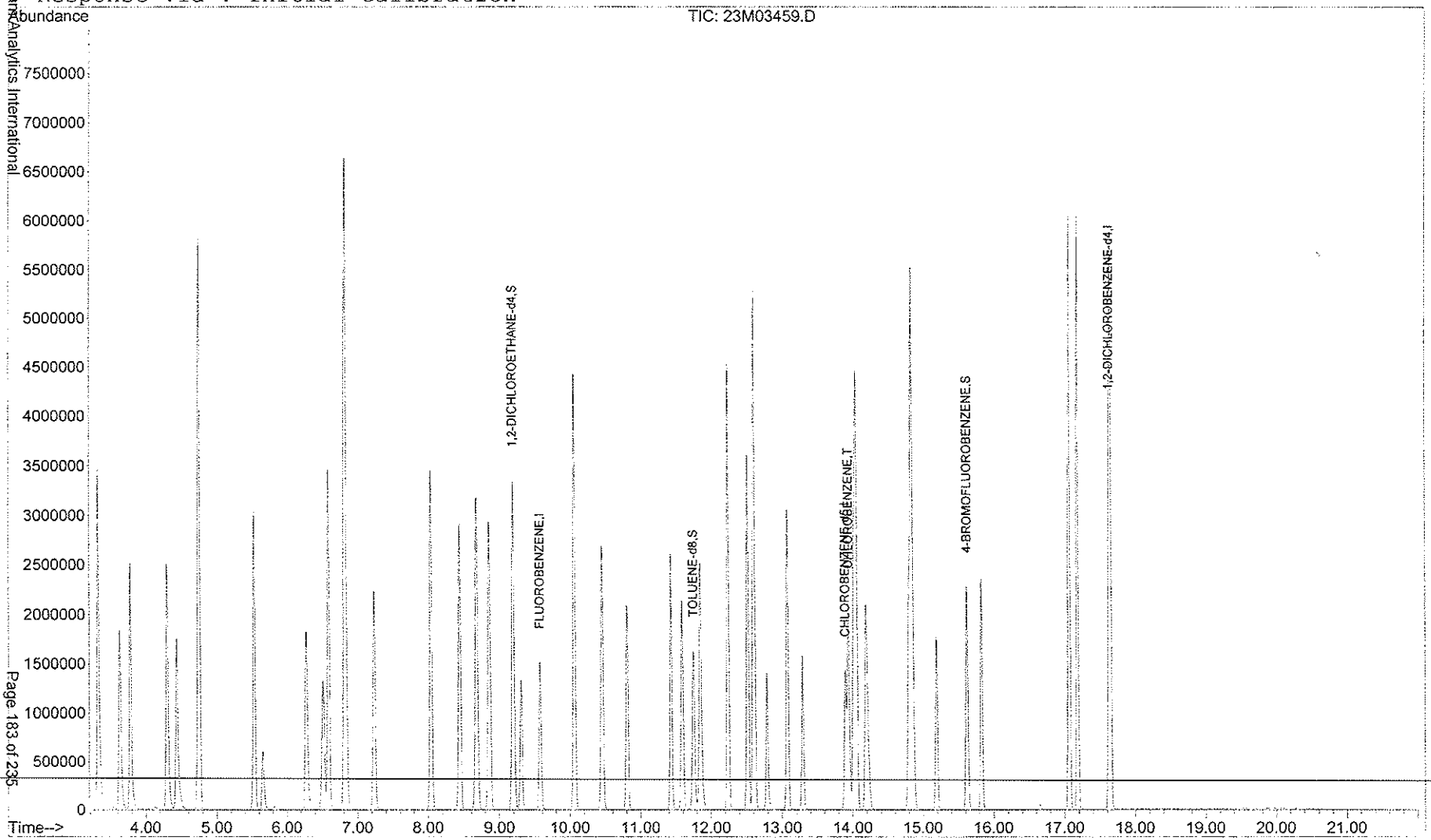
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03459.D
Acq On : 14 Jun 2010 11:18 am
Sample : :STD4
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:41 2010

Vial: 6
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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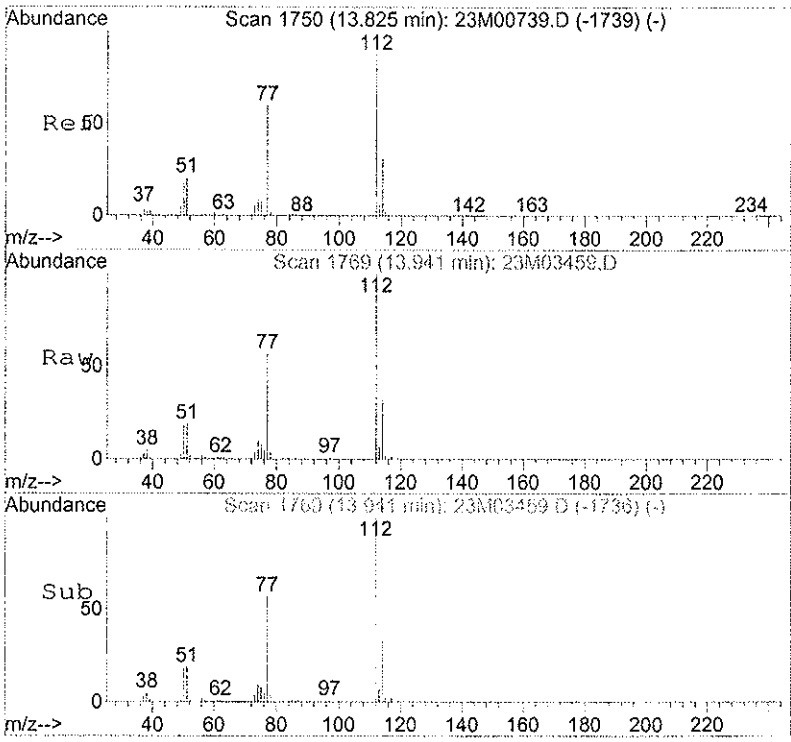
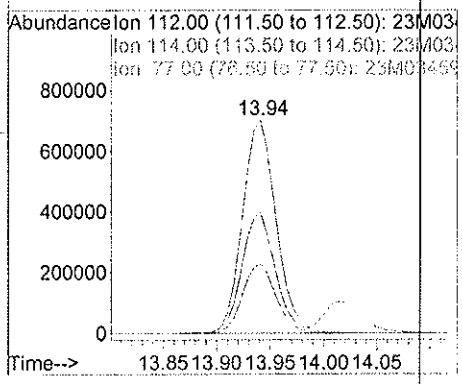


#5
CHLOROBENZENE
Concen: 104.73 ng
RT: 13.94 min Scan# 1769
Delta R.T. 0.00 min
Lab File: 23M03459.D
Acq: 14 Jun 2010 11:18 am

Tgt Ion:112 Resp: 1529851

Ion	Ratio	Lower	Upper
112	100		
114	32.5	12.5	52.5
77	56.4	36.4	76.4



Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03460.D Vial: 7
Acq On : 14 Jun 2010 11:45 am Operator: AGE
Sample : :STD5 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46:29 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1711971	100.00 ng	0.00
3) CHLOROBENZENE-d5	13.90	117	1177646	100.00 ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	1001791	200.00 ng	0.00
System Monitoring Compounds					
2) 1,2-DICHLOROETHANE-d4	9.20	65	1311632	396.83 ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 99.21%		
4) TOLUENE-d8	11.75	98	1637143	99.36 ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 99.36%		
6) 4-BROMOFLUOROBENZENE	15.62	174	1048091	205.49 ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 102.75%		
Target Compounds					Qvalue
5) CHLOROBENZENE	13.94	112	3351506	201.73 ng	99

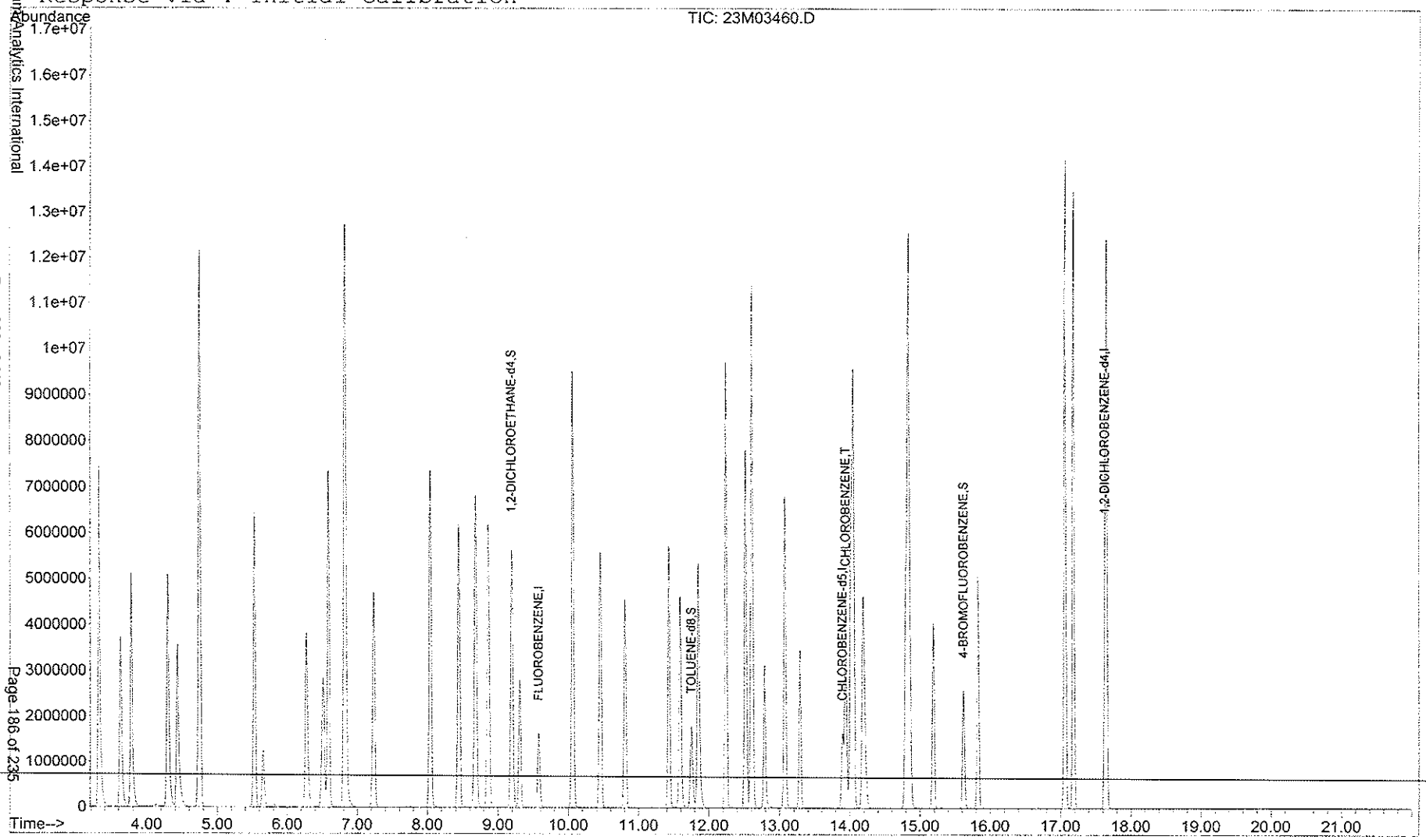
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03460.D
Acq On : 14 Jun 2010 11:45 am
Sample : :STD5
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:41 2010

Vial: 7
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03461.D Vial: 8
Acq On : 14 Jun 2010 12:12 pm Operator: AGE
Sample : :STD6 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46:42 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1888484	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	1299007	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	1115257	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1379969	378.49	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 94.62%			
4) TOLUENE-d8	11.75	98	1766717	97.21	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 97.21%			
6) 4-BROMOFLUOROBENZENE	15.62	174	1143398	203.23	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 101.61%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	7234218	394.75	ng	98

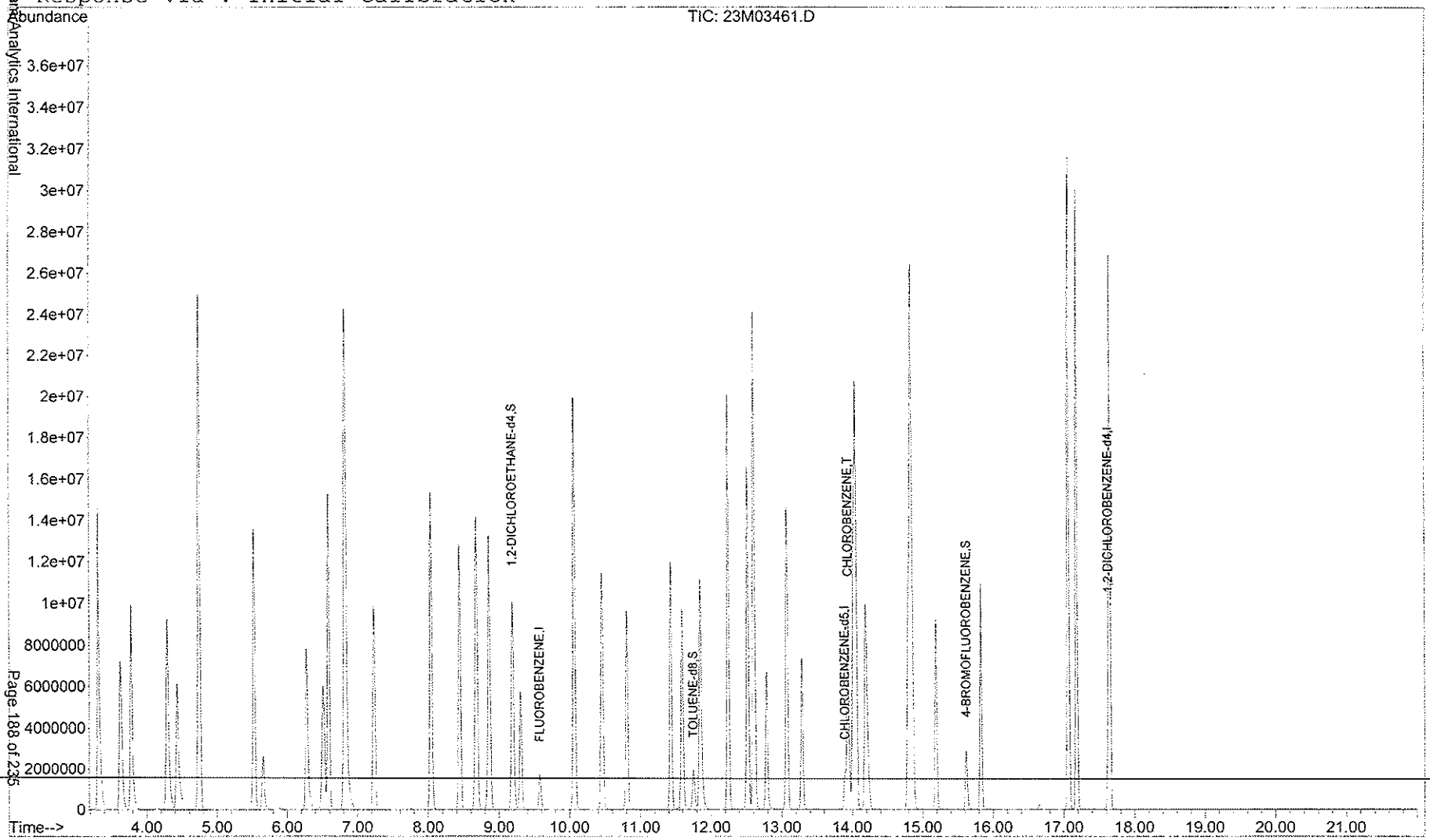
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : T:\DATA\23M10JUN14\23M03461.D
Acq On : 14 Jun 2010 12:12 pm
Sample : :STD6
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:42 2010

Vial: 8
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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Driven by Service and Science

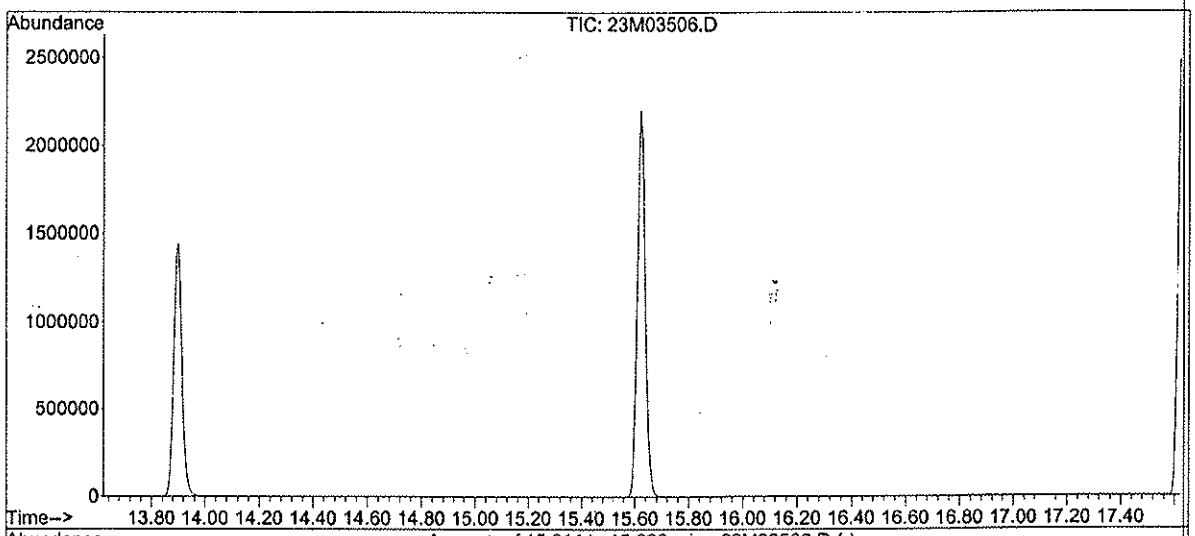
5.1 Continuing Calibration Data

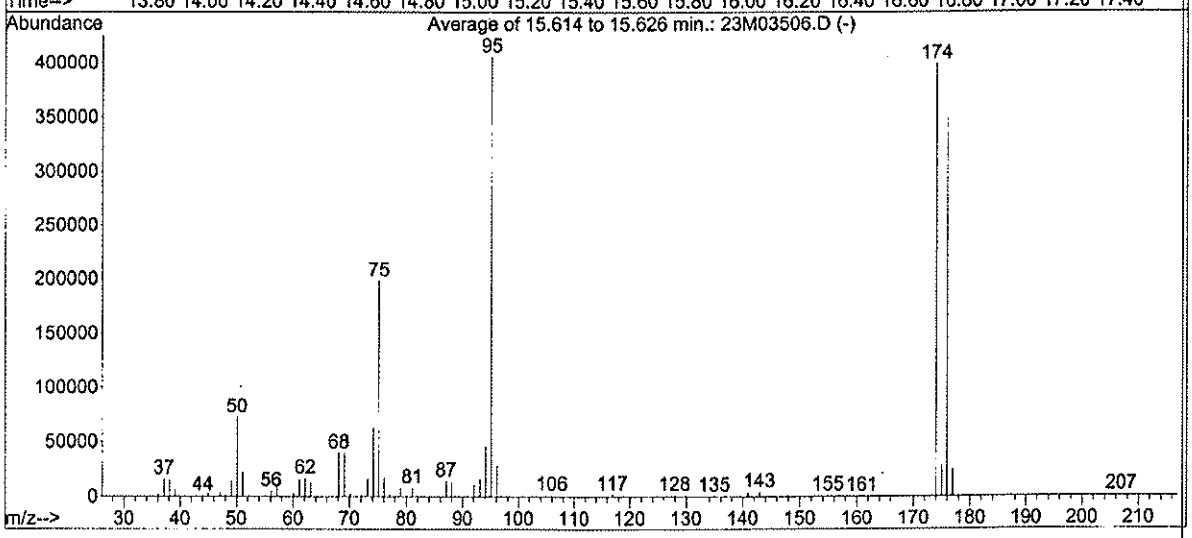
Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

BFB

Data File : T:\23M10JUN15\23M03506.D
Acq On : 15 Jun 2010 9:33 am
Sample : :BFB
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER

Vial: 2
Operator: AGE
Inst : MSD23
Multiplr: 1.00





AutoFind: Scans 2044, 2045, 2046; Background Corrected with Scan 2035

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.9	72674	PASS
75	95	30	66	48.9	198592	PASS
95	95	100	100	100.0	406037	PASS
96	95	5	9	7.0	28554	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	98.3	399061	PASS
175	174	4	9	6.9	27669	PASS
176	174	93	101	98.2	391744	PASS
177	176	5	9	6.3	24493	PASS

23M03506.D VOST1.M Thu Jun 17 08:27:26 2010

Evaluate Continuing Calibration Report

Data File : T:\23M10JUN15\23M03507.D Vial: 3
Acq On : 15 Jun 2010 10:00 am Operator: AGE
Sample : :CAL STD Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Multiple Level Calibration
Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.17min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amt.(ng)	Calc.	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE	100	100.000	0.0	116	0.00
2	S	1,2-DICHLOROETHANE-d4	400	352.734	11.8	102	0.00
3	I	CHLOROBENZENE-d5	100	100.000	0.0	114	0.00
4	S	TOLUENE-d8	100	100.337	-0.3	114	0.00
5	T	CHLOROBENZENE	100	107.225	-7.2	116	0.00
6	S	4-BROMOFLUOROBENZENE	200	198.784	0.6	113	0.00
7	I	1,2-DICHLOROBENZENE-d4	200	200.000	0.0	109	0.00

(#) = Out of Range 23M03459.D VOST1.M Tue Jun 15 10:56:43 2010

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03507.D Vial: 3
Acq On : 15 Jun 2010 10:00 am Operator: AGE
Sample : :CAL STD Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 15 11:00:52 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1786683	100.00 ng	0.00
3) CHLOROBENZENE-d5	13.90	117	1176342	100.00 ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	955164	200.00 ng	0.00
System Monitoring Compounds					
2) 1,2-DICHLOROETHANE-d4	9.20	65	1216749	352.73 ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 88.18%		
4) TOLUENE-d8	11.75	98	1651377	100.34 ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 100.34%		
6) 4-BROMOFLUOROBENZENE	15.62	174	1012783	198.78 ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 99.39%		
Target Compounds					Qvalue
5) CHLOROBENZENE	13.94	112	1779456	107.23 ng	99

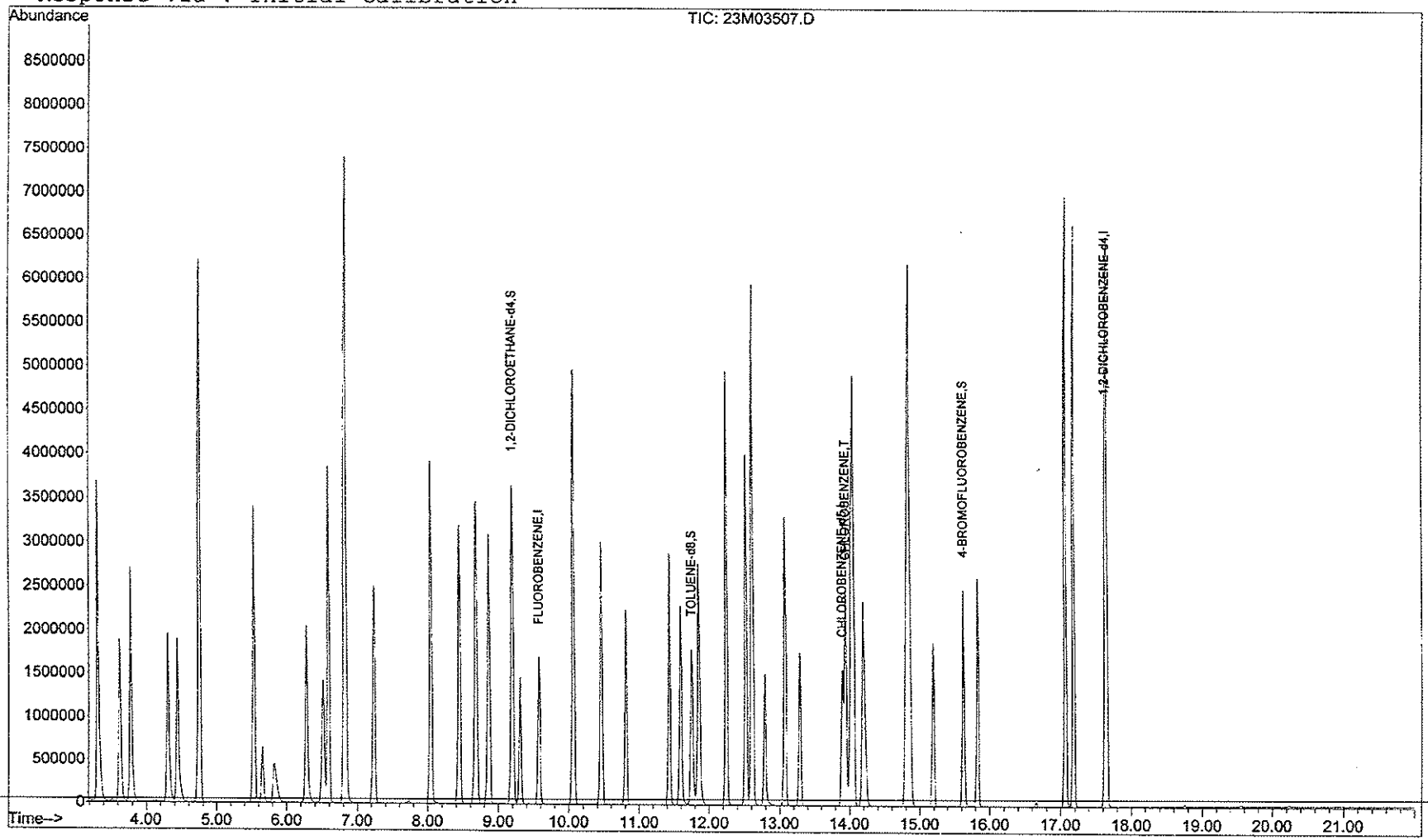
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03507.D
Acq On : 15 Jun 2010 10:00 am
Sample : :CAL STD
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jun 15 11:00 2010

Vial: 3
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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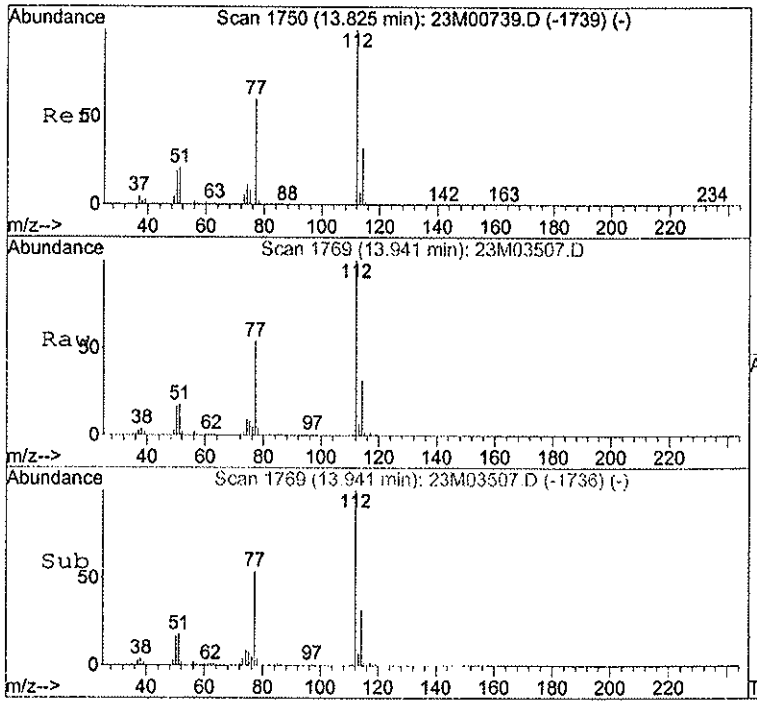
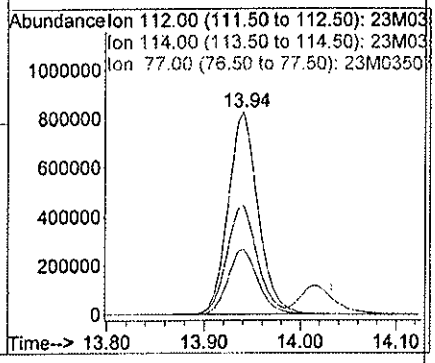


#5
CHLOROBENZENE
Concen: 107.23 ng
RT: 13.94 min Scan# 1769
Delta R.T. 0.00 min
Lab File: 23M03507.D
Acq: 15 Jun 2010 10:00 am

Tgt Ion:112 Resp: 1779456

Ion	Ratio	Lower	Upper
112	100		
114	32.3	12.5	52.5
77	55.3	36.4	76.4



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Evaluate Continuing Calibration Report

Data File : T:\23M10JUN15\23M03508.D Vial: 4
Acq On : 15 Jun 2010 10:26 am Operator: AGE
Sample : :REF STD Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Multiple Level Calibration
Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.17min
Max. RRF Dev : 25% Max. Rel. Area : 200%

		Compound	Amt.(ng)	Calc.	%Dev	Area%	Dev(min)
1	I	FLUOROBENZENE	100	100.000	0.0	121	0.00
2	S	1,2-DICHLOROETHANE-d4	400	352.440	11.9	107	0.00
3	I	CHLOROBENZENE-d5	100	100.000	0.0	118	0.00
4	S	TOLUENE-d8	100	99.961	0.0	117	0.00
5	T	CHLOROBENZENE	100	101.967	-2.0	115	0.00
6	S	4-BROMOFLUOROBENZENE	200	198.093	1.0	116	0.00
7	I	1,2-DICHLOROBENZENE-d4	200	200.000	0.0	113	0.00

(#) = Out of Range 23M03459.D VOST1.M Tue Jun 15 10:56:59 2010

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03508.D Vial: 4
Acq On : 15 Jun 2010 10:26 am Operator: AGE
Sample : :REF STD Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 15 11:00:53 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1866265	100.00 ng	0.00
3) CHLOROBENZENE-d5	13.90	117	1218219	100.00 ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	985215	200.00 ng	0.00
System Monitoring Compounds					
2) 1,2-DICHLOROETHANE-d4	9.20	65	1269889	352.44 ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 88.11%		
4) TOLUENE-d8	11.75	98	1703758	99.96 ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 99.96%		
6) 4-BROMOFLUOROBENZENE	15.62	174	1045193	198.09 ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 99.05%		
Target Compounds					Qvalue
5) CHLOROBENZENE	13.94	112	1752430	101.97 ng	99

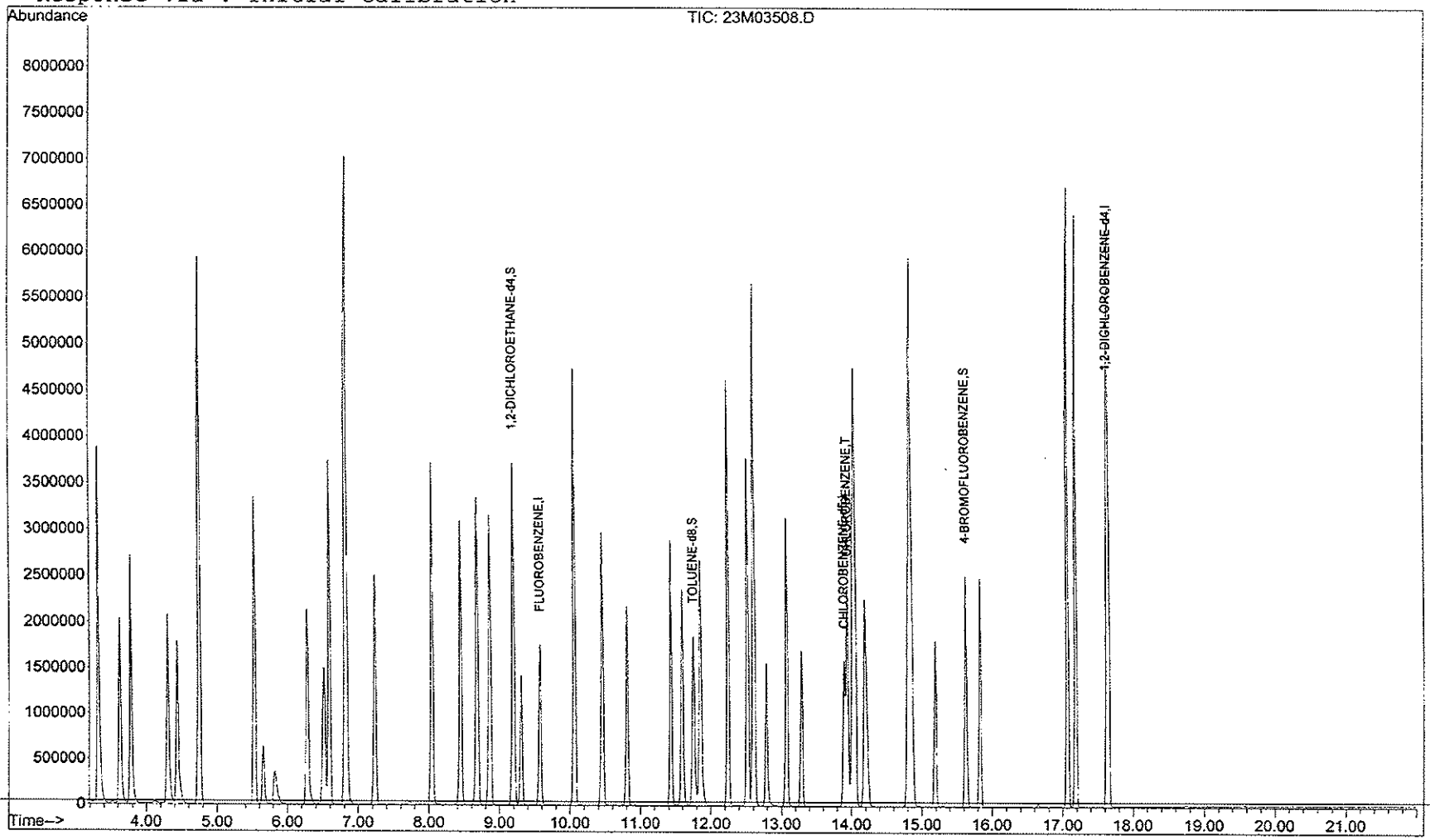
(#) = qualifier out of range (m) = manual integration (+) = signals summed
23M03508.D VOST1.M Tue Jun 15 11:02:56 2010 Page 1

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03508.D
Acq On : 15 Jun 2010 10:26 am
Sample : :REF STD
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jun 15 11:00 2010

Vial: 4
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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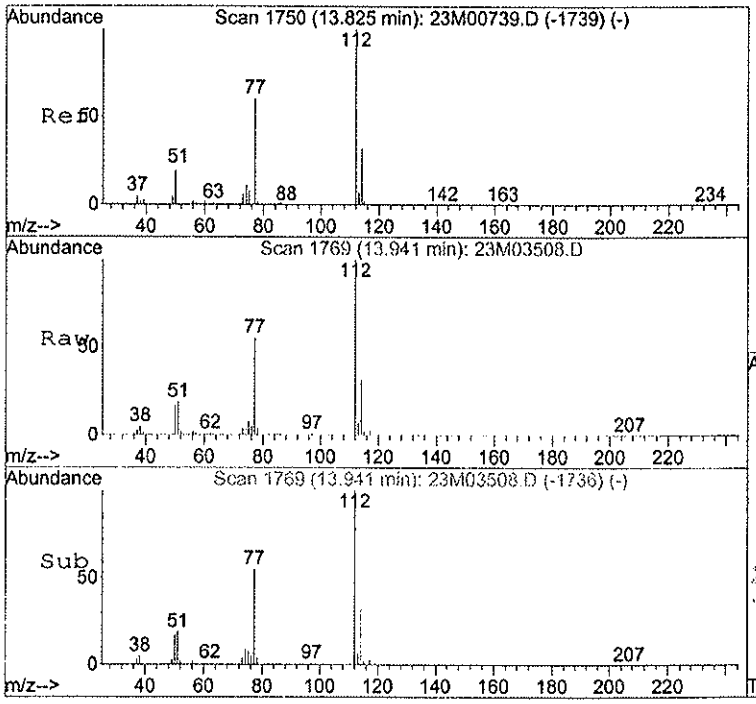
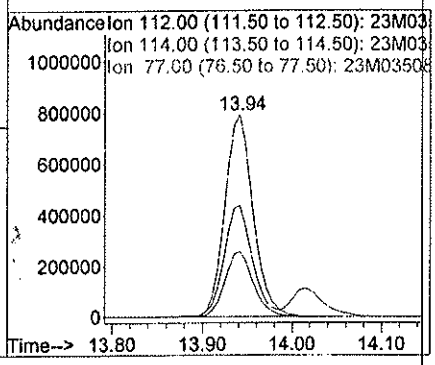


#5
CHLOROBENZENE
Concen: 101.97 ng
RT: 13.94 min Scan# 1769
Delta R.T. 0.00 min
Lab File: 23M03508.D
Acq: 15 Jun 2010 10:26 am

Tgt Ion:112 Resp: 1752430

Ion	Ratio	Lower	Upper
112	100		
114	32.5	12.5	52.5
77	55.8	36.4	76.4



Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03528.D Vial: 24
Acq On : 15 Jun 2010 7:23 pm Operator: AGE
Sample : :CAL STD Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 17 08:16:51 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1609936	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.89	117	1036818	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	847838	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1189964	382.84	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 95.71%			
4) TOLUENE-d8	11.75	98	1485401	102.40	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 102.40%			
6) 4-BROMOFLUOROBENZENE	15.62	174	906651	201.90	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 100.95%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.93	112	1310198	89.57	ng	99

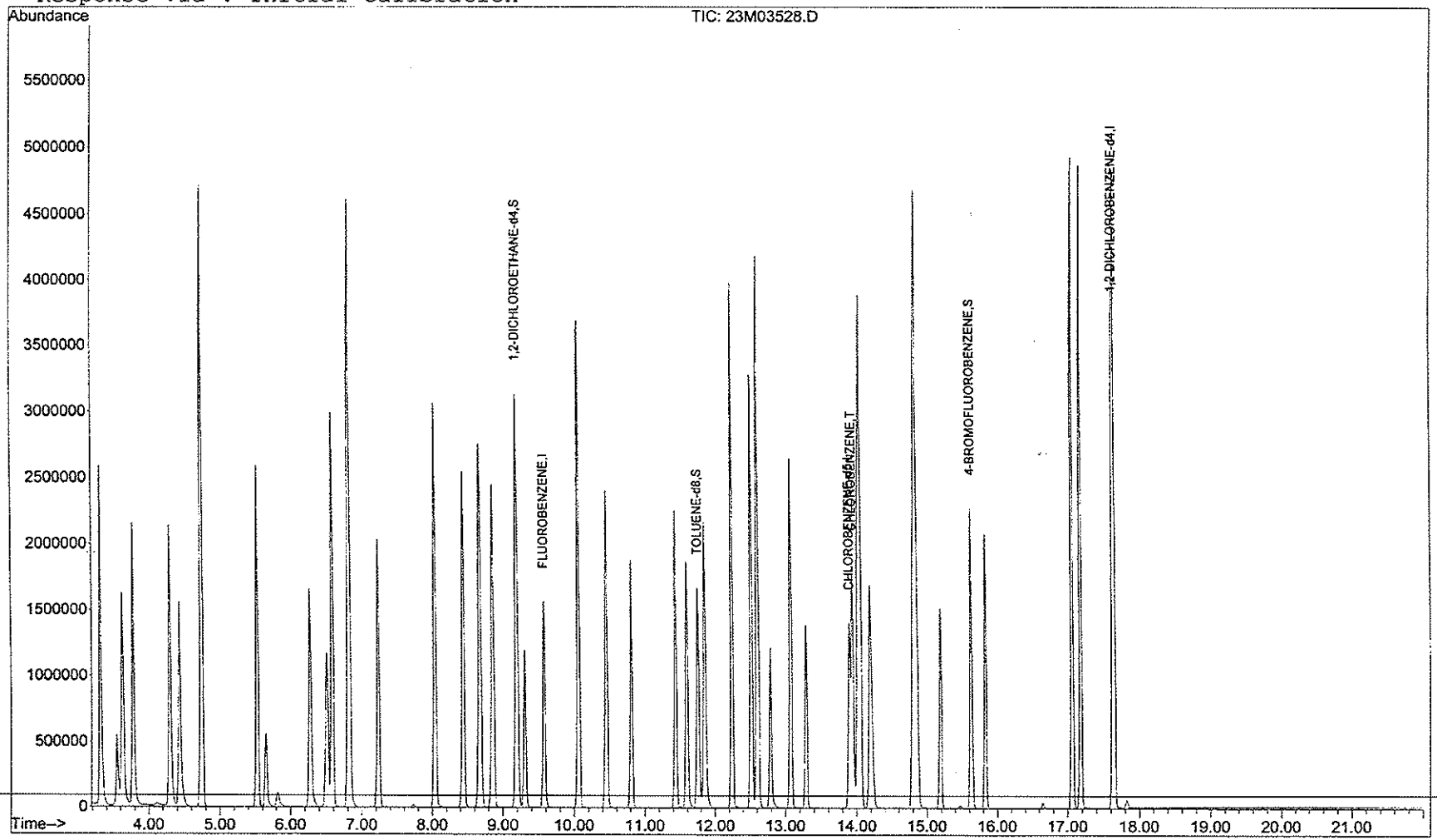
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03528.D
Acq On : 15 Jun 2010 7:23 pm
Sample : :CAL STD
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jun 17 8:16 2010

Vial: 24
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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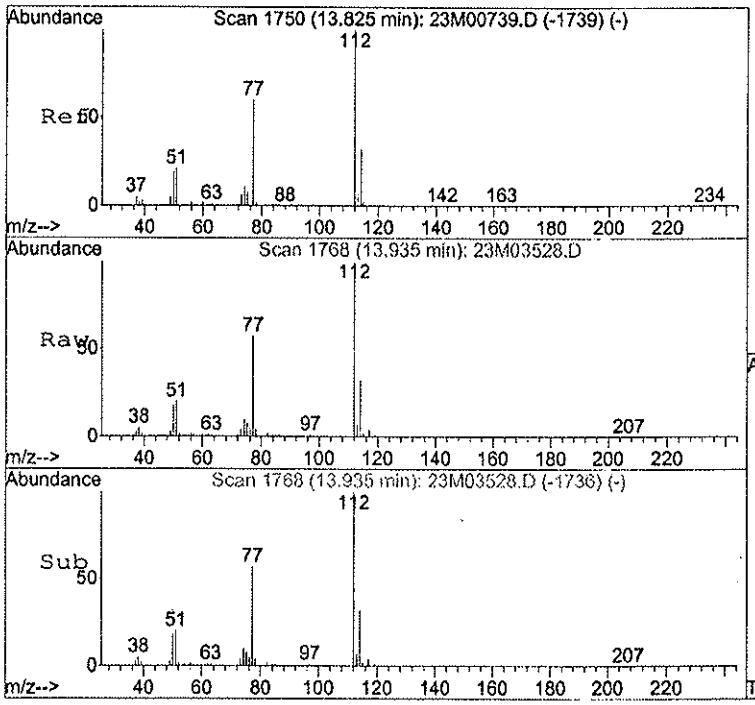
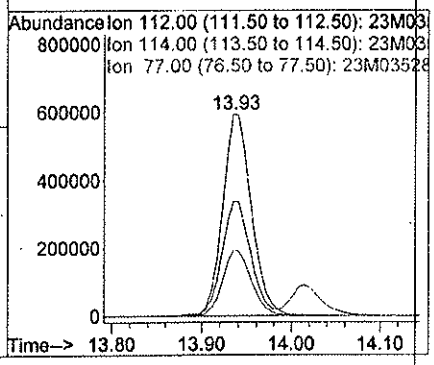


#5
CHLOROBENZENE
Concen: 89.57 ng
RT: 13.93 min Scan# 1768
Delta R.T. -0.01 min
Lab File: 23M03528.D
Acq: 15 Jun 2010 7:23 pm

Tgt Ion:112 Resp: 1310198

Ion	Ratio	Lower	Upper
112	100		
114	32.5	12.5	52.5
77	57.5	36.4	76.4



Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03529.D Vial: 25
Acq On : 15 Jun 2010 7:50 pm Operator: AGE
Sample : :REF STD Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 17 08:16:52 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1591977	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.89	117	1027523	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	837706	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1166877	379.65	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 94.91%			
4) TOLUENE-d8	11.75	98	1471615	102.37	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 102.37%			
6) 4-BROMOFLUOROBENZENE	15.62	174	887578	199.44	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 99.72%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	1563261	107.84	ng	100

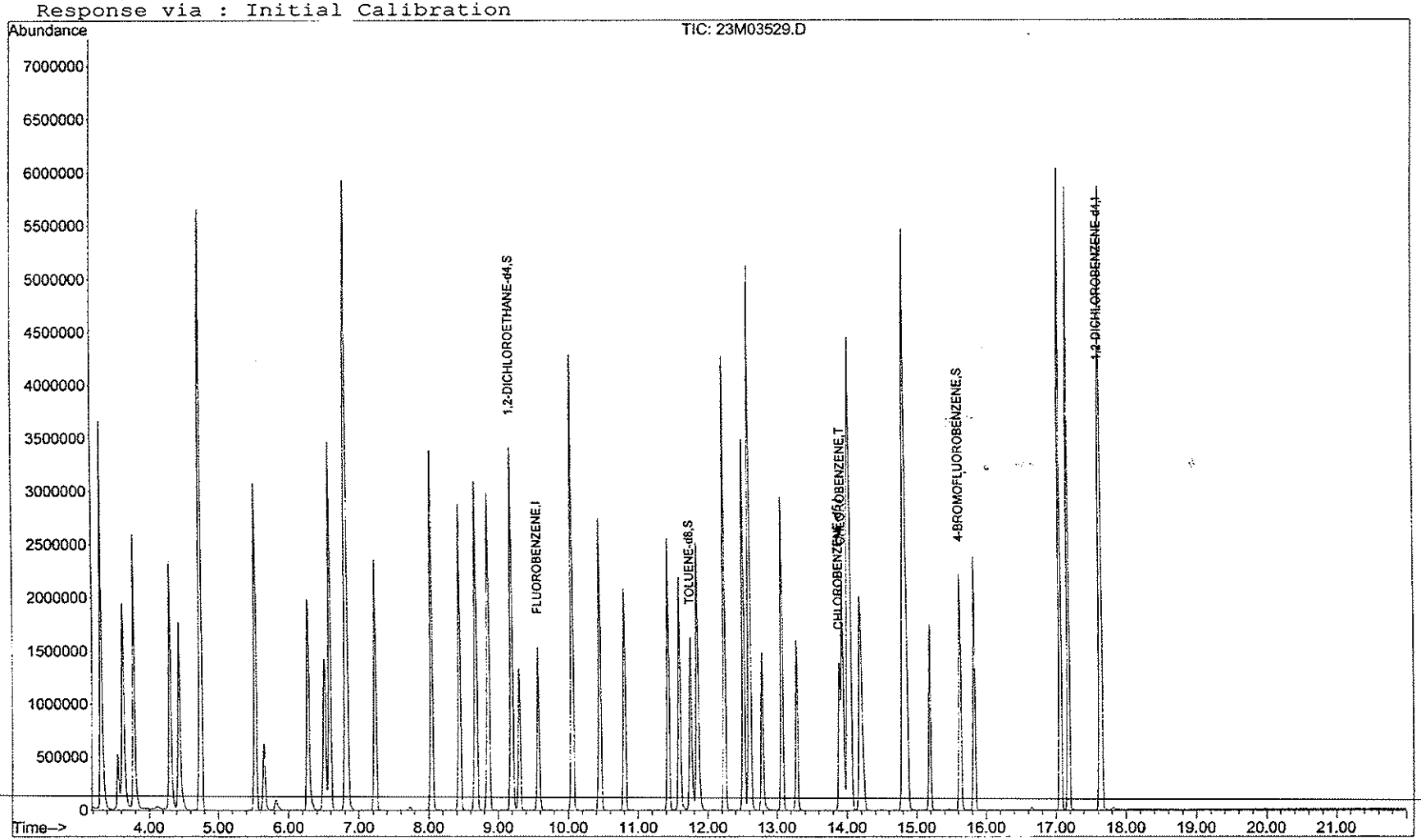
(#) = qualifier out of range (m) = manual integration (+) = signals summed
23M03529.D VOST1.M Thu Jun 17 08:22:37 2010 Page 1

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03529.D
Acq On : 15 Jun 2010 7:50 pm
Sample : :REF STD
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jun 17 8:16 2010

Vial: 25
Operator: AGE
Inst : MSD23
Multiplr: 1.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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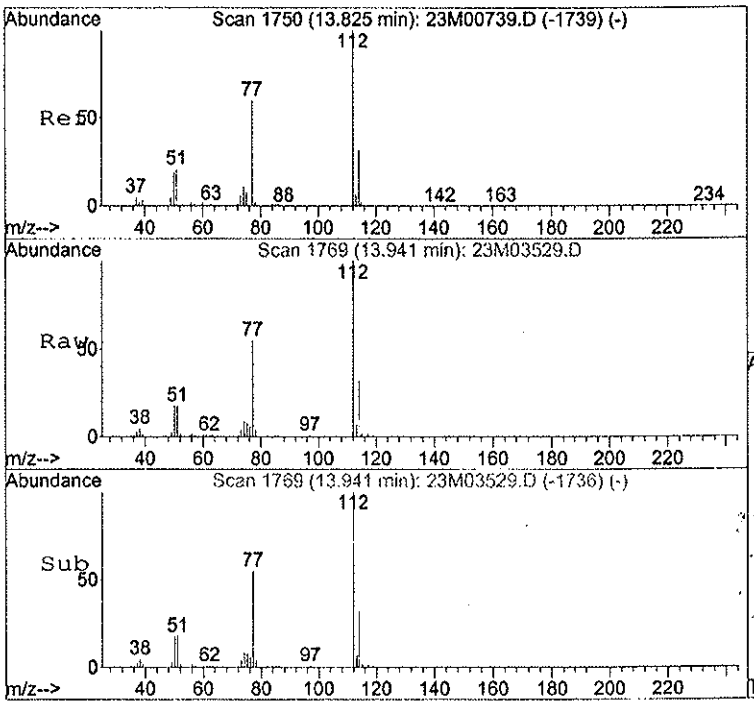
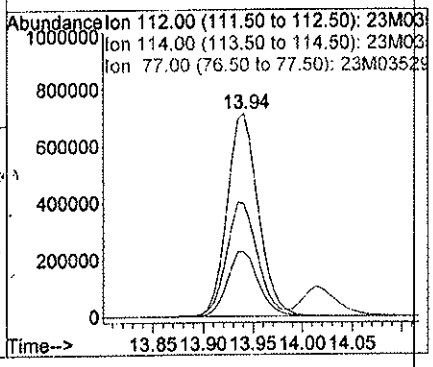


#5
CHLOROBENZENE
Concen: 107.84 ng
RT: 13.94 min Scan# 1769
Delta R.T. -0.00 min
Lab File: 23M03529.D
Acq: 15 Jun 2010 7:50 pm

Tgt Ion:112 Resp: 1563261

Ion	Ratio	Lower	Upper
112	100		
114	32.2	12.5	52.5
77	56.7	36.4	76.4



Maxxam Analytics

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5.2 QA/QC Data

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Injection Log: T:\23M10JUN15\

Vial	File Name	Sample Name	DF	Misc Info	Injected On	Calibrated On
1	23M03505.D	:CLNUP	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 9:06	14-Jun-10 13:07
2	23M03506.D	:BFB	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 9:33	14-Jun-10 13:07
3	23M03507.D	:CAL STD	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 10:00	14-Jun-10 13:07
4	23M03508.D	:REF STD	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 10:26	14-Jun-10 13:07
5	23M03509.D	:CLNUP	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 10:53	14-Jun-10 13:07
6	23M03510.D	:BLANK	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 11:20	14-Jun-10 13:07
7	23M03511.D	2175128:gc8403-01	20	AGE 10C05-1/10QV07-1 S#1 DF=20	15-Jun-10 11:47	14-Jun-10 13:07
8	23M03512.D	2175128:gc8387-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 12:14	14-Jun-10 13:07
9	23M03513.D	2175128:gc8388-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 12:41	14-Jun-10 13:07
10	23M03514.D	2175128:gc8389-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 13:07	14-Jun-10 13:07
11	23M03515.D	2175128:gc8390-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 13:34	14-Jun-10 13:07
12	23M03516.D	2175128:gc8391-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 14:01	14-Jun-10 13:07
13	23M03517.D	2175128:gc8392-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 14:28	14-Jun-10 13:07
14	23M03518.D	2175128:gc8403-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 14:55	14-Jun-10 13:07
15	23M03519.D	:CLNUP	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 15:22	14-Jun-10 13:07
16	23M03520.D	2176828:gd5837-01	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 15:48	14-Jun-10 13:07
17	23M03521.D	2176828:gd4759-01	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 16:15	14-Jun-10 13:07
18	23M03522.D	2176828:gd4759-01:D1	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 16:42	14-Jun-10 13:07
19	23M03523.D	2176828:gd5577-01	2.5	AGE 10C05-1/10QV07-1 S#1 DF=2.5	15-Jun-10 17:09	14-Jun-10 13:07
20	23M03524.D	2176828:gd3170-06	10	AGE 10C05-1/10QV07-1 S#1 DF=10	15-Jun-10 17:36	14-Jun-10 13:07
21	23M03525.D	2176828:MTRX SPK	1	AGE 10C05-1/10QV07-1 S#1 DF=1gd5837-01	15-Jun-10 18:03	14-Jun-10 13:07
22	23M03526.D	:CLNUP	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 18:30	14-Jun-10 13:07
23	23M03527.D	2177992:blank	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 18:56	14-Jun-10 13:07
24	23M03528.D	:CAL STD	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 19:23	14-Jun-10 13:07
25	23M03529.D	2177992:spike	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 19:50	14-Jun-10 13:07
26	23M03530.D	2177992:spike(WTR-X)	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 20:17	14-Jun-10 13:07
27	23M03531.D	2177992:MTRX SPK	1	AGE 10C05-1/10QV07-1 S#1 DF=1gd3214-01	15-Jun-10 20:44	14-Jun-10 13:07
28	23M03532.D	2177992:MTRX SPK(WTR-	1	AGE 10C05-1/10QV07-1 S#1 DF=1gd3220-01	15-Jun-10 21:11	14-Jun-10 13:07
29	23M03533.D	:CLNUP	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 21:37	14-Jun-10 13:07
30	23M03534.D	2177992:gd3206-01	5	AGE 10C05-1/10QV07-1 S#1 DF=5	15-Jun-10 22:04	14-Jun-10 13:07
31	23M03535.D	2177992:gd3207-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	15-Jun-10 22:31	14-Jun-10 13:07
32	23M03536.D	2177992:gd3208-01	5	AGE 10C05-1/10QV07-1 S#1 DF=5	15-Jun-10 22:58	14-Jun-10 13:07
33	23M03537.D	2177992:gd3209-01	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 23:25	14-Jun-10 13:07
34	23M03538.D	2177992:gd3210-01	1	AGE 10C05-1/10QV07-1 S#1 DF=1	15-Jun-10 23:52	14-Jun-10 13:07
35	23M03539.D	2177992:gd3211-01	1	AGE 10C05-1/10QV07-1 S#1 DF=1	16-Jun-10 0:18	14-Jun-10 13:07
36	23M03540.D	2177992:gd3212-01	2	AGE 10C05-1/10QV07-1 S#1 DF=2	16-Jun-10 0:45	14-Jun-10 13:07
37	23M03541.D	2177992:gd3213-01	5	AGE 10C05-1/10QV07-1 S#1 DF=1	16-Jun-10 1:12	14-Jun-10 13:07
38	23M03542.D	2177992:gd3214-01	1	AGE 10C05-1/10QV07-1 S#1 DF=1	16-Jun-10 1:39	14-Jun-10 13:07
39	23M03543.D	2177992:gd3215-01	25	AGE 10C05-1/10QV07-1 S#1 DF=25	16-Jun-10 2:06	14-Jun-10 13:07
40	23M03544.D	2177992:gd3216-01	10	AGE 10C05-1/10QV07-1 S#1 DF=10	16-Jun-10 2:32	14-Jun-10 13:07
41	23M03545.D	2177992:gd3217-01	10	AGE 10C05-1/10QV07-1 S#1 DF=10	16-Jun-10 2:59	14-Jun-10 13:07
42	23M03546.D	2177992:gd3217-01:D1	10	AGE 10C05-1/10QV07-1 S#1 DF=10	16-Jun-10 3:26	14-Jun-10 13:07
43	23M03547.D	2177992:gd3218-01	5	AGE 10C05-1/10QV07-1 S#1 DF=5	16-Jun-10 3:53	14-Jun-10 13:07
44	23M03548.D	2177992:gd3219-01	10	AGE 10C05-1/10QV07-1 S#1 DF=10	16-Jun-10 4:20	14-Jun-10 13:07
45	23M03549.D	2177992:gd3220-01	1	AGE 10C05-1/10QV07-1 S#1 DF=1	16-Jun-10 4:47	14-Jun-10 13:07
46	23M03550.D	2177992:gd3221-01	25	AGE 10C05-1/10QV07-1 S#1 DF=25	16-Jun-10 5:13	14-Jun-10 13:07

Multipoint: [1]23M03456.D (Jun 14 10:31:49 2010) [2]23M03457.D (Jun 14 10:47:30 2010) [3]23M03458.D (Jun 14 11:17:04 2010) [4]23M03459.D (Jun 14 11:43:42 2010) [5]23M03460.D (Jun 14 12:08:12 2010) [6]23M03461.D (Jun 14 13:03:52 2010)

VOC Department Data Review Checklist - Water

Worksheet Number: 2175128 Testcode: VOCCOND-W

	Analyst Data Review Checklist	Yes	No	Comments
1	Copy of worksheet sample list with client names, job remarks and required parameters included with file	✓		
2	Sequence injection log(s) present with calibration update appropriate for all entries	✓		
3	BFB passes criteria	✓		
4	Internal standard area counts & retention times pass criteria	✓		
5	Control Charts updated, results within statistical control	✓		
6	Initial/Opening Continuing calibration passes response criteria	✓		
7	Closing Continuing calibration passes response criteria	✓		
8	ID No.of Cal & Reference Stds indicated in file header	✓		
9	Method Blank acceptable	✓		
10	Blank Spike meet LIMS criteria	✓		
11	Matrix Spike recoveries acceptable	NA		
12	Duplicate precision acceptable	N/A		
13	Surrogate recoveries within control limits for all samples & QC runs	✓		
14	Dilutions for all samples appropriate for calibration range	✓		
15	All chromatograms examined for overloaded peaks, false negatives, abnormal behavior, matrix problems	✓		
16	Each positive analyte checked for correct retention time and ion ratios	✓		
17	All manually integrated peaks - hardcopy with signature	✓		
18	Sample runs checked for possible carry over	✓		
19	Sample analyses meet hold time criteria	✓		
20	Checked for client specific requests	✓		
21	Each sample report Qedited & Summary Report generated	✓		
22	Each sample report & chromatogram initialled by analyst	✓		

Reviewed by: AGE Date: 2010-06-17

Comments:

	Worksheet Data Approval Checklist	Yes	No	Comments
1	Hardcopy worksheet and cross-check with custom report printout values	✓		
2	Hardcopy of worksheet comments appropriate and complete	✓		
3	Confirmed that DQW is not required	✓		

Reviewed by: AGE Date: 2010-06-17

Comments:

	Worksheet Validation Checklist	Yes	No	Comments
1	Cross-check worksheet results with original data	✓		
2	Check all comments entered in LIMS for suitability and completeness	✓		
3	Check performed for drinking water exceedances	N/A		

Reviewed by: S. Mellory Date: Jun 22/10

Comments:

Worksheet Number: 2175128

VOST Condensate (8260Cmod) - Water
(ug/L)

Parameter Name	Units	SPIKE	DL	BLANK	DL	B073313 GC8387	B073313 GC8388	B073313 GC8389
Acrylonitrile	ug/L	N/A*******		N/A*******		N/A*******	N/A*******	N/A*******
Xylene (Total)	ug/L	N/A*******		N/A*******		N/A*******	N/A*******	N/A*******
Acrolein	ug/L	N/A*******		N/A*******		N/A*******	N/A*******	N/A*******
Dichlorodifluoromethane (FREON 12)	ug/L	93.54		0.0	1.000000	0.0	0.0	0.0
Chloromethane	ug/L	89.53		0.0	2.000000	0.0	0.0	0.0
Vinyl Chloride	ug/L	90.10		0.0	0.400000	0.0	0.0	0.0
Bromomethane	ug/L	73.48		0.0	3.000000	0.0	0.0	0.0
Chloroethane	ug/L	87.81		0.0	1.000000	0.0	0.0	0.0
Trichlorofluoromethane (FREON 11)	ug/L	87.87		0.0	2.000000	0.0	0.0	0.0
Acetone (2-Propanone)	ug/L	91.49		0.0	10.000000	103.676000	76.329600	122.752000
1,1-Dichloroethylene	ug/L	97.94		0.0	1.000000	0.0	0.0	0.0
Methylene Chloride(Dichloromethane)	ug/L	101.63		0.0	1.000000	9.601600	7.212800	8.634400
Methyl t-butyl ether (MTBE)	ug/L	97.88		0.0	2.000000	0.0	0.0	0.0
trans-1,2-Dichloroethylene	ug/L	98.23		0.0	1.000000	0.0	0.0	0.0
1,1-Dichloroethane	ug/L	97.72		0.0	0.400000	0.0	0.0	0.0
Methyl Ethyl Ketone (2-Butanone)	ug/L	103.77		0.0	10.000000	0.0	0.0	0.0
cis-1,2-Dichloroethylene	ug/L	101.06		0.0	1.000000	0.0	0.0	0.0
Chloroform	ug/L	92.64		0.0	0.400000	0.0	0.0	0.0
1,1,1-Trichloroethane	ug/L	92.76		0.0	0.500000	0.0	0.0	0.0
Carbon Tetrachloride	ug/L	97.07		0.0	0.500000	0.0	0.0	0.0
Benzene	ug/L	103.38		0.0	0.500000	0.0	0.0	0.0
1,2-Dichloroethane	ug/L	91.34		0.0	0.500000	0.0	0.0	0.0
Trichloroethylene	ug/L	99.22		0.0	0.500000	0.0	0.0	0.0
1,2-Dichloropropane	ug/L	102.90		0.0	0.500000	0.0	0.0	0.0
Bromodichloromethane	ug/L	95.14		0.0	0.400000	0.0	0.0	0.0
cis-1,3-Dichloropropene	ug/L	94.20		0.0	0.400000	0.0	0.0	0.0
Methyl Isobutyl Ketone	ug/L	102.91		0.0	5.000000	0.0	0.0	0.0
Toluene	ug/L	102.17		0.0	0.500000	11.472000	7.120800	11.922400
trans-1,3-Dichloropropene	ug/L	101.14		0.0	0.600000	0.0	0.0	0.0
1,1,2-Trichloroethane	ug/L	96.60		0.0	0.500000	0.0	0.0	0.0
Tetrachloroethylene	ug/L	100.06		0.0	0.500000	0.0	0.0	0.0
Dibromochloromethane	ug/L	96.78		0.0	0.400000	0.0	0.0	0.0
Ethylene Dibromide	ug/L	103.62		0.0	0.500000	0.0	0.0	0.0
Chlorobenzene	ug/L	101.97		0.0	0.500000	0.0	0.0	0.0
Ethylbenzene	ug/L	106.09		0.0	0.500000	0.0	0.0	0.0
1,1,1,2-Tetrachloroethane	ug/L	97.60		0.0	0.500000	0.0	0.0	0.0
p+m-Xylene	ug/L	107.70		0.0	0.500000	0.0	0.0	0.0
o-Xylene	ug/L	94.81		0.0	0.500000	0.0	0.0	0.0
Styrene	ug/L	95.15		0.0	0.500000	0.0	0.0	0.0
Bromoform	ug/L	86.29		0.0	0.400000	0.0	0.0	0.0
1,1,2,2-Tetrachloroethane	ug/L	100.42		0.0	2.000000	0.0	0.0	0.0
1,3-Dichlorobenzene	ug/L	107.43		0.0	0.500000	0.0	0.0	0.0
1,4-Dichlorobenzene	ug/L	108.95		0.0	0.500000	0.0	0.0	0.0
1,2-Dichlorobenzene	ug/L	102.77		0.0	0.500000	0.0	0.0	0.0
Iodomethane	ug/L	N/A*******		N/A*******		N/A*******	N/A*******	N/A*******
Carbon Disulfide	ug/L	N/A*******		N/A*******		N/A*******	N/A*******	N/A*******
Dibromomethane	ug/L	N/A*******		N/A*******		N/A*******	N/A*******	N/A*******
1,2,3-Trichloropropane	ug/L	N/A*******		N/A*******		N/A*******	N/A*******	N/A*******
Methyl Butyl Ketone (2-Hexanone)	ug/L	N/A		0.0	5.000000	0.0	0.0	0.0
4-Bromofluorobenzene	ug/L	99		93		94	92	93
D4-1,2-Dichloroethane	ug/L	88		91		94	94	94
D8-Toluene	ug/L	99.96		96.60		96.28	98.90	97.90

20100602

Worksheet Number: 2175128 Contd....

	B073313	B073313	B073313	B073313				
Parameter Name	GC8390	GC8391	GC8392	GC8403	DL	RDL	MDL	IDL
Acrylonitrile	N/A*******	N/A*******	N/A*******	N/A*******	5	5	0	0
Xylene (Total)	N/A*******	N/A*******	N/A*******	N/A*******	0.5	0.5	0	0.5
Acrolein	N/A*******	N/A*******	N/A*******	N/A*******	10	10	0	0
Dichlorodifluoromethane (FREON 12)	0.0	0.0	0.0	0.0	2.000000	1	0.2	0
Chloromethane	0.0	0.0	0.0	0.0	4.000000	2	0.4	0
Vinyl Chloride	0.0	0.0	0.0	0.0	0.800000	0.4	0.1	0.4
Bromomethane	0.0	0.0	0.0	0.0	6.000000	3	0.6	0
Chloroethane	0.0	0.0	0.0	0.0	2.000000	1	0.2	0
Trichlorofluoromethane (FREON 11)	0.0	0.0	0.0	0.0	4.000000	2	0.4	0
Acetone (2-Propanone)	80.464800	47.944000	26.693600	3932.467	20.000000	15	3	10
1,1-Dichloroethylene	0.0	0.0	0.0	0.0	2.000000	0.5	0.1	1
Methylene Chloride(Dichloromethane)	8.160800	7.382400	6.708800	8.189600	2.000000	1	0.2	0
Methyl t-butyl ether (MTBE)	0.0	0.0	0.0	0.0	4.000000	2	0	0
trans-1,2-Dichloroethylene	0.0	0.0	0.0	0.0	2.000000	1	0.2	0
1,1-Dichloroethane	0.0	0.0	0.0	0.0	0.800000	0.4	0.1	0
Methyl Ethyl Ketone (2-Butanone)	0.0	0.0	0.0	0.0	20.000000	10	2	10
cis-1,2-Dichloroethylene	0.0	0.0	0.0	0.0	2.000000	1	0.2	0
Chloroform	0.0	0.0	0.0	0.0	0.800000	0.4	0.1	0.4
1,1,1-Trichloroethane	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Carbon Tetrachloride	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Benzene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
1,2-Dichloroethane	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Trichloroethylene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
1,2-Dichloropropane	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Bromodichloromethane	0.0	0.0	0.0	0.0	0.800000	0.4	0.1	0.4
cis-1,3-Dichloropropene	0.0	0.0	0.0	0.0	0.800000	0.4	0.1	0
Methyl Isobutyl Ketone	0.0	0.0	0.0	0.0	10.000000	10	2	5
Toluene	9.883200	3.628800	2.270400	8.069600	1.000000	0.5	0.1	0
trans-1,3-Dichloropropene	0.0	0.0	0.0	0.0	1.200000	0.6	0.1	0
1,1,2-Trichloroethane	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Tetrachloroethylene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Dibromochloromethane	0.0	0.0	0.0	0.0	0.800000	0.4	0.1	0.4
Ethylene Dibromide	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0.5
Chlorobenzene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Ethylbenzene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
1,1,1,2-Tetrachloroethane	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0.5
p+m-Xylene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
o-Xylene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Styrene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Bromoform	0.0	0.0	0.0	0.0	0.800000	0.4	0.1	0.4
1,1,2,2-Tetrachloroethane	0.0	0.0	0.0	0.0	4.000000	1	0.2	2
1,3-Dichlorobenzene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
1,4-Dichlorobenzene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
1,2-Dichlorobenzene	0.0	0.0	0.0	0.0	1.000000	0.5	0.1	0
Iodomethane	N/A*******	N/A*******	N/A*******	N/A*******	0.6	0.6	0.1	0
Carbon Disulfide	N/A*******	N/A*******	N/A*******	N/A*******	0.5	0.5	0.1	0
Dibromomethane	N/A*******	N/A*******	N/A*******	N/A*******	0.5	0.5	0.1	0
1,2,3-Trichloropropane	N/A*******	N/A*******	N/A*******	N/A*******	0.6	0.6	0.1	0
Methyl Butyl Ketone (2-Hexanone)	0.0	0.0	0.0	0.0	10.000000	10	2	5
4-Bromofluorobenzene	93	95	94	95		0		0
D4-1,2-Dichloroethane	96	96	97	98		0		0
D8-Toluene	98.46	100.70	100.11	99.46		0		0

B073313 Worksheets
(Alliance Source Testing, LLC)

Sample on Hold (HOLD)

Ws# 2172551
GC8243-01
GC8247-01
GC8251-01
GC8255-01
GC8378-01

Ws# 2173526
GC8382-01
GC8386-01

VOST Condensate (8260Cmod) (VOCCOND-W)

Ws# 2175128 ✓ 218157 +6 pt
GC8387-01
GC8388-01
GC8389-01 Run June 15 1MSD23
GC8390-01
GC8391-01
GC8392-01
GC8403-01

VOST Analysis (5041mod) (VOCVOSTM-A)

Ws# 2175592
GC8242-01
GC8248-01
GC8252-01
GC8379-01
GC8383-01
GC8401-01

Ws# 2176427
GC8244-01
GC8375-01
GC8397-01

Ws# 2176679
GC8246-01
GC8249-01
GC8250-01
GC8253-01
GC8254-01
GC8380-01
GC8381-01

Ws# 2177204
GC8245-01

Continued...

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03510.D Vial: 6
Acq On : 15 Jun 2010 11:20 am Operator: AGE
Sample : :BLANK Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 15 16:10:36 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1514665	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	965111	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	719241	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1059604	362.34	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 90.58%			
4) TOLUENE-d8	11.75	98	1304360	96.60	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 96.60%			
6) 4-BROMOFLUOROBENZENE	15.62	174	774226	185.22	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 92.61%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed
23M03510.D VOST1.M Thu Jun 17 08:27:04 2010 Page 1

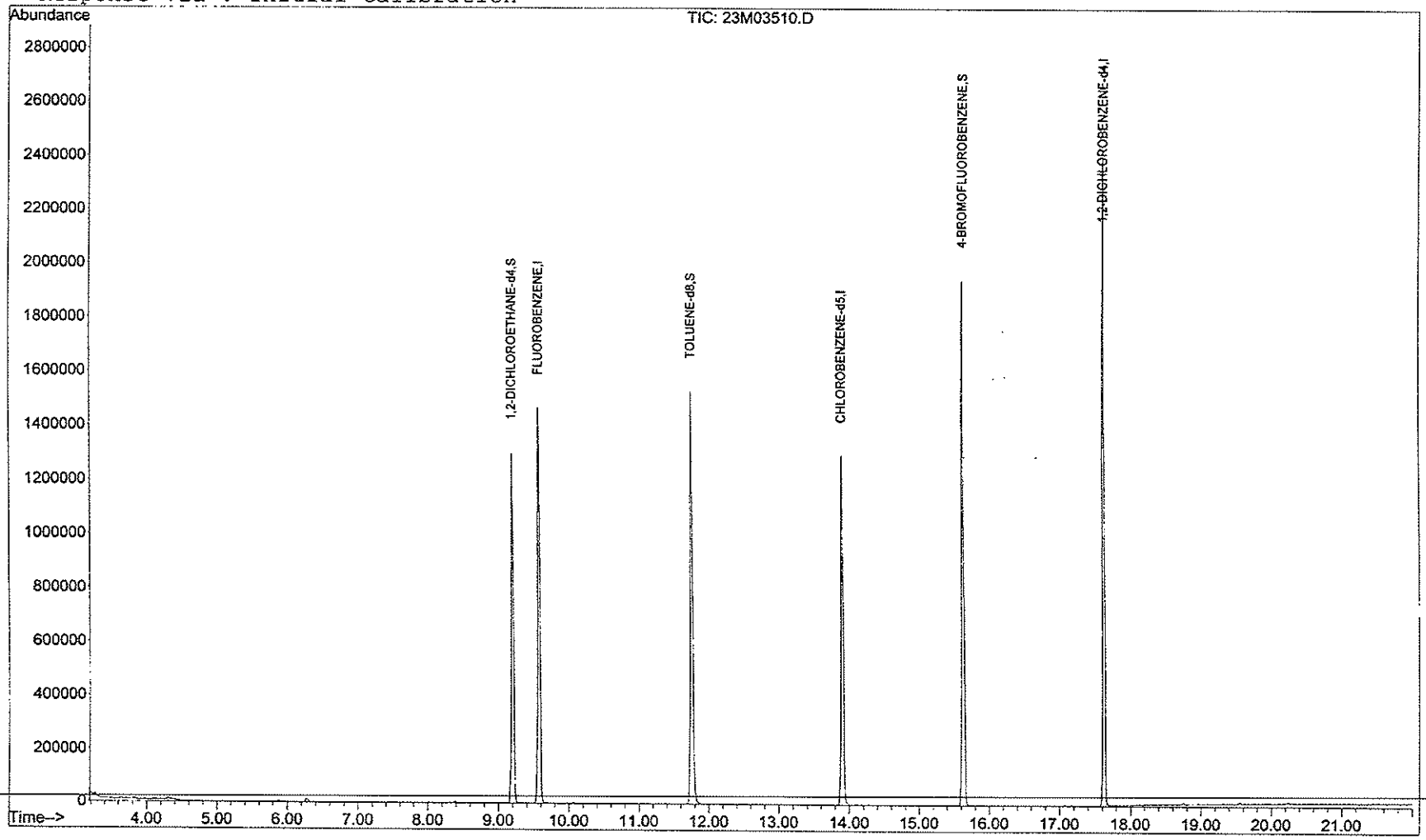
Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03510.D
Acq On : 15 Jun 2010 11:20 am
Sample : :BLANK
Misc : AGE 10C05-1/10QV07-1 S#1 DF=1
MS Integration Params: RTEINT.P
Quant Time: Jun 15 16:10 2010

Vial: 6
Operator: AGE
Inst : MSD23
Multiplr: 1.00

Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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Maxxam Analytics

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5.3 Sample Chromatograms

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03512.D Vial: 8
Acq On : 15 Jun 2010 12:14 pm Operator: AGE
Sample : 2175128:gc8387-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jun 15 16:10:37 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

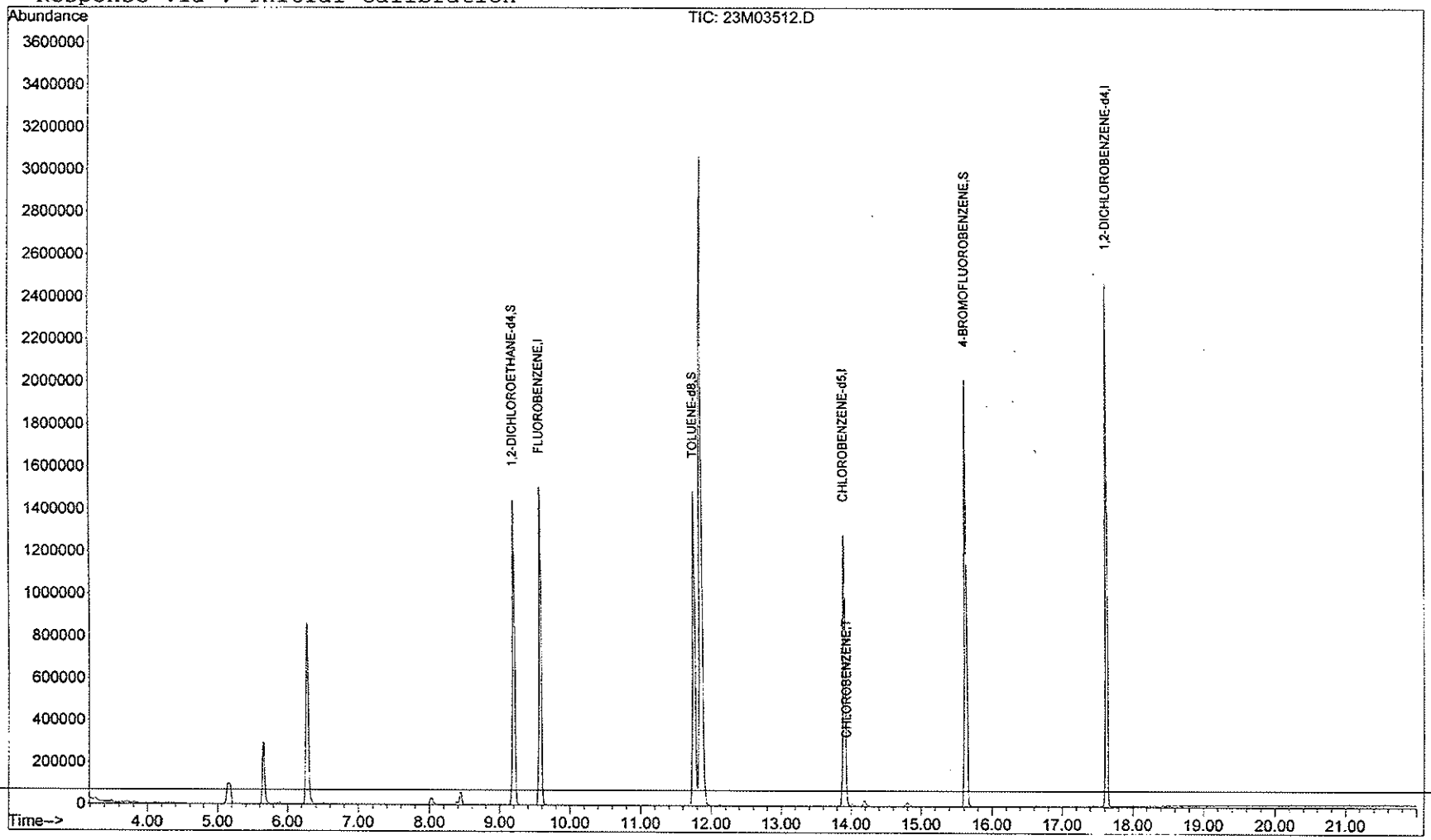
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1521739	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	980979	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	728482	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1104112	375.81	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 93.95%			
4) TOLUENE-d8	11.75	98	1321472	96.28	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 96.28%			
6) 4-BROMOFLUOROBENZENE	15.62	174	800179	188.33	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 94.17%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.93	112	8220	0.59	ng #	48

(#) = qualifier out of range (m) = manual integration (+) = signals summed
23M03512.D VOST1.M Thu Jun 17 08:22:12 2010 Page 1

Quantitation Report (QT Reviewed)

Data File : T:\23M10JUN15\23M03512.D Vial: 8
Acq On : 15 Jun 2010 12:14 pm Operator: AGE
Sample : 2175128:gc8387-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jun 15 16:10 2010 Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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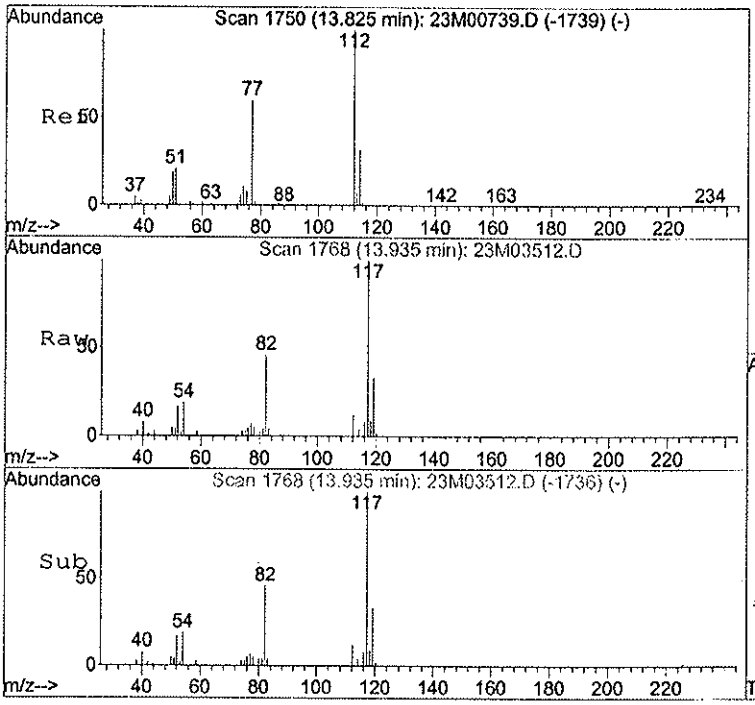
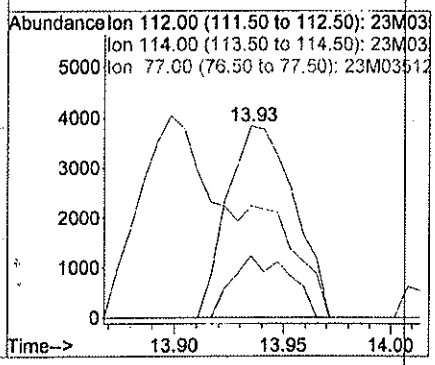


#5
CHLOROBENZENE
Concen: 0.59 ng
RT: 13.93 min Scan# 1768
Delta R.T. -0.01 min
Lab File: 23M03512.D
Acq: 15 Jun 2010 12:14 pm

Tgt Ion:112 Resp: 8220

Ion	Ratio	Lower	Upper
112	100		
114	27.2	12.5	52.5
77	0.0	36.4	76.4#



Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03513.D Vial: 9
Acq On : 15 Jun 2010 12:41 pm Operator: AGE
Sample : 2175128:gc8388-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:50:53 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1623376	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	989154	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	715326	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1172371	374.06	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 93.52%			
4) TOLUENE-d8	11.75	98	1368731	98.90	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 98.90%			
6) 4-BROMOFLUOROBENZENE	15.62	174	790611	184.54	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 92.27%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.93	112	8742	0.63	ng #	49

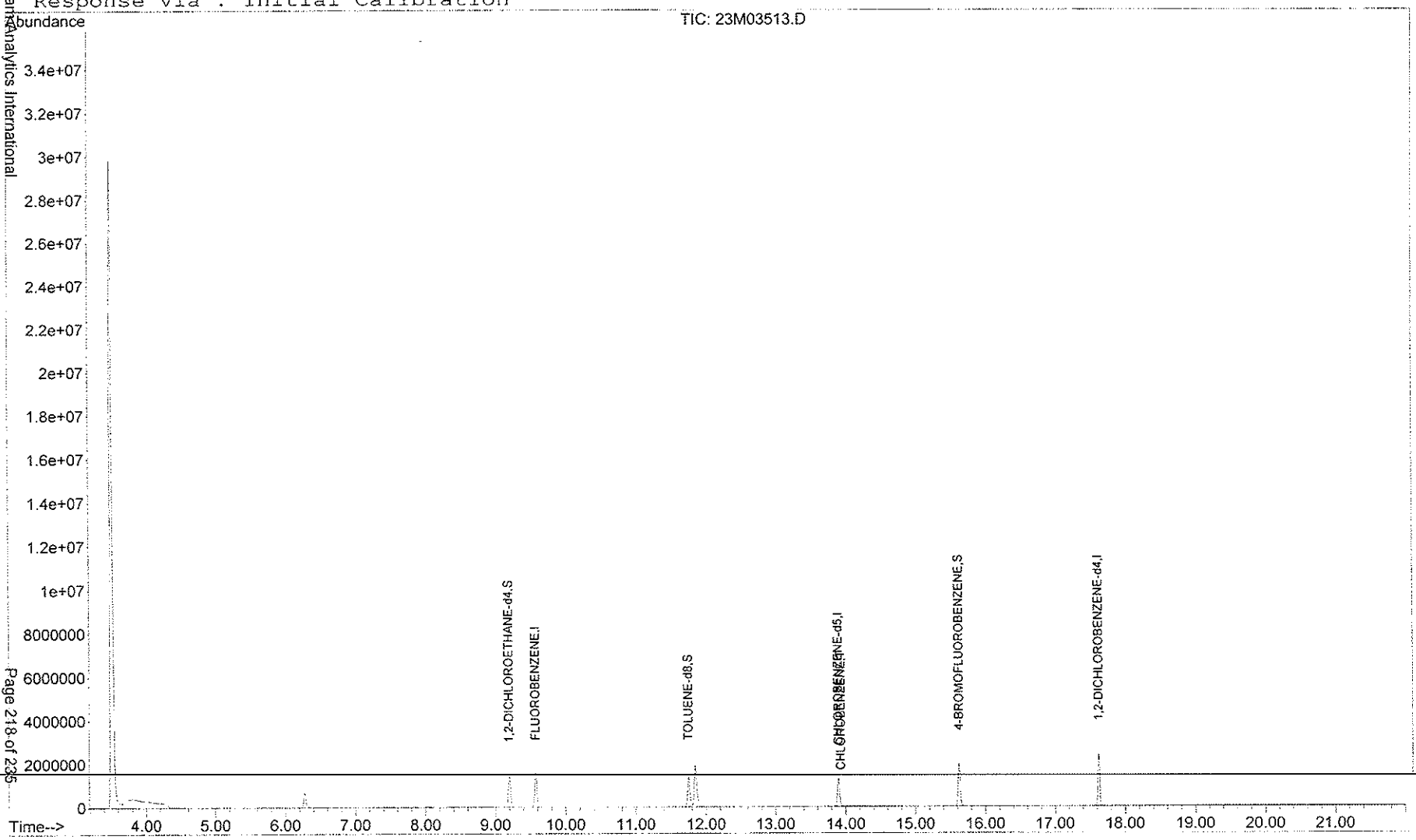
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03513.D
Acq On : 15 Jun 2010 12:41 pm
Sample : 2175128:gc8388-01
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46 2010

Vial: 9
Operator: AGE
Inst : MSD23
Multiplr: 2.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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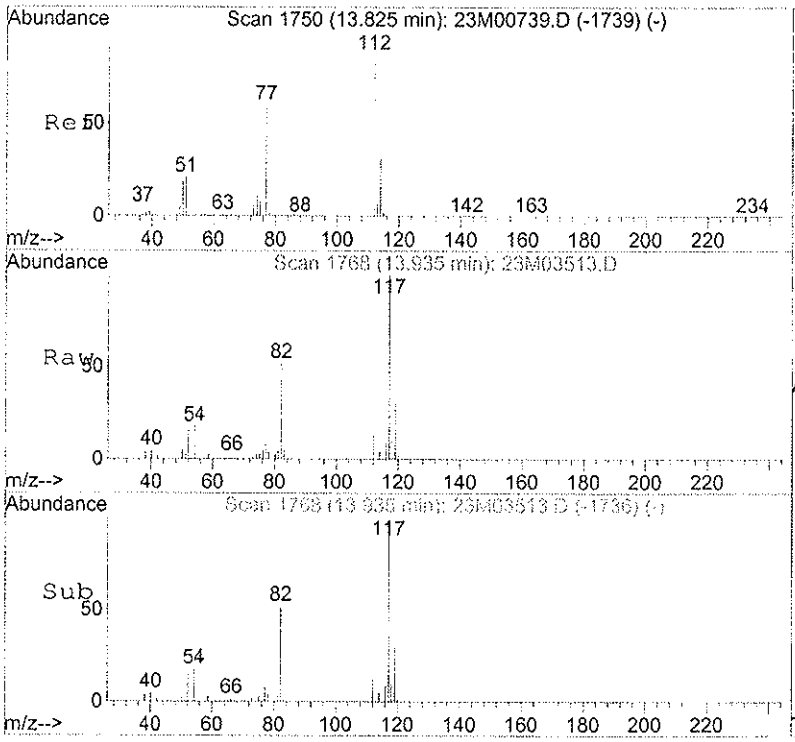
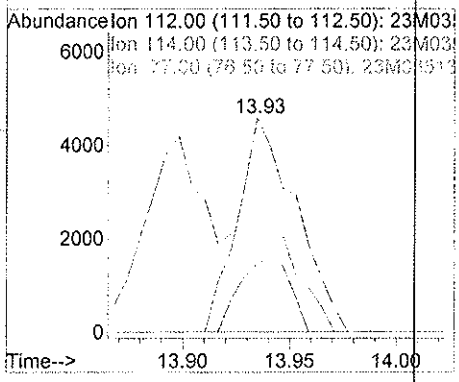


#5
CHLOROBENZENE
Concen: 0.63 ng
RT: 13.93 min Scan# 1768
Delta R.T. -0.01 min
Lab File: 23M03513.D
Acq: 15 Jun 2010 12:41 pm

Tgt Ion:112 Resp: 8742

Ion	Ratio	Lower	Upper
112	100		
114	29.6	12.5	52.5
77	0.0	36.4	76.4#



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Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03514.D Vial: 10
Acq On : 15 Jun 2010 1:07 pm Operator: AGE
Sample : 2175128:gc8389-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:50:54 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

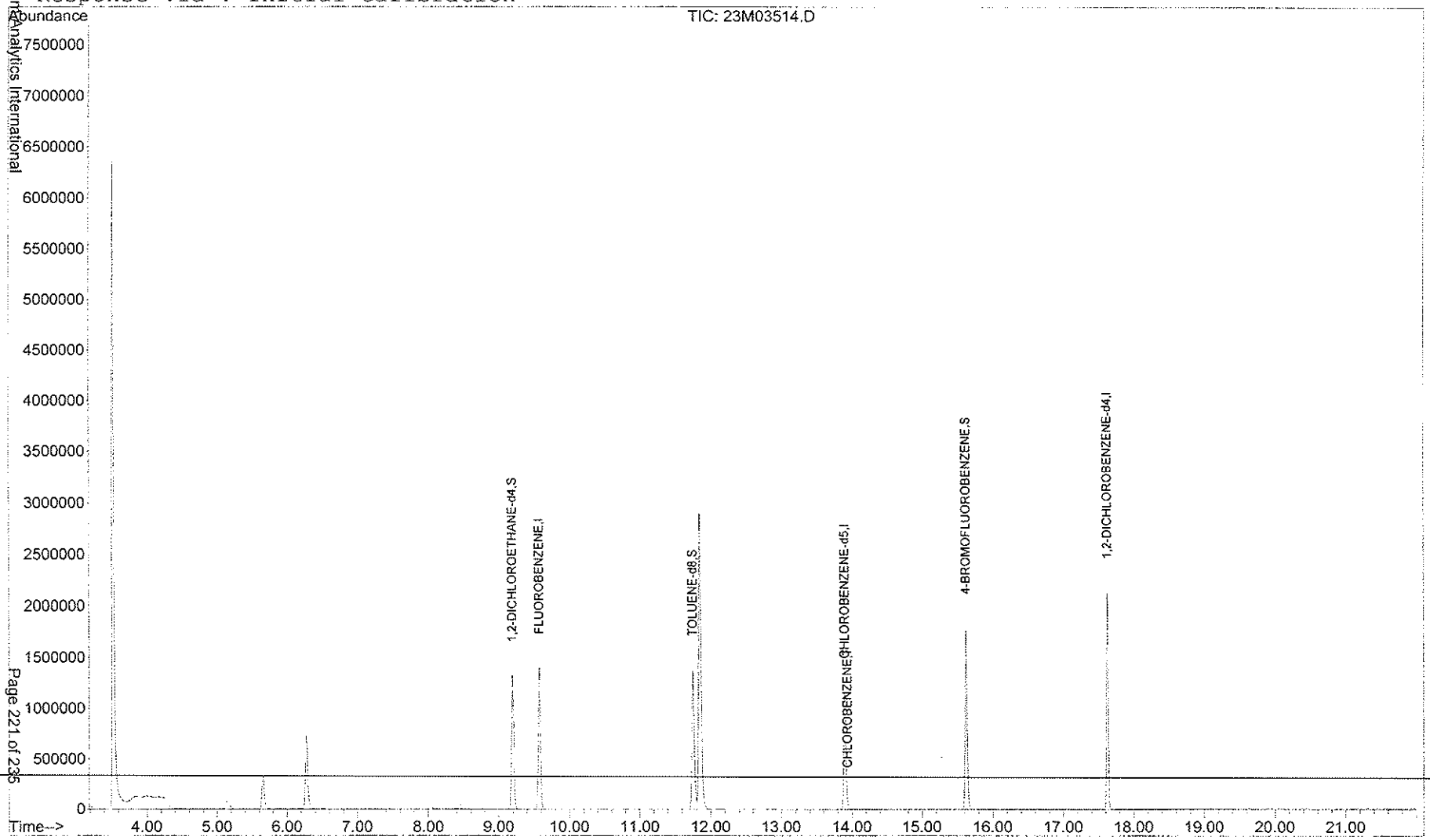
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1425410	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	874299	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	648320	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1039434	377.70	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 94.42%			
4) TOLUENE-d8	11.75	98	1197525	97.90	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 97.90%			
6) 4-BROMOFLUOROBENZENE	15.62	174	706271	186.51	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 93.25%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	10303	0.84	ng #	49

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03514.D Vial: 10
Acq On : 15 Jun 2010 1:07 pm Operator: AGE
Sample : 2175128:gc8389-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46 2010 Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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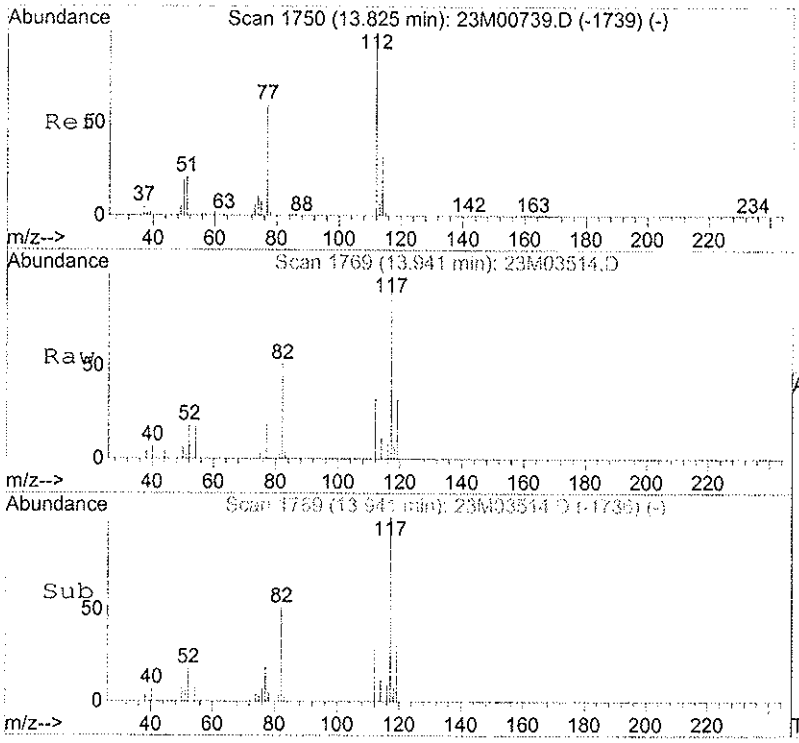
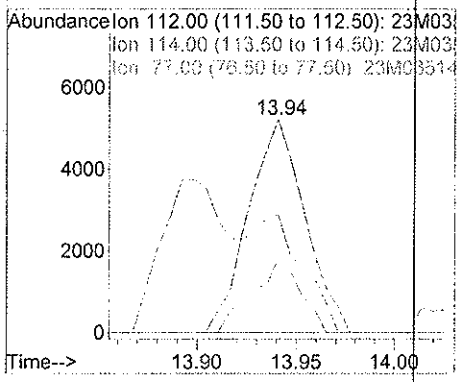


#5
CHLOROBENZENE
Concen: 0.84 ng
RT: 13.94 min Scan# 1769
Delta R.T. 0.00 min
Lab File: 23M03514.D
Acq: 15 Jun 2010 1:07 pm

Tgt Ion:112 Resp: 10303

Ion	Ratio	Lower	Upper
112	100		
114	29.5	12.5	52.5
77	0.0	36.4	76.4#



Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03515.D Vial: 11
Acq On : 15 Jun 2010 1:34 pm Operator: AGE
Sample : 2175128:gc8390-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:50:55 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1410250	100.00 ng	0.00
3) CHLOROBENZENE-d5	13.89	117	876256	100.00 ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	657774	200.00 ng	0.00
System Monitoring Compounds					
2) 1,2-DICHLOROETHANE-d4	9.20	65	1045778	384.09 ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery =	96.02%	
4) TOLUENE-d8	11.75	98	1207075	98.46 ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery =	98.46%	
6) 4-BROMOFLUOROBENZENE	15.62	174	708141	186.59 ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery =	93.30%	
Target Compounds					Qvalue
5) CHLOROBENZENE	13.94	112	14112	1.14 ng	94

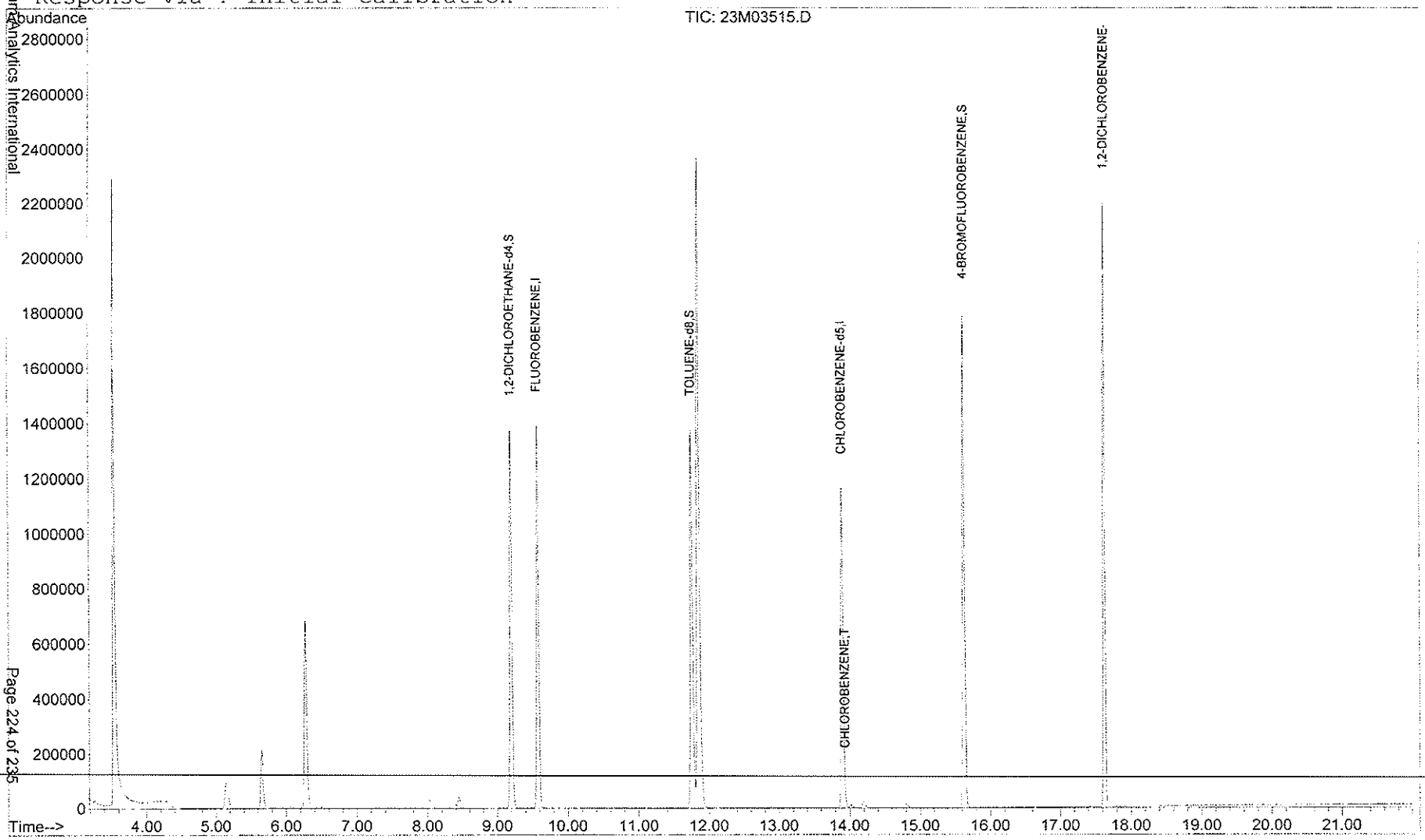
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03515.D
Acq On : 15 Jun 2010 1:34 pm
Sample : 2175128:gc8390-01
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46 2010

Vial: 11
Operator: AGE
Inst : MSD23
Multiplr: 2.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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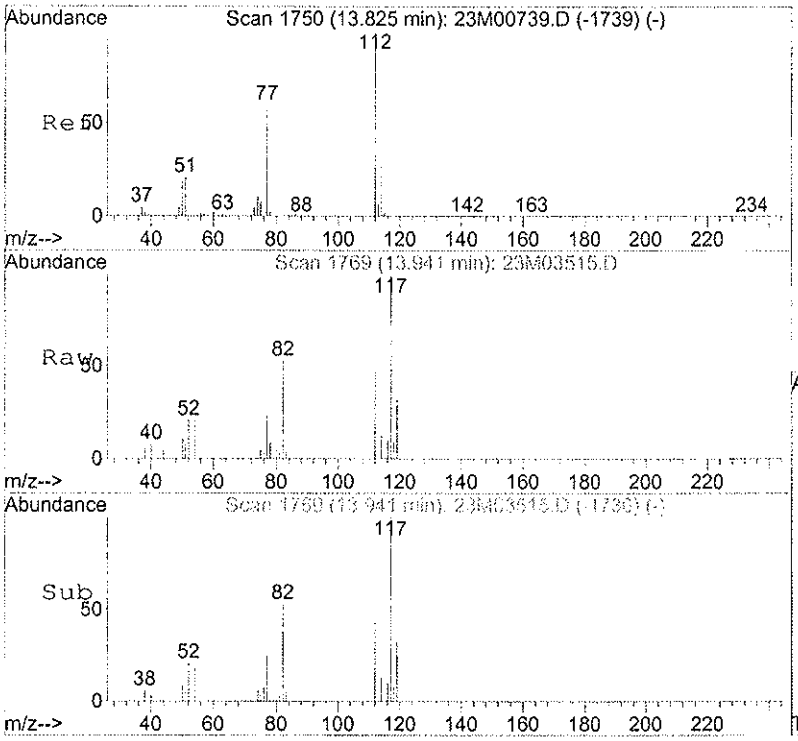
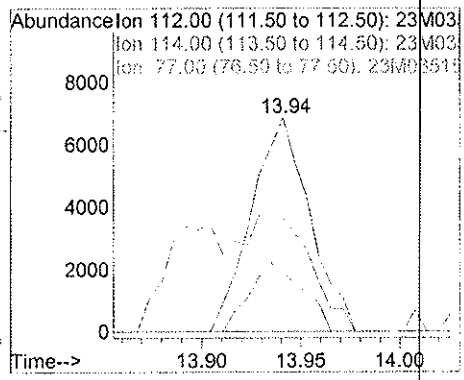


#5
CHLOROBENZENE
Concen: 1.14 ng
RT: 13.94 min Scan# 1769
Delta R.T. 0.00 min
Lab File: 23M03515.D
Acq: 15 Jun 2010 1:34 pm

Tgt Ion:112 Resp: 14112

Ion	Ratio	Lower	Upper
112	100		
114	29.4	12.5	52.5
77	52.3	36.4	76.4



Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03516.D
Acq On : 15 Jun 2010 2:01 pm
Sample : 2175128:gc8391-01
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:50:56 2010

Vial: 12
Operator: AGE
Inst : MSD23
Multiplr: 2.00
Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

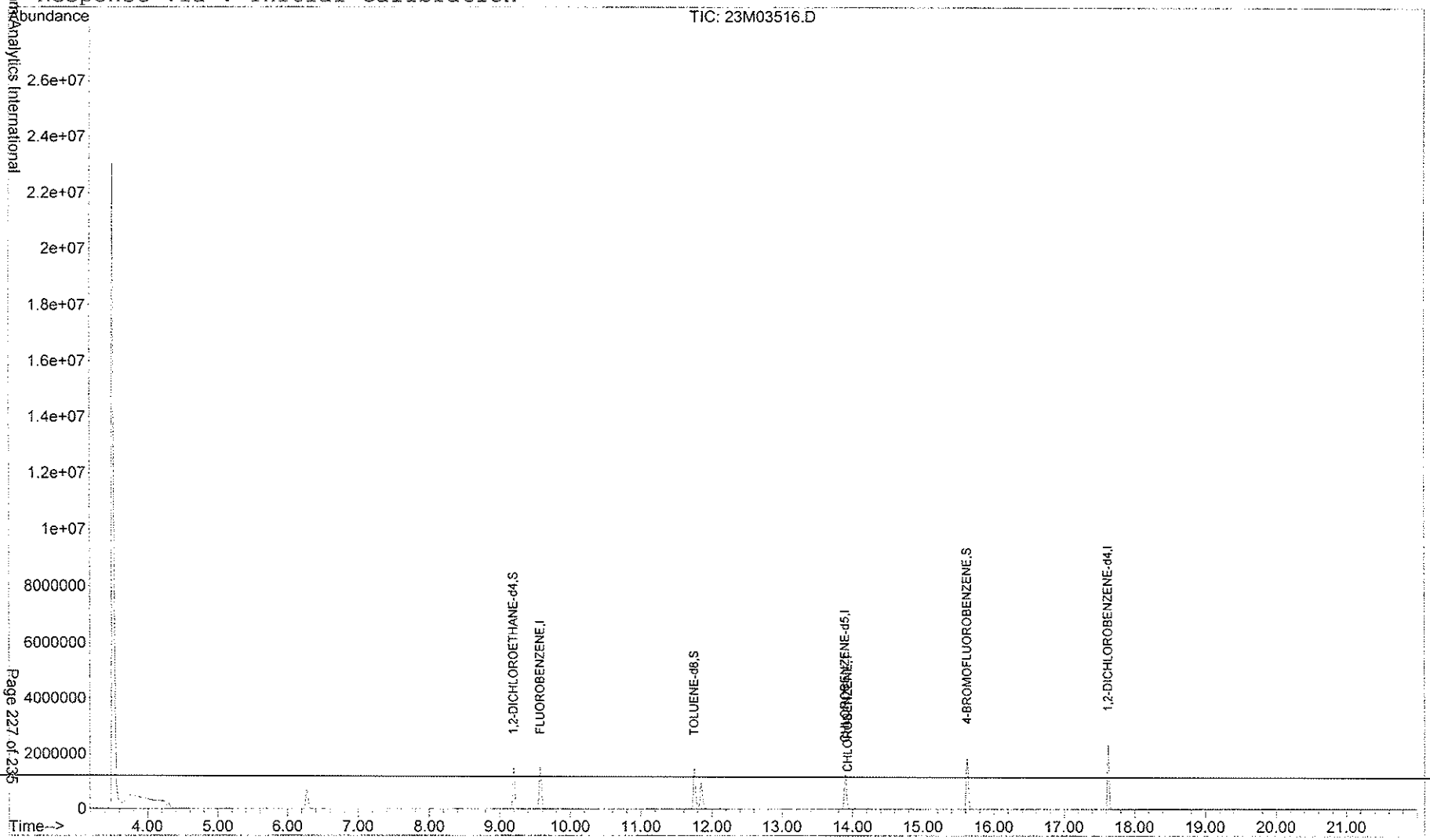
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1532650	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	911994	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	695913	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1139933	385.24	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 96.31%			
4) TOLUENE-d8	11.75	98	1284909	100.70	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 100.70%			
6) 4-BROMOFLUOROBENZENE	15.62	174	754297	190.96	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 95.48%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.93	112	8768	0.68	ng	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03516.D Vial: 12
Acq On : 15 Jun 2010 2:01 pm Operator: AGE
Sample : 2175128:gc8391-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46 2010 Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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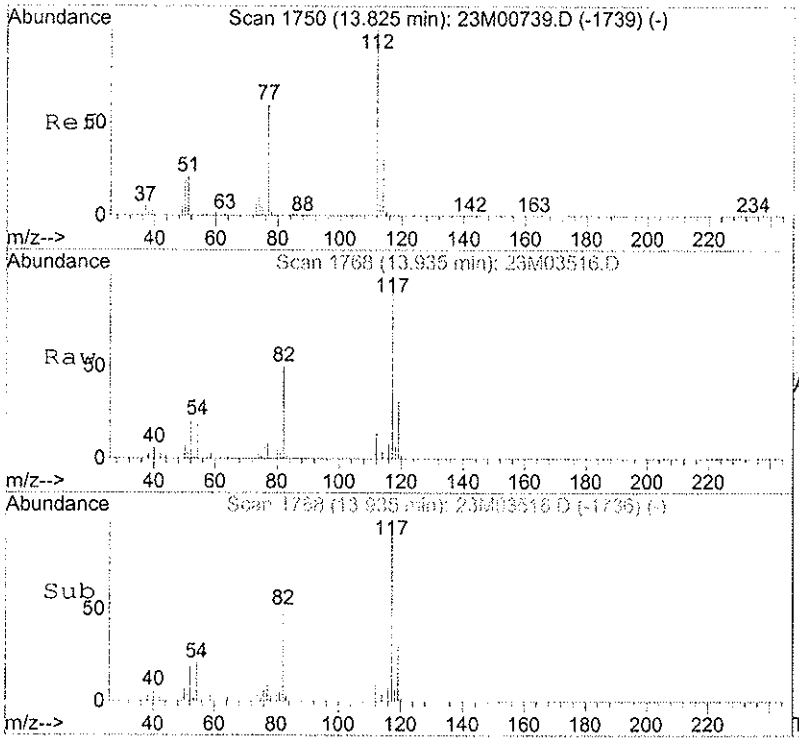
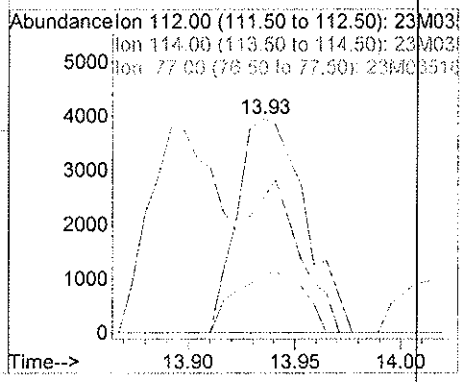


#5
CHLOROBENZENE
Concen: 0.68 ng
RT: 13.93 min Scan# 1768
Delta R.T. -0.01 min
Lab File: 23M03516.D
Acq: 15 Jun 2010 2:01 pm

Tgt Ion:112 Resp: 8768

Ion	Ratio	Lower	Upper
112	100		
114	28.5	12.5	52.5
77	52.1	36.4	76.4



Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03517.D Vial: 13
Acq On : 15 Jun 2010 2:28 pm Operator: AGE
Sample : 2175128:gc8392-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:50:57 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

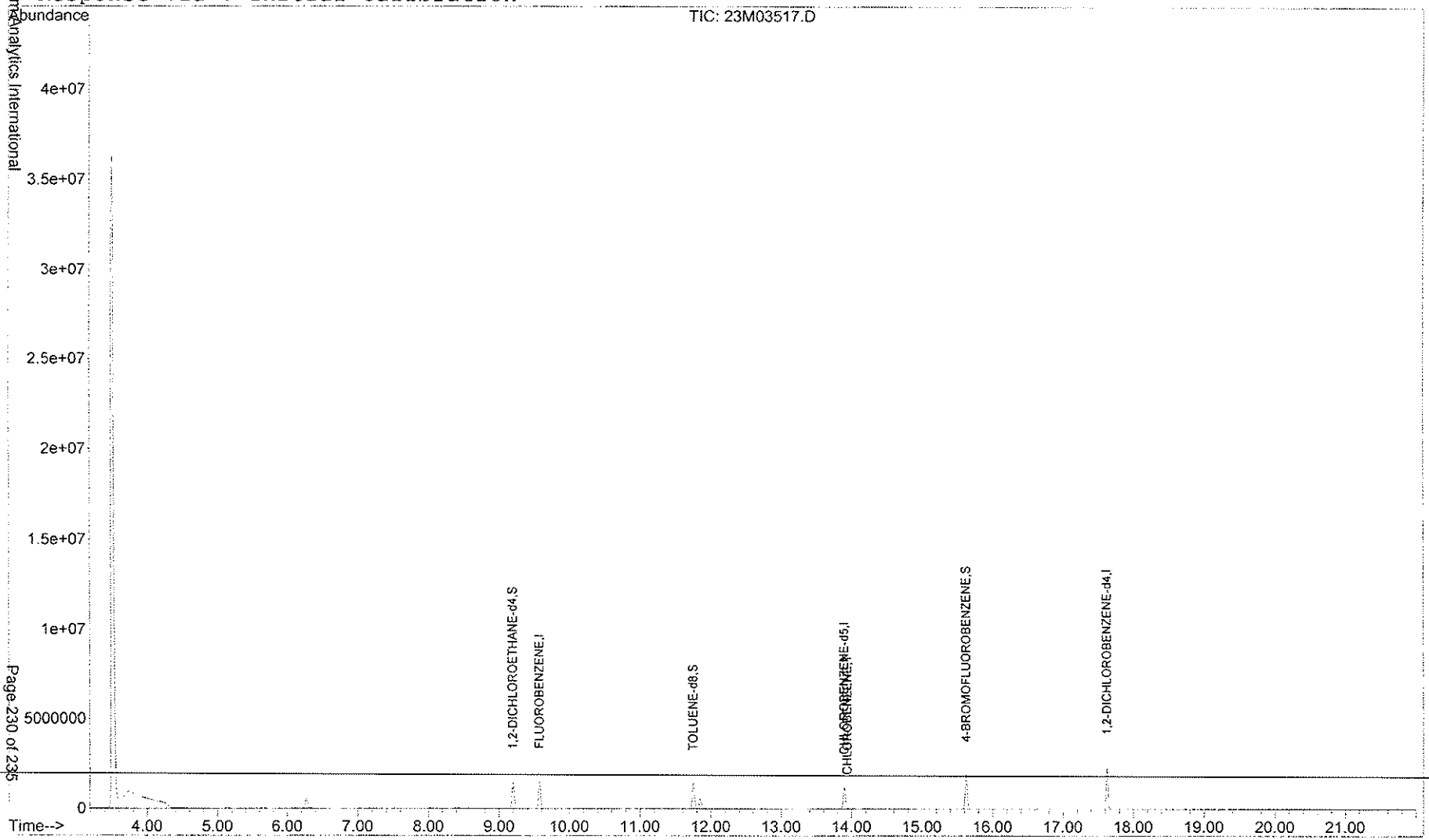
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1519998	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	907178	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	683363	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1135447	386.92	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 96.73%			
4) TOLUENE-d8	11.75	98	1270595	100.11	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 100.11%			
6) 4-BROMOFLUOROBENZENE	15.62	174	737975	187.82	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 93.91%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.95	112	14181	1.11	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

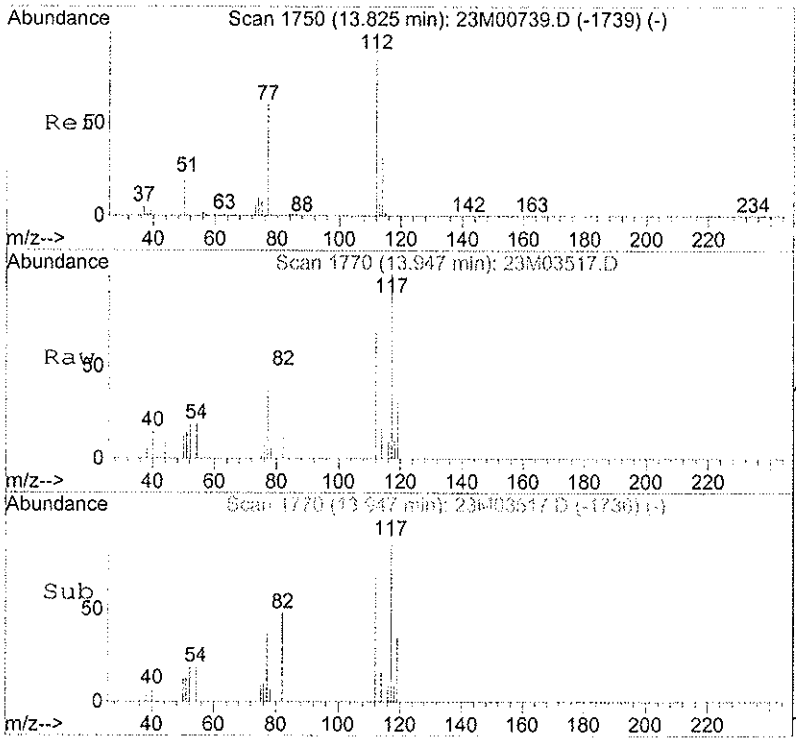
Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03517.D Vial: 13
Acq On : 15 Jun 2010 2:28 pm Operator: AGE
Sample : 2175128:gc8392-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46 2010 Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



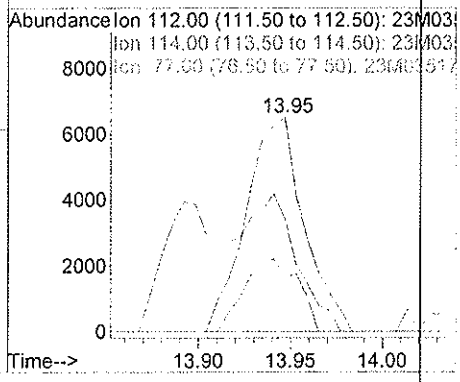
Confidential : Maxxam Analytics International



#5
CHLOROBENZENE
Concen: 1.11 ng
RT: 13.95 min Scan# 1770
Delta R.T. 0.01 min
Lab File: 23M03517.D
Acq: 15 Jun 2010 2:28 pm

Tgt Ion:112 Resp: 14181

Ion	Ratio	Lower	Upper
112	100		
114	31.3	12.5	52.5
77	58.0	36.4	76.4



Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03518.D Vial: 14
Acq On : 15 Jun 2010 2:55 pm Operator: AGE
Sample : 2175128:gc8403-01 Inst : MSD23
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2 Multiplr: 2.00
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:50:58 2010 Quant Results File: VOST1.RES

Quant Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration
DataAcq Meth : VOCWAT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	9.57	96	1366291	100.00	ng	0.00
3) CHLOROBENZENE-d5	13.90	117	814824	100.00	ng	0.00
7) 1,2-DICHLOROBENZENE-d4	17.62	152	605996	200.00	ng	0.00
System Monitoring Compounds						
2) 1,2-DICHLOROETHANE-d4	9.20	65	1032060	391.25	ng	0.00
Spiked Amount 400.000	Range 70 - 130		Recovery = 97.81%			
4) TOLUENE-d8	11.75	98	1133888	99.46	ng	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 99.46%			
6) 4-BROMOFLUOROBENZENE	15.62	174	667966	189.27	ng	0.00
Spiked Amount 200.000	Range 70 - 130		Recovery = 94.64%			
Target Compounds						Qvalue
5) CHLOROBENZENE	13.94	112	18427	1.60	ng	97

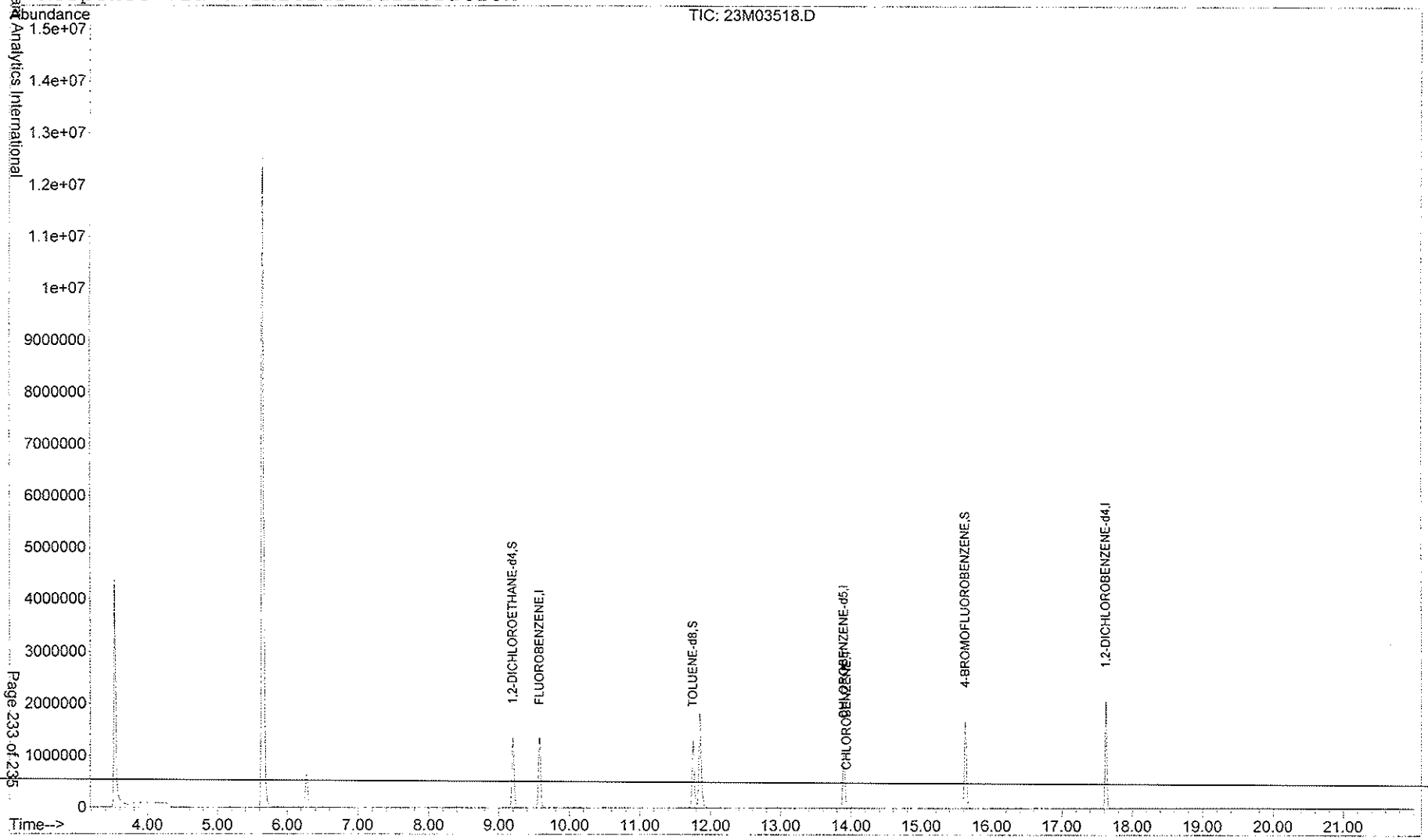
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : T:\DATA\23M10JUN15\23M03518.D
Acq On : 15 Jun 2010 2:55 pm
Sample : 2175128:gc8403-01
Misc : AGE 10C05-1/10QV07-1 S#1 DF=2
MS Integration Params: RTEINT.P
Quant Time: Jul 27 11:46 2010

Vial: 14
Operator: AGE
Inst : MSD23
Multiplr: 2.00
Quant Results File: VOST1.RES

Method : C:\MSDCHEM\1\METHODS\VOST1.M (RTE Integrator)
Title : VOC's IN WATER
Last Update : Mon Jun 14 13:07:15 2010
Response via : Initial Calibration



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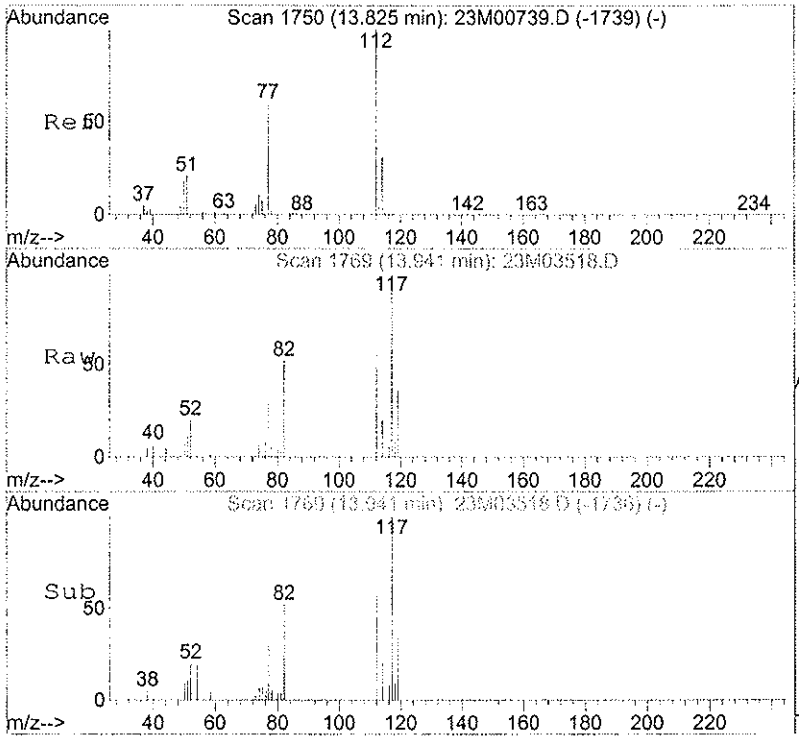
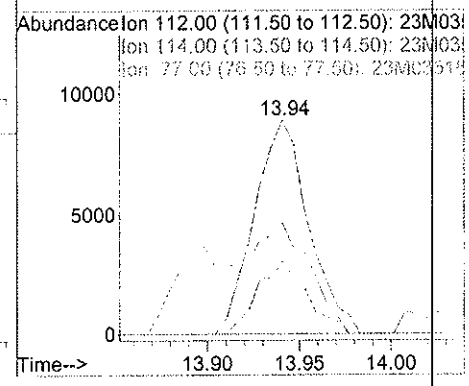


#5
CHLOROBENZENE
Concen: 1.60 ng
RT: 13.94 min Scan# 1769
Delta R.T. -0.00 min
Lab File: 23M03518.D
Acq: 15 Jun 2010 2:55 pm

Tgt Ion:112 Resp: 18427

Ion	Ratio	Lower	Upper
112	100		
114	31.0	12.5	52.5
77	54.0	36.4	76.4



Maxxam Analytics

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Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Your Project #: CPT
Site#: MEDIA PREP
Site:ARKANSAS

Attention: Ryan O'Dea
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/05/25

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B063258
Received: 2010/05/19, 17:17

Sample Matrix: AIR
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
VOST Analysis (5041mod)	1	N/A	2010/05/25	BRL SOP-00302	EPA 5041mod(M0030)

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.

Encryption Key Clayton Johnson
25 May 2010 17:03:03 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CLAYTON JOHNSON, Project Manager
Email: Clayton.Johnson@maxxamanalytics.com
Phone# (905) 817-5769

==========

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Total cover pages: 1

Maxxam Job #: B063258
Report Date: 2010/05/25

Alliance Source Testing, LLC
Client Project #: CPT
Project name: ARKANSAS

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		FX8208		
Sampling Date				
	Units	**VOST Proof #1 - #26**	**RDL**	**QC Batch**
Dichlorodifluoromethane (FREON 12)	ug	0.01 U	0.02	2160116
Chloromethane	ug	0.01 U	0.02	2160116
Vinyl Chloride	ug	0.01 U	0.01	2160116
Bromomethane	ug	0.01 U	0.02	2160116
Chloroethane	ug	0.009 U	0.009	2160116
Trichlorofluoromethane (FREON 11)	ug	0.01 U	0.01	2160116
Acetone (2-Propanone)	ug	0.01 U	0.05	2160116
1,1-Dichloroethylene	ug	0.01 U	0.01	2160116
Iodomethane	ug	0.01 U	0.02	2160116
Carbon Disulfide	ug	0.01 U	0.03	2160116
Methylene Chloride(Dichloromethane)	ug	0.01 U	0.02	2160116
1,1-Dichloroethane	ug	0.01 U	0.01	2160116
trans-1,2-Dichloroethylene	ug	0.01 U	0.01	2160116
cis-1,2-Dichloroethylene	ug	0.01 U	0.01	2160116
Chloroform	ug	0.01 U	0.01	2160116
1,2-Dichloroethane	ug	0.007 U	0.007	2160116
Methyl Ethyl Ketone (2-Butanone)	ug	0.01 U	0.04	2160116
1,1,1-Trichloroethane	ug	0.01 U	0.01	2160116
Carbon Tetrachloride	ug	0.01 U	0.02	2160116
Benzene	ug	0.009 U	0.009	2160116
1,1,2-Trichloroethane	ug	0.01 U	0.02	2160116
1,2-Dichloropropane	ug	0.01 U	0.01	2160116
Trichloroethylene	ug	0.01 U	0.01	2160116
Dibromomethane	ug	0.01 U	0.01	2160116
Bromodichloromethane	ug	0.01 U	0.01	2160116
cis-1,3-Dichloropropene	ug	0.01 U	0.01	2160116
trans-1,3-Dichloropropene	ug	0.007 U	0.007	2160116
Dibromochloromethane	ug	0.009 U	0.009	2160116
Methyl Isobutyl Ketone	ug	0.01 U	0.02	2160116
Methyl Butyl Ketone (2-Hexanone)	ug	0.01 U	0.03	2160116
Toluene	ug	0.01 U	0.01	2160116
Ethylene Dibromide	ug	0.01 U	0.01	2160116
Tetrachloroethylene	ug	0.01 U	0.02	2160116

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B063258
Report Date: 2010/05/25

Alliance Source Testing, LLC
Client Project #: CPT
Project name: ARKANSAS

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		FX8208		
Sampling Date				
	Units	**VOST Proof #1 - #26**	**RDL**	**QC Batch**
Chlorobenzene	ug	0.01 U	0.01	2160116
1,1,1,2-Tetrachloroethane	ug	0.01 U	0.01	2160116
Ethylbenzene	ug	0.01 U	0.01	2160116
m / p-Xylene	ug	0.01 U	0.02	2160116
Styrene	ug	0.01 U	0.01	2160116
o-Xylene	ug	0.01 U	0.02	2160116
Bromoform	ug	0.01 U	0.01	2160116
1,1,2,2-Tetrachloroethane	ug	0.01 U	0.01	2160116
1,2,3-Trichloropropane	ug	0.01 U	0.02	2160116
1,3-Dichlorobenzene	ug	0.01 U	0.02	2160116
1,4-Dichlorobenzene	ug	0.01 U	0.02	2160116
1,2-Dichlorobenzene	ug	0.01 U	0.02	2160116
Surrogate Recovery (%)				
Bromofluorobenzene	%	85		2160116
D10-Ethylbenzene (FS)	%	81		2160116
D4-1,2-Dichloroethane	%	93		2160116
D8-Toluene	%	100		2160116

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B063258
Report Date: 2010/05/25

Alliance Source Testing, LLC
Client Project #: CPT
Project name: ARKANSAS

Test Summary

Maxxam ID	FX8208	**Collected**	
Sample ID	VOST Proof #1 - #26	**Shipped**	
Matrix	AIR	**Received**	2010/05/19

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2160116	N/A	2010/05/25	LSY

Maxxam Job #: B063258
Report Date: 2010/05/25

Alliance Source Testing, LLC
Client Project #: CPT
Project name: ARKANSAS

GENERAL COMMENTS

Results relate only to the items tested.

Validation Signature Page

Maxxam Job #: B063258

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Maureen Smith

MAUREEN SMITH, Supervisor, Volatiles

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Site#: MEDIA PREP

Attention: Chris Lemay
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/06/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B070767
Received: 2010/06/03, 11:30

Sample Matrix: AIR
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
VOST Analysis (5041mod)	1	N/A	2010/06/03	BRL SOP-00302	EPA 5041mod(M0030)

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.

Encryption Key
Clayton Johnson
03 Jun 2010 17:01:23 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CLAYTON JOHNSON, Project Manager
Email: Clayton.Johnson@maxxamanalytics.com
Phone# (905) 817-5769

==========

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Total cover pages: 1

Alliance Source Testing, LLC

Maxxam Job #: B070767
Report Date: 2010/06/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		GB5166		
Sampling Date				
	Units	**VOST Proof #1 - #3**	**RDL**	**QC Batch**
Dichlorodifluoromethane (FREON 12)	ug	0.01 U	0.02	2169456
Chloromethane	ug	0.01 U	0.02	2169456
Vinyl Chloride	ug	0.01 U	0.01	2169456
Bromomethane	ug	0.01 U	0.02	2169456
Chloroethane	ug	0.009 U	0.009	2169456
Trichlorofluoromethane (FREON 11)	ug	0.01 U	0.01	2169456
Acetone (2-Propanone)	ug	0.01 U	0.05	2169456
1,1-Dichloroethylene	ug	0.01 U	0.01	2169456
Iodomethane	ug	0.01 U	0.02	2169456
Carbon Disulfide	ug	0.01 U	0.03	2169456
Methylene Chloride(Dichloromethane)	ug	0.01 U	0.02	2169456
1,1-Dichloroethane	ug	0.01 U	0.01	2169456
trans-1,2-Dichloroethylene	ug	0.01 U	0.01	2169456
cis-1,2-Dichloroethylene	ug	0.01 U	0.01	2169456
Chloroform	ug	0.01 U	0.01	2169456
1,2-Dichloroethane	ug	0.007 U	0.007	2169456
Methyl Ethyl Ketone (2-Butanone)	ug	0.01 U	0.04	2169456
1,1,1-Trichloroethane	ug	0.01 U	0.01	2169456
Carbon Tetrachloride	ug	0.01 U	0.02	2169456
Benzene	ug	0.009 U	0.009	2169456
1,1,2-Trichloroethane	ug	0.01 U	0.02	2169456
1,2-Dichloropropane	ug	0.01 U	0.01	2169456
Trichloroethylene	ug	0.01 U	0.01	2169456
Dibromomethane	ug	0.01 U	0.01	2169456
Bromodichloromethane	ug	0.01 U	0.01	2169456
cis-1,3-Dichloropropene	ug	0.01 U	0.01	2169456
trans-1,3-Dichloropropene	ug	0.007 U	0.007	2169456
Dibromochloromethane	ug	0.009 U	0.009	2169456
Methyl Isobutyl Ketone	ug	0.01 U	0.02	2169456
Methyl Butyl Ketone (2-Hexanone)	ug	0.01 U	0.03	2169456
Toluene	ug	0.01 U	0.01	2169456
Ethylene Dibromide	ug	0.01 U	0.01	2169456
Tetrachloroethylene	ug	0.01 U	0.02	2169456

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Alliance Source Testing, LLC

Maxxam Job #: B070767
Report Date: 2010/06/03

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		GB5166		
Sampling Date				
	Units	**VOST Proof #1 - #3**	**RDL**	**QC Batch**
Chlorobenzene	ug	0.01 U	0.01	2169456
1,1,1,2-Tetrachloroethane	ug	0.01 U	0.01	2169456
Ethylbenzene	ug	0.01 U	0.01	2169456
m / p-Xylene	ug	0.01 U	0.02	2169456
Styrene	ug	0.01 U	0.01	2169456
o-Xylene	ug	0.01 U	0.02	2169456
Bromoform	ug	0.01 U	0.01	2169456
1,1,2,2-Tetrachloroethane	ug	0.01 U	0.01	2169456
1,2,3-Trichloropropane	ug	0.01 U	0.02	2169456
1,3-Dichlorobenzene	ug	0.01 U	0.02	2169456
1,4-Dichlorobenzene	ug	0.01 U	0.02	2169456
1,2-Dichlorobenzene	ug	0.01 U	0.02	2169456
Surrogate Recovery (%)				
Bromofluorobenzene	%	89		2169456
D4-1,2-Dichloroethane	%	105		2169456
D8-Toluene	%	107		2169456

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Alliance Source Testing, LLC

Maxxam Job #: B070767
Report Date: 2010/06/03

Test Summary

Maxxam ID	GB5166	**Collected**	
Sample ID	VOST Proof #1 - #3	**Shipped**	
Matrix	AIR	**Received**	2010/06/03

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
VOST Analysis (5041mod)	GC/MS	2169456	N/A	2010/06/03	MMS

Alliance Source Testing, LLC

Maxxam Job #: B070767
Report Date: 2010/06/03

GENERAL COMMENTS

Sample GB5166-01: This proof sample was not spiked with the field spike (d10-ethylbenzene).

Results relate only to the items tested.

Validation Signature Page

Maxxam Job #: B070767

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Maureen Smith

MAUREEN SMITH, Supervisor, Volatiles

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Particulate Matter / Metals / Mercury
Air

Maxxam Analytics

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Prepared for: Alliance Source Testing, LLC

Project: 2010-0071-001

Future Fuel Chemical Co.

Analytical Data Package

Analysis: Method 5 / Method 29

Maxxam Job #: B073337

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Analytics

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I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

Clayton Johnson
2010.07.23
12:20:30 -04'00'

Maxxam
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Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Glossary of Terms

- ***MDL*** represents the Minimum Detection Limit below which the laboratory cannot confirm the presence of the analyte to the 95% confidence level.
- ***RDL*** represents the Reportable Detection Limit and is usually set at a value equivalent to the lowest calibration standard.
- ***Acceptance Criteria*** are values used by the laboratory to determine that a process is in control.
- ***Accuracy*** is the degree of agreement of a measured value with the true or expected value.
- ***Calibration Standards*** are a set of solutions containing the analytes of interest at a specified concentration.
- ***Calibration Verification Standard*** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid
- ***Certified Reference Material*** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.
- ***Internal Standard*** a deuterated or ^{13}C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variablity.
- ***Isomer*** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.
- ***Method Blank*** is a laboratory control sample using reagents that are known to be free of contamination.
- ***Precision*** is the degree of agreement between the data generated from repetitive measurements under specific conditions.
- ***Quality Assurance*** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.
- ***Quality Control*** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.
- ***RSD*** is the relative standard deviation.
- ***Blank Spike*** is a laboratory control sample that has been fortified with native analytes of interest.
- ***Window Definng Mixture*** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.
- ***RPD*** or Relative Percent Difference. A measure used to compare duplicate sample analysis.
- ***EMPC/NDR*** – Peak detected does not meet ratio criteria and has resulted in a higher detection limit.

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1.0 Project Narrative

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

PROJECT NARRATIVE

Maxxam Analytics (Burlington ON)
Maxxam Job #: B073337

Client: Alliance Source Testing, LLC
Client Project: 2010-0071-001 FUTURE FUEL

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run
Mercury 1B in Filter + Rinse (M29)					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/18	2010/06/22
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/18	2010/06/22
GC8423 Dup	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/22	2010/06/22
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/18	2010/06/22
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/18	2010/06/22
Mercury 2B in HNO3/H2O2 Imp.					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/16	2010/06/17
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/17
GC8423 Dup	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/17
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/17
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/16	2010/06/17
GD7182	M29-4583-01B/HG-6087AUDIT	2010/05/25	2010/06/09	2010/06/16	2010/06/17
Mercury 3A in HNO3 Rinse					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/15	2010/06/17
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/17
GC8423 Dup	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/17
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/17
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/16	2010/06/17
Mercury 3B in KMnO4/H2SO4 Imp.					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/15	2010/06/17
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/15	2010/06/17
GC8423 Dup	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/15	2010/06/17
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/15	2010/06/17
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/15	2010/06/17
Mercury 3C in HCl Rinse					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/16	2010/06/18
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/18
GC8423 Dup	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/18
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/16	2010/06/18
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/16	2010/06/18
Metals B.H. in H2O2/HNO3 Imp.(6020)					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/17	2010/06/17
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/17	2010/06/17
GC8423 Dup	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/21	2010/06/17
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/17	2010/06/17
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/17	2010/06/17

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run
Metals F.H. in Filter + Rinses (6020)					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/18	2010/06/23
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/18	2010/06/23
GC8423 Dup	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/21	2010/06/23
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/18	2010/06/23
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/18	2010/06/23
GD7165	M29-FILTER BLANK AUDIT	2010/05/25	2010/06/09	2010/06/18	2010/06/23
GD7181	M29-4584-01/Fil-6142AUDIT	2010/05/25	2010/06/09	2010/06/18	2010/06/23
Metals in Liquid by ICP/MS (6020)					
GD7184	M29-4583-01A/AM-1628AUDIT	2010/05/25	2010/06/09	2010/06/17	2010/06/17
Particulates/Acetone Rinse (M5/315/M201)					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	2010/06/10	2010/06/18
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	2010/06/10	2010/06/18
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	2010/06/10	2010/06/18
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	2010/06/10	2010/06/18
Particulates/Filter (M5/315/NJATM1/M201)					
GC8420	BLANK-COND 2-M29	2010/06/04	2010/06/09	N/A	2010/06/17
GC8423	RUN 1-COND 2-M29	2010/06/03	2010/06/09	N/A	2010/06/17
GC8424	RUN 2-COND 2-M29	2010/06/03	2010/06/09	N/A	2010/06/17
GC8425	RUN 3-COND 2-M29	2010/06/04	2010/06/09	N/A	2010/06/17

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.

Clayton Johnson, Project Manager

2010/07/07
Date

Driven by Service and Science

2.0 Summary Report

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Your Project #: 2010-0071-001
Site: FUTURE FUEL

Attention: Chris Lemay
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/08/18
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B073337
Received: 2010/06/09, 13:00

Sample Matrix: Stack Sampling Train
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Mercury 3C in HCl Rinse (1)	4	2010/06/16	2010/06/18	BRL SOP-00104	EPA M29 / M0060
Mercury 2B in HNO3/H2O2 Imp. (1)	5	2010/06/16	2010/06/17	BRL SOP-00104	EPA M29 / M0060
Mercury 3A in HNO3 Rinse (1)	1	2010/06/15	2010/06/17	BRL SOP-00104	EPA M29 / M0060
Mercury 3A in HNO3 Rinse (1)	3	2010/06/16	2010/06/17	BRL SOP-00104	EPA M29 / M0060
Mercury 3B in KMnO4/H2SO4 Imp. (1)	4	2010/06/15	2010/06/17	BRL SOP-00104	EPA M29 / M0060
Mercury 1B in Filter + Rinse (M29) (1)	4	2010/06/18	2010/06/22	BRL SOP-00104	EPA Method 29
Metals B.H. in H2O2/HNO3 Imp.(6020) (1)	4	2010/06/17	2010/06/17	BRL SOP-00103 / BRL SOP-00102	EPA 6020 / M29
Metals F.H. in Filter + Rinses (6020) (1)	6	2010/06/18	2010/06/23	BRL SOP-00103/ BRL SOP-00102	EPA 6020 / M29
Metals in Liquid by ICP/MS (6020)	1	2010/06/17	2010/06/17	SOP ING 108/109	EPA SW846-3010A,6020
Particulates/Acetone Rinse (M5/315/M201) (1)	4	2010/06/10	2010/06/18	BRL SOP-00109	EPA 5/315
Particulates/Filter (M5/315/NJATM1/M201) (1)	4	N/A	2010/06/17	BRL SOP-00109	EPA 5/315/NJATM1
Final Volume of Acetone Probe Rinse	4	N/A	2010/06/14		

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed in Maxxam Mississauga under Maxxam Burlington SCC Accreditation

Encryption Key
Clayton Johnson
18 Aug 2010 15:29:25 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CLAYTON JOHNSON, Project Manager
Email: Clayton.Johnson@maxxamanalytics.com
Phone# (905) 817-5769

==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section

Your Project #: 2010-0071-001
Site: FUTURE FUEL

Attention: Chris Lemay
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/08/18
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

-2-

5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

EPA M29 METALS (FRONT & BACK)

Maxxam ID		GC8420		GC8423	GC8423	GC8424		
Sampling Date		2010/06/04		2010/06/03 12:58	2010/06/03 12:58	2010/06/03 16:37		
	Units	**BLANK-COND 2-M29**	**RDL**	**RUN 1-COND 2-M29**	**RUN 1-COND 2-M29 Lab-Dup**	**RUN 2-COND 2-M29**	**RDL**	**QC Batch**
Back Half Arsenic (As)	ug	<0.20	0.20	44.0	43.2	44.3	4.0	2181855
Front Half Arsenic (As)	ug	0.40	0.40	5.1	4.8	8.3	2.0	2183342
Back Half Beryllium (Be)	ug	<0.050	0.050	<1.0	<1.0	<1.0	1.0	2181855
Front Half Beryllium (Be)	ug	<0.10	0.10	<0.50	<0.50	<0.50	0.50	2183342
Back Half Cadmium (Cd)	ug	<0.050	0.050	<1.0	<1.0	<1.0	1.0	2181855
Front Half Cadmium (Cd)	ug	<0.10	0.10	1.61	1.55	2.34	0.50	2183342
Back Half Chromium (Cr)	ug	0.16	0.15	16.0	16.5	6.5	3.0	2181855
Front Half Chromium (Cr)	ug	0.77	0.30	137	125	230	1.5	2183342
Back Half Lead (Pb)	ug	1.46	0.10	5.0	4.9	5.8	2.0	2181855
Front Half Lead (Pb)	ug	0.44	0.20	322	321	447	1.0	2183342

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8425		
Sampling Date		2010/06/04 09:41		
	Units	**RUN 3-COND 2-M29**	**RDL**	**QC Batch**
Back Half Arsenic (As)	ug	31.5	4.0	2181855
Front Half Arsenic (As)	ug	8.4	2.0	2183342
Back Half Beryllium (Be)	ug	<1.0	1.0	2181855
Front Half Beryllium (Be)	ug	<0.50	0.50	2183342
Back Half Cadmium (Cd)	ug	<1.0	1.0	2181855
Front Half Cadmium (Cd)	ug	4.92	0.50	2183342
Back Half Chromium (Cr)	ug	94.7	3.0	2181855
Front Half Chromium (Cr)	ug	249	1.5	2183342
Back Half Lead (Pb)	ug	6.0	2.0	2181855
Front Half Lead (Pb)	ug	400	1.0	2183342

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

EPA M29 MERCURY (STACK SAMPLING TRAIN)

Maxxam ID		GC8420		GC8423	GC8423		GC8424		
Sampling Date		2010/06/04		2010/06/03 13:21	2010/06/03 13:21		2010/06/03 16:37		
	Units	**BLANK-COND 2-M29**	**RDL**	**RUN 1-COND 2-M29**	**RUN 1-COND 2-M29 Lab-Dup**	**RDL**	**RUN 2-COND 2-M29**	**RDL**	**QC Batch**
1B Mercury (Hg)	ug	<0.015	0.015	<0.015	<0.015	0.015	<0.015	0.015	2183330
2B Mercury (Hg)	ug	<0.15	0.15	3.26	3.24	0.25	5.12	0.27	2180337
3A Mercury (Hg)	ug	<0.005	0.005	0.241	0.236	0.005	0.271	0.0057	2180319
3B Mercury (Hg)	ug	<0.0085	0.0085	2.40	2.41	0.025	0.38	0.05	2179123
3C Mercury (Hg)	ug	<0.013	0.013	7.12	7.13	0.13	3.24	0.025	2180656

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8425		
Sampling Date		2010/06/04 09:41		
	Units	**RUN 3-COND 2-M29**	**RDL**	**QC Batch**
1B Mercury (Hg)	ug	<0.015	0.015	2183330
2B Mercury (Hg)	ug	4.33	0.28	2180337
3A Mercury (Hg)	ug	0.358	0.0048	2180319
3B Mercury (Hg)	ug	2.83	0.025	2179123
3C Mercury (Hg)	ug	0.228	0.025	2180656

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

EPA M5 PARTICULATE MATTER (PM)

Maxxam ID		GC8420	GC8423	GC8424	GC8425		
Sampling Date		2010/06/04	2010/06/03 12:58	2010/06/03 16:37	2010/06/04 09:41		
	Units	**BLANK-COND 2-M29**	**RUN 1-COND 2-M29**	**RUN 2-COND 2-M29**	**RUN 3-COND 2-M29**	**RDL**	**QC Batch**
Particulate Weight in Acetone Rinse	mg	<0.5	15.4	39.3	30.4	0.5	2176003
Particulate Weight on Filter	mg	1.80	31.5	38.7	42.2	0.30	2176001
Acetone Rinse Volume	ml	200	67	110	79	1	2176004

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

MERCURY BY COLD VAPOUR AA (STACK SAMPLING TRAIN)

Maxxam ID		GD7182		
Sampling Date		2010/05/25		
	Units	**M29-4583-01B/HG-6087AUDIT**	**RDL**	**QC Batch**
2B Mercury (Hg)	ug	16.6	0.1	2180337

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

ELEMENTS BY ICP/MS (STACK SAMPLING TRAIN)

Maxxam ID		GD7165	GD7181	GD7184		
Sampling Date		2010/05/25	2010/05/25	2010/05/25		
	Units	**M29-FILTER BLANK AUDIT**	**M29-4584-01/Fil-6142AUDIT**	**M29-4583-01A/AM-1628AUDIT**	**RDL**	**QC Batch**
Front Half Chromium (Cr)	ug	1.52	68.5		0.30	2183342
Total Chromium (Cr)	ug/mL			0.266	0.0050	2181864
Front Half Lead (Pb)	ug	0.70	420		0.20	2183342
Total Lead (Pb)	ug/mL			1.66	0.0050	2181864

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GC8420 **Collected** 2010/06/04
Sample ID BLANK-COND 2-M29 **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2180656	2010/06/16	2010/06/18	MBB
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2180337	2010/06/16	2010/06/17	MBB
Mercury 3A in HNO3 Rinse	CVAA	2180319	2010/06/15	2010/06/17	MBB
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2179123	2010/06/15	2010/06/17	MBB
Mercury 1B in Filter + Rinse (M29)	CVAA	2183330	2010/06/18	2010/06/22	FFS
Metals B.H. in H2O2/HNO3 Imp.(6020)	ICP1/MS	2181855	2010/06/17	2010/06/17	N_R
Metals F.H. in Filter + Rinses (6020)	ICP1/MS	2183342	2010/06/18	2010/06/23	N_R
Particulates/Acetone Rinse (M5/315/M201)	BAL	2176003	2010/06/10	2010/06/18	BLM
Particulates/Filter (M5/315/NJATM1/M201)	BAL	2176001	N/A	2010/06/17	BLM
Final Volume of Acetone Probe Rinse		2176004	N/A	2010/06/14	BLM

Maxxam ID GC8423 **Collected** 2010/06/03
Sample ID RUN 1-COND 2-M29 **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2180656	2010/06/16	2010/06/18	MBB
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2180337	2010/06/16	2010/06/17	MBB
Mercury 3A in HNO3 Rinse	CVAA	2180319	2010/06/16	2010/06/17	MBB
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2179123	2010/06/15	2010/06/17	MBB
Mercury 1B in Filter + Rinse (M29)	CVAA	2183330	2010/06/18	2010/06/22	FFS
Metals B.H. in H2O2/HNO3 Imp.(6020)	ICP1/MS	2181855	2010/06/17	2010/06/17	N_R
Metals F.H. in Filter + Rinses (6020)	ICP1/MS	2183342	2010/06/18	2010/06/23	N_R
Particulates/Acetone Rinse (M5/315/M201)	BAL	2176003	2010/06/10	2010/06/18	BLM
Particulates/Filter (M5/315/NJATM1/M201)	BAL	2176001	N/A	2010/06/17	BLM
Final Volume of Acetone Probe Rinse		2176004	N/A	2010/06/14	BLM

Maxxam ID GC8423 Dup **Collected** 2010/06/03
Sample ID RUN 1-COND 2-M29 **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2180656	2010/06/16	2010/06/18	MBB
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2180337	2010/06/16	2010/06/17	MBB
Mercury 3A in HNO3 Rinse	CVAA	2180319	2010/06/16	2010/06/17	MBB
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2179123	2010/06/15	2010/06/17	MBB
Mercury 1B in Filter + Rinse (M29)	CVAA	2183330	2010/06/22	2010/06/22	FFS
Metals B.H. in H2O2/HNO3 Imp.(6020)	ICP1/MS	2181855	2010/06/21	2010/06/17	N_R
Metals F.H. in Filter + Rinses (6020)	ICP1/MS	2183342	2010/06/21	2010/06/23	N_R

Maxxam ID GC8424 **Collected** 2010/06/03
Sample ID RUN 2-COND 2-M29 **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2180656	2010/06/16	2010/06/18	MBB
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2180337	2010/06/16	2010/06/17	MBB
Mercury 3A in HNO3 Rinse	CVAA	2180319	2010/06/16	2010/06/17	MBB
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2179123	2010/06/15	2010/06/17	MBB
Mercury 1B in Filter + Rinse (M29)	CVAA	2183330	2010/06/18	2010/06/22	FFS
Metals B.H. in H2O2/HNO3 Imp.(6020)	ICP1/MS	2181855	2010/06/17	2010/06/17	N_R

Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Metals F.H. in Filter + Rinses (6020)	ICP1/MS	2183342	2010/06/18	2010/06/23	N_R
Particulates/Acetone Rinse (M5/315/M201)	BAL	2176003	2010/06/10	2010/06/18	BLM
Particulates/Filter (M5/315/NJATM1/M201)	BAL	2176001	N/A	2010/06/17	BLM
Final Volume of Acetone Probe Rinse		2176004	N/A	2010/06/14	BLM

Maxxam ID GC8425 **Collected** 2010/06/04
Sample ID RUN 3-COND 2-M29 **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 3C in HCl Rinse	CVAA	2180656	2010/06/16	2010/06/18	MBB
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2180337	2010/06/16	2010/06/17	MBB
Mercury 3A in HNO3 Rinse	CVAA	2180319	2010/06/16	2010/06/17	MBB
Mercury 3B in KMnO4/H2SO4 Imp.	CVAA	2179123	2010/06/15	2010/06/17	MBB
Mercury 1B in Filter + Rinse (M29)	CVAA	2183330	2010/06/18	2010/06/22	FFS
Metals B.H. in H2O2/HNO3 Imp.(6020)	ICP1/MS	2181855	2010/06/17	2010/06/17	N_R
Metals F.H. in Filter + Rinses (6020)	ICP1/MS	2183342	2010/06/18	2010/06/23	N_R
Particulates/Acetone Rinse (M5/315/M201)	BAL	2176003	2010/06/10	2010/06/18	BLM
Particulates/Filter (M5/315/NJATM1/M201)	BAL	2176001	N/A	2010/06/17	BLM
Final Volume of Acetone Probe Rinse		2176004	N/A	2010/06/14	BLM

Maxxam ID GD7165 **Collected** 2010/05/25
Sample ID M29-FILTER BLANK AUDIT **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Metals F.H. in Filter + Rinses (6020)	ICP1/MS	2183342	2010/06/18	2010/06/23	N_R

Maxxam ID GD7181 **Collected** 2010/05/25
Sample ID M29-4584-01/Fil-6142AUDIT **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Metals F.H. in Filter + Rinses (6020)	ICP1/MS	2183342	2010/06/18	2010/06/23	N_R

Maxxam ID GD7182 **Collected** 2010/05/25
Sample ID M29-4583-01B/HG-6087AUDIT **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury 2B in HNO3/H2O2 Imp.	CVAA	2180337	2010/06/16	2010/06/17	MBB

Maxxam ID GD7184 **Collected** 2010/05/25
Sample ID M29-4583-01A/AM-1628AUDIT **Shipped**
Matrix Stack Sampling Train **Received** 2010/06/09

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Metals in Liquid by ICP/MS (6020)	ICP1/MS	2181864	2010/06/17	2010/06/17	N_R

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B073337
Report Date: 2010/08/18

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

EPA M29 METALS (FRONT & BACK)

Metals B.H. in H2O2/HNO3 Imp.(6020): Extra 20x dilution was required for all samples except GC8420, due to the matrix (extremely high S levels)
Post digestion duplicate and spike was done on sample GC8423.

Metals F.H. in Filter + Rinses (6020): Extra 5x dilution was required for samples GC8423-25, due to the matrix.
Post digestion duplicate and spike was done on sample GC8423.

ELEMENTS BY ICP/MS (STACK SAMPLING TRAIN)

Metals F.H. in Filter + Rinses (6020): Extra 5x dilution was required for samples GC8423-25, due to the matrix.
Post digestion duplicate and spike was done on sample GC8423.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Alliance Source Testing, LLC
Attention: Chris Lemay
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report

Maxxam Job Number: GB073337

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2176003 BLM	Method Blank	Particulate Weight in Acetone Rinse	2010/06/18	<0.5		mg	
2179123 MBB	Reagent Blank	3B Mercury (Hg)	2010/06/17	<0.013		ug	
	Matrix Spike (GC8423)	3B Mercury (Hg)	2010/06/17		97	%	85 - 115
	Matrix Spike DUP (GC8423)	3B Mercury (Hg)	2010/06/17		93	%	85 - 115
	MS/MSD RPD	3B Mercury (Hg)	2010/06/17	4.5		%	20
	Spiked Blank	3B Mercury (Hg)	2010/06/17		97	%	90 - 110
	Spiked Blank DUP	3B Mercury (Hg)	2010/06/17		100	%	90 - 110
	RPD	3B Mercury (Hg)	2010/06/17	3.2		%	20
	Method Blank	3B Mercury (Hg)	2010/06/17	<0.025		ug	
	RPD - Sample/Sample Dup	3B Mercury (Hg)	2010/06/17	0.4		%	20
2180319 MBB	Matrix Spike (GC8423)	3A Mercury (Hg)	2010/06/17		96	%	85 - 115
	Matrix Spike DUP (GC8423)	3A Mercury (Hg)	2010/06/17		95	%	85 - 115
	MS/MSD RPD	3A Mercury (Hg)	2010/06/17	0.5		%	20
	Spiked Blank	3A Mercury (Hg)	2010/06/17		98	%	90 - 110
	Spiked Blank DUP	3A Mercury (Hg)	2010/06/17		98	%	90 - 110
	RPD	3A Mercury (Hg)	2010/06/17	0.2		%	20
	Method Blank	3A Mercury (Hg)	2010/06/17	<0.005		ug	
	RPD - Sample/Sample Dup	3A Mercury (Hg)	2010/06/17	2.2		%	20
2180337 MBB	Matrix Spike (GC8423)	2B Mercury (Hg)	2010/06/17		102	%	85 - 115
	Matrix Spike DUP (GC8423)	2B Mercury (Hg)	2010/06/17		99	%	85 - 115
	MS/MSD RPD	2B Mercury (Hg)	2010/06/17	2.7		%	20
	Spiked Blank	2B Mercury (Hg)	2010/06/17		100	%	90 - 110
	Spiked Blank DUP	2B Mercury (Hg)	2010/06/17		101	%	90 - 110
	RPD	2B Mercury (Hg)	2010/06/17	1.8		%	20
	Method Blank	2B Mercury (Hg)	2010/06/17	<0.015		ug	
	RPD - Sample/Sample Dup	2B Mercury (Hg)	2010/06/17	0.8		%	20
2180656 MBB	Reagent Blank	3C Mercury (Hg)	2010/06/18	<0.013		ug	
	Matrix Spike (GC8423)	3C Mercury (Hg)	2010/06/18		98	%	85 - 115
	Matrix Spike DUP (GC8423)	3C Mercury (Hg)	2010/06/18		95	%	85 - 115
	MS/MSD RPD	3C Mercury (Hg)	2010/06/18	2.9		%	20
	Spiked Blank	3C Mercury (Hg)	2010/06/18		102	%	90 - 110
	Spiked Blank DUP	3C Mercury (Hg)	2010/06/18		103	%	90 - 110
	RPD	3C Mercury (Hg)	2010/06/18	0.2		%	20
	Method Blank	3C Mercury (Hg)	2010/06/18	<0.025		ug	
	RPD - Sample/Sample Dup	3C Mercury (Hg)	2010/06/18	0.2		%	20
2181855 N_R	Matrix Spike (GC8423)	Back Half Arsenic (As)	2010/06/17		96	%	70 - 130
	Matrix Spike DUP (GC8423)	Back Half Arsenic (As)	2010/06/17		97	%	70 - 130

Alliance Source Testing, LLC
Attention: Chris Lemay
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report (Continued)

Maxxam Job Number: GB073337

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2181855 N_R	MS/MSD RPD	Back Half Arsenic (As)	2010/06/17	1.0		%	20
	Matrix Spike (GC8423)	Back Half Beryllium (Be)	2010/06/17		95	%	70 - 130
	Matrix Spike DUP (GC8423)	Back Half Beryllium (Be)	2010/06/17		96	%	70 - 130
	MS/MSD RPD	Back Half Beryllium (Be)	2010/06/17	1.0		%	20
	Matrix Spike (GC8423)	Back Half Cadmium (Cd)	2010/06/17		95	%	70 - 130
	Matrix Spike DUP (GC8423)	Back Half Cadmium (Cd)	2010/06/17		96	%	70 - 130
	MS/MSD RPD	Back Half Cadmium (Cd)	2010/06/17	1.0		%	20
	Matrix Spike (GC8423)	Back Half Chromium (Cr)	2010/06/17		97	%	70 - 130
	Matrix Spike DUP (GC8423)	Back Half Chromium (Cr)	2010/06/17		96	%	70 - 130
	MS/MSD RPD	Back Half Chromium (Cr)	2010/06/17	1.0		%	20
	Matrix Spike (GC8423)	Back Half Lead (Pb)	2010/06/17		99	%	70 - 130
	Matrix Spike DUP (GC8423)	Back Half Lead (Pb)	2010/06/17		100	%	70 - 130
	MS/MSD RPD	Back Half Lead (Pb)	2010/06/17	1.0		%	20
	Spiked Blank	Back Half Arsenic (As)	2010/06/17		97	%	85 - 115
	Spiked Blank DUP	Back Half Arsenic (As)	2010/06/17		99	%	85 - 115
	RPD	Back Half Arsenic (As)	2010/06/17	1.6		%	20
	Spiked Blank	Back Half Beryllium (Be)	2010/06/17		100	%	85 - 115
	Spiked Blank DUP	Back Half Beryllium (Be)	2010/06/17		101	%	85 - 115
	RPD	Back Half Beryllium (Be)	2010/06/17	1.1		%	20
	Spiked Blank	Back Half Cadmium (Cd)	2010/06/17		98	%	85 - 115
	Spiked Blank DUP	Back Half Cadmium (Cd)	2010/06/17		99	%	85 - 115
	RPD	Back Half Cadmium (Cd)	2010/06/17	0.9		%	20
	Spiked Blank	Back Half Chromium (Cr)	2010/06/17		99	%	85 - 115
	Spiked Blank DUP	Back Half Chromium (Cr)	2010/06/17		100	%	85 - 115
	RPD	Back Half Chromium (Cr)	2010/06/17	0.7		%	20
	Spiked Blank	Back Half Lead (Pb)	2010/06/17		104	%	85 - 115
	Spiked Blank DUP	Back Half Lead (Pb)	2010/06/17		105	%	85 - 115
	RPD	Back Half Lead (Pb)	2010/06/17	0.8		%	20
	Method Blank	Back Half Arsenic (As)	2010/06/17	<0.20		ug	
	Method Blank DUP	Back Half Arsenic (As)	2010/06/17	<0.20		ug	
	RPD	Back Half Arsenic (As)	2010/06/17	NC		%	20
	Method Blank	Back Half Beryllium (Be)	2010/06/17	<0.050		ug	
	Method Blank DUP	Back Half Beryllium (Be)	2010/06/17	<0.050		ug	
	RPD	Back Half Beryllium (Be)	2010/06/17	NC		%	20
	Method Blank	Back Half Cadmium (Cd)	2010/06/17	<0.050		ug	
	Method Blank DUP	Back Half Cadmium (Cd)	2010/06/17	<0.050		ug	
	RPD	Back Half Cadmium (Cd)	2010/06/17	NC		%	20
	Method Blank	Back Half Chromium (Cr)	2010/06/17	<0.15		ug	
	Method Blank DUP	Back Half Chromium (Cr)	2010/06/17	<0.15		ug	
	RPD	Back Half Chromium (Cr)	2010/06/17	NC		%	20
	Method Blank	Back Half Lead (Pb)	2010/06/17	<0.10		ug	
	Method Blank DUP	Back Half Lead (Pb)	2010/06/17	<0.10		ug	
	RPD	Back Half Lead (Pb)	2010/06/17	NC		%	20
	RPD - Sample/Sample Dup	Back Half Arsenic (As)	2010/06/17	1.9		%	20
		Back Half Beryllium (Be)	2010/06/17	NC		%	20

Alliance Source Testing, LLC
Attention: Chris Lemay
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report (Continued)

Maxxam Job Number: GB073337

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2181855 N_R	RPD - Sample/Sample Dup	Back Half Cadmium (Cd)	2010/06/17	NC		%	20
		Back Half Chromium (Cr)	2010/06/17	3.0		%	20
		Back Half Lead (Pb)	2010/06/17	NC		%	20
2183330 FFS	Reagent Blank	1B Mercury (Hg)	2010/06/22	<0.015		ug	
	Matrix Spike (GC8423)	1B Mercury (Hg)	2010/06/22		100	%	85 - 115
	Matrix Spike DUP (GC8423)	1B Mercury (Hg)	2010/06/22		101	%	85 - 115
	MS/MSD RPD	1B Mercury (Hg)	2010/06/22	0.3		%	20
	Spiked Blank	1B Mercury (Hg)	2010/06/22		98	%	90 - 110
	Spiked Blank DUP	1B Mercury (Hg)	2010/06/22		99	%	90 - 110
	RPD	1B Mercury (Hg)	2010/06/22	1.3		%	20
	Method Blank	1B Mercury (Hg)	2010/06/22	<0.015		ug	
	RPD - Sample/Sample Dup	1B Mercury (Hg)	2010/06/22	NC		%	20
2183342 N_R	Matrix Spike (GC8423)	Front Half Arsenic (As)	2010/06/23		98	%	70 - 130
	Matrix Spike DUP (GC8423)	Front Half Arsenic (As)	2010/06/23		96	%	70 - 130
	MS/MSD RPD	Front Half Arsenic (As)	2010/06/23	2.1		%	20
	Matrix Spike (GC8423)	Front Half Beryllium (Be)	2010/06/23		100	%	70 - 130
	Matrix Spike DUP (GC8423)	Front Half Beryllium (Be)	2010/06/23		100	%	70 - 130
	MS/MSD RPD	Front Half Beryllium (Be)	2010/06/23	0		%	20
	Matrix Spike (GC8423)	Front Half Cadmium (Cd)	2010/06/23		97	%	70 - 130
	Matrix Spike DUP (GC8423)	Front Half Cadmium (Cd)	2010/06/23		98	%	70 - 130
	MS/MSD RPD	Front Half Cadmium (Cd)	2010/06/23	1.0		%	20
	Matrix Spike (GC8423)	Front Half Chromium (Cr)	2010/06/23		102	%	70 - 130
	Matrix Spike DUP (GC8423)	Front Half Chromium (Cr)	2010/06/23		99	%	70 - 130
	MS/MSD RPD	Front Half Chromium (Cr)	2010/06/23	3.0		%	20
	Matrix Spike (GC8423)	Front Half Lead (Pb)	2010/06/23		106	%	70 - 130
	Matrix Spike DUP (GC8423)	Front Half Lead (Pb)	2010/06/23		104	%	70 - 130
	MS/MSD RPD	Front Half Lead (Pb)	2010/06/23	1.9		%	20
	Spiked Blank	Front Half Arsenic (As)	2010/06/23		100	%	85 - 115
	Spiked Blank DUP	Front Half Arsenic (As)	2010/06/23		103	%	85 - 115
	RPD	Front Half Arsenic (As)	2010/06/23	2.9		%	20
	Spiked Blank	Front Half Beryllium (Be)	2010/06/23		99	%	85 - 115
	Spiked Blank DUP	Front Half Beryllium (Be)	2010/06/23		101	%	85 - 115
	RPD	Front Half Beryllium (Be)	2010/06/23	2.0		%	20
	Spiked Blank	Front Half Cadmium (Cd)	2010/06/23		97	%	85 - 115
	Spiked Blank DUP	Front Half Cadmium (Cd)	2010/06/23		100	%	85 - 115
	RPD	Front Half Cadmium (Cd)	2010/06/23	2.6		%	20
	Spiked Blank	Front Half Chromium (Cr)	2010/06/23		96	%	85 - 115
	Spiked Blank DUP	Front Half Chromium (Cr)	2010/06/23		100	%	85 - 115
	RPD	Front Half Chromium (Cr)	2010/06/23	4.5		%	20

Alliance Source Testing, LLC
Attention: Chris Lemay
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report (Continued)

Maxxam Job Number: GB073337

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2183342 N_R	Spiked Blank	Front Half Lead (Pb)	2010/06/23		97	%	85 - 115
	Spiked Blank DUP	Front Half Lead (Pb)	2010/06/23		101	%	85 - 115
	RPD	Front Half Lead (Pb)	2010/06/23	3.6		%	20
	Method Blank	Front Half Arsenic (As)	2010/06/23	<0.40		ug	
	Method Blank DUP	Front Half Arsenic (As)	2010/06/23	<0.40		ug	
	RPD	Front Half Arsenic (As)	2010/06/23	NC		%	20
	Method Blank	Front Half Beryllium (Be)	2010/06/23	<0.10		ug	
	Method Blank DUP	Front Half Beryllium (Be)	2010/06/23	<0.10		ug	
	RPD	Front Half Beryllium (Be)	2010/06/23	NC		%	20
	Method Blank	Front Half Cadmium (Cd)	2010/06/23	<0.10		ug	
	Method Blank DUP	Front Half Cadmium (Cd)	2010/06/23	<0.10		ug	
	RPD	Front Half Cadmium (Cd)	2010/06/23	NC		%	20
	Method Blank	Front Half Chromium (Cr)	2010/06/23	<0.30		ug	
	Method Blank DUP	Front Half Chromium (Cr)	2010/06/23	<0.30		ug	
	RPD	Front Half Chromium (Cr)	2010/06/23	NC		%	20
	Method Blank	Front Half Lead (Pb)	2010/06/23	<0.20		ug	
	Method Blank DUP	Front Half Lead (Pb)	2010/06/23	<0.20		ug	
	RPD	Front Half Lead (Pb)	2010/06/23	NC		%	20
	RPD - Sample/Sample Dup	Front Half Arsenic (As)	2010/06/23	NC		%	20
		Front Half Beryllium (Be)	2010/06/23	NC		%	20
		Front Half Cadmium (Cd)	2010/06/23	NC		%	20
		Front Half Chromium (Cr)	2010/06/23	8.8		%	20
		Front Half Lead (Pb)	2010/06/23	0.2		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Reagent Blank: A blank matrix containing all reagents used in the analytical procedure. Used to determine any analytical contamination.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: B073337

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

FRANK MO, B.Sc., Inorganic Lab. Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Analytics

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3.0 Sample Custody

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Confidential : Maxxam Analytics International

Chain of Custody Form

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Fax: (905) 332-5169

Page 1 of 1

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM USE ONLY	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	EPA Method 5/29 - Filter	EPA Method 5/29 - Acetone Rinse	EPA Method 29 - 0.1N HNO3 Rinse	EPA Method 29 - Impinger 1-2	EPA Method 29 - Impinger 3	EPA Method 29 Impinger 4-6	EPA Method 29 Impinger 4-6 CHCl Rinse	Cd, Pb, Be, As, Cr, Hg			
						100324423										
						—	—	200 mL	—	200 mL	—					
	Condition 1/Run 1	7	6/3/10	12:58	—	1	1	1	1	1	1	1	✓	Filter	10032423	
	Condition 2/Run 2	7	6/3/10	15:37	—	1	1	1	1	1	1	1	✓	Filter	10032424	
	Condition 2/Run 3	7	6/4/10	9:41	—	1	1	1	1	1	1	1	✓	Filter	10042628	
	0.1N HNO3 Blank (300)	1	6/4/10	—	300								✓			
	DI Water Blank (100)	1	6/4/10	—	100								✓			
	H2O2/HNO3 Blank (200)	1	6/4/10	—	200								✓			
	KMnO4 Blank (100)	1	6/4/10	—	100								✓			
	Acetone Blank (100)	1	6/4/10	—	100								✓			
	Filter Blank	1	6/4/10	—	—								✓	Filter	10042627	
	5% HCl Blank	1	6/4/10	—	—								✓			

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TCDA

- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐
- TEF x DL ☐
- TEF x 0 DL ☐
- TEF x 0.5 DL ☐

6-9-2010

Chain of Custody Form

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5555 N. Service Road
Burlington, Ontario L7L 5H7
www.maxxamanalytics.com
Toll Free: 1-800-668-0639
Phone: (905) 332-8788
Fax: (905) 332-9169

ANALYSIS REQUESTED

CLIENT INFORMATION SECTION

Company Name: E. Roberts Alley & Associates, Inc. Alliance

Project Manager: Chris LeMay
e-mail: chrisl@eralley.com
Address: 214 Central Circle SW
Decatur, AL 35601

Phone: (256) 260-3973 Fax: (256) 351-0151

Sampled by: EPA Provided Audit Samples

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	Method 29 Metals Audit Number M29-4583-01a and 01b	Method 29 Metals Audit Number M29-4581-01
	AM - 1628					X	
	HG - 6087					X	
	Fil - 6142						X

TAT Requirement

STD 10 Business day ☐
Rush 5 Business day ☐
Rush 2 Business day ☐
Rush 1 Business day ☐
Other (specify):

PROJECT INFORMATION

Project #: FFCC - Boiler CPT
Name: Thomas L Floyd
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

Summary Report only ☐
Summary Report & Raw Data Package ** ☐
** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature: Thomas L Floyd
Affiliation: CPT Manager
Date/Time: 6/1/2010

Received by:
Affiliation: Maxxam
Date/Time: 6-10-10 / 12pm

Method 23 / TO9A

2005 WHO ☐
1989 NATO TEF ☑
1998 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

Confidential : Maxxam Analytics International

www.erg.com

May 25, 2010

Requestor: Eshter Coleman
US EPA - Region 6
1445 Ross Avenue, 12th Floor, Suite 1200
(214) 665-8517

Dear Esther Coleman:

Eastern Research Group (ERG) have been directed by the U.S. EPA to provide the following audit materials for a **Method 29 Metals audit; Numbers M29-4583-01a and -01b.** These audit samples are for an upcoming audit at **FuturFuel Chemical Co.** and are being sent directly to **Thomas L. Floyd of FutureFuel Chemical Company in Batesville, AR** per your **automated database** request.

Please note: requests for Method 29 mercury have **NEW Instructions associated with these samples,** effective October 2004.

<u>Method 29</u>
request M29-4583-01a:
- one each spiked **Method 29 aqueous metals** sample; **Sample No. AM - 1628**

request M29-4583-01b:
- one each spiked **Method 29 aqueous mercury** sample; **Sample No. HG - 6087**

Please note that <u>each</u> sample is individually labeled and shipped with an instruction sheet and an example REPORTING FORM for reporting the laboratory audit results. All results are to be reported to the automated computerized database.

You are urged to instruct the laboratory to analyze the audit samples along with the designated field samples. The audit sample should be analyzed as a routine field sample according to the specifications of the Test Method and using the supplied instructions. The audit results are to be reported <u>to you, the requestor,</u> by the analyst, using the example Reporting Form, in the units specified in the instructions. You then will use the automated database to enter the results into the SSAP database.

We would like to thank you for your participation in the Stationary Source Audit Program. If you have any questions concerning the audit or the database, please contact either Thomas Mckenzie (919) 468-7920 or myself at 468-7887. My fax number is (919) 468-7803.

Sincerely,

Julie Swift for Ray Merrill

Ray Merrill
CC: sent with audit samples

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560, Telephone: (919) 468-7800, Fax (919) 468-7803
Arlington, VA · Atlanta, GA · Austin, TX · Boston, MA · Chantilly, VA · Chicago, IL · Fairfield, CT
Harrisburg, PA · Kansas City, KS · Lexington, MA · Nashua, NH ·Research Triangle Park, Morrisville, NC · Sacramento, CA
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May 25, 2010

Requestor: Eshter Coleman
US EPA – Region 6
1445 Ross Avenue, 12th Floor, Suite 1200
(214) 665-8517

Dear Esther Coleman:

Eastern Research Group (ERG) has been directed by the U.S. EPA to provide the following audit materials for a **Method 29 Metals audit; Number M29-4584-01.** This audit sample is for an upcoming audit at **FuturFuel Chemical Co.** and is being sent directly to **Thomas L. Floyd of FutureFuel Chemical Company in Batesville, AR** per your **automated database** request.

Please note: requests for Method 29 mercury have **NEW Instructions associated with these samples,** effective October 2004.

<u>Method 29</u>
request M29-4584-01:

- one each spiked **Method 29 spiked metals filter** sample; **Sample No. Fil – 6142**

One blank filter

Please note that <u>each</u> sample is individually labeled and shipped with an instruction sheet and an example REPORTING FORM for reporting the laboratory audit results. All results are to be reported to the automated computerized database.

You are urged to instruct the laboratory to analyze the audit samples along with the designated field samples. The audit sample should be analyzed as a routine field sample according to the specifications of the Test Method and using the supplied instructions. The audit results are to be reported <u>to you, the requestor,</u> by the analyst, using the example Reporting Form, in the units specified in the instructions. You then will use the automated database to enter the results into the SSAP database.

We would like to thank you for your participation in the Stationary Source Audit Program. If you have any questions concerning the audit or the database, please contact either Thomas Mckenzie (919) 468-7920 or myself at 468-7887. My fax number is (919) 468-7803.

Sincerely,
Annie L. Swift for

Ray Merrill
CC: sent with audit samples

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560, Telephone: (919) 468-7800, Fax (919) 468-7803
Arlington, VA · Atlanta, GA · Austin, TX · Boston, MA · Chantilly, VA · Chicago, IL · Fairfield, CT
Harrisburg, PA · Kansas City, KS · Lexington, MA · Nashua, NH ·Research Triangle Park, Morrisville, NC · Sacramento, CA
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Method 29 Compliance Audit Material
(Multi-Metals Spiked Filter)

REPORTING FORM: To be completed by laboratory

Request Number/Sample Number: M29-4584-01/Fil-6142 Date Issued: 05/25/10

Auditee:

Company: _____

Address: _____

Attention of: _____ Phone: _____

Requestor:

Agency: US EPA - Region 6

Address: 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202-6444

Attention of: Esther Coleman Phone: 214-665-8517

Project Name: FutureFuel Chemical Co.

Audit Results (Results in µg)

Compound	Result	Blank Filter Result
Lead		

INSTRUCTIONS FOR PREPARATION AND ANALYSIS OF METHOD 29 MULTI-METALS AUDIT FILTER

Note: The audit filter you received is spiked with known amounts of multiple metals. This audit sample corresponds to the sample filter referenced in Section 8.3.1 of Method 29.

To prepare and analyze each audit sample, follow the steps below.

1) Prepare the entire filter for digestion as described in Section 8.3.1.2 of Method 29. Be sure to digest the entire filter. Label the digested filter portion as Sample Fraction No. 1. (**Note:** Because the audit sample consists only of a filter, there is no acid-digested probe rinse as discussed in the final sentence of Section 8.3.1.2 of Method 29. Process the acid-digested filter portion by itself.)

2) Filter the acid digested portion (Sample Fraction No. 1) using Whatman 541 filter paper.

3) Dilute the filtrate with water to 100 - 300 mL volume (or to the appropriate volume for the expected metals concentrations) and label as Analytical Fraction No. 1A. (**Note:** There is no Hg Analytical Fraction 1B.)

4) Measure and record the diluted volume of Analytical Fraction No. 1A to within 0.1 mL. (**Note:** If an aqueous multi-metal audit sample is available, it will become impinger Analytical Fraction No. 2A.)

5) Analyze Analytical Fraction No. 1A as described in Section 11.1.1 or 11.1.2 of Method 29 for the target metals listed on the attached Method 29 Filter Audit **Reporting Form**.

6) Calculate the total µg of each target metal in the filter sample using the following equation.

$$m_{\mu g} = Ca_1 V_{soln,1}$$

where

$m_{\mu g}$	=	mass of target metal (µg)
Ca_1	=	Concentration of target metal in Analytical Fraction No. 1A (µg/mL)
V_{soln1}	=	Volume of diluted sample (mL of Analytical Fraction No. 1A)

7) Record the total mass results on the Method 29 multi-metal filter **Reporting Form** in total µg for each target metal listed.

8) Report the Method 29 Filter Audit results recorded on the **Reporting Form** to the designated agent.

Analyst, Please Note:
In addition to the spiked multi-metals filter, you have been provided with a blank filter that has been treated identically to the audit filter (except for the metals spike). The background results from the blank filter are to be used for quality assurance documentation purposes only and not to adjust the spiked filter results. You are asked to report the blank filter metals results (µg) on the Reporting Form along with the spiked filter results.

Method 29 Audit Material
(Multi-Metals Spiked Solution)

REPORTING FORM: To be completed by laboratory

Request Number/Sample Number: M29-4583-01a/AM-1628 Date Issued: 05/25/10

Auditee:

Company: _____

Address: _____

Attention of: _____ Phone: _____

Requestor:

Agency: US EPA - Region 6

Address: 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202-6444

Attention of: Esther Coleman Phone: 214-665-8517

Project Name: FutureFuel Chemical Co.

Audit Results (Results in µg/mL)

Analyte	Result
Chromium	
Lead	

INSTRUCTIONS FOR PREPARATION AND ANALYSIS OF METHOD 29 MULTI-METALS AUDIT SOLUTION

The ampule you received contains approximately 23 mL of an aqueous solution that is 2 % nitric acid by volume and has been spiked with various metals. To prepare and analyze each multi-metal audit sample solution, follow the steps below.

1) Wrap a paper towel around the ampule, and with the ampule in an upright position, break off the top at the pre-scored mark by exerting pressure sideways.

2) From the ampule, pipette exactly 20 mL of the audit sample into a 250-mL beaker. Add 100 mL of 0.1N HNO_3 to the beaker and label the sample "Sample Fraction 2A". Evaporate the sample to 20 mL on a steam bath as directed in Section 8.3.4 of Method 29.

3) Digest the entire Sample Fraction 2A as directed in either Section 8.3.4.1 or 8.3.4.2 of Method 29. After digesting the sample, filter the sample using Whatman 541 filter paper, and dilute the filtrate to **150 mL**. Label the diluted sample as Analytical Fraction 2A.
(**Note:** If there is a filter audit sample, it will become Analytical Fraction 1A.)

4) Analyze Analytical Fraction 2A as described in Section 11.1.1 or 11.1.2 of Method 29 for the target metals listed on the attached Method 29 Audit Solution **Reporting Form**.

5) Record the concentration results on the Method 29 multi-metals audit solution **Reporting Form** in units of µg/mL for each target metal listed for Analytical Fraction 2A.

6) Report the Method 29 metals audit solution results recorded on the **Reporting Form** to the designated agent.

Method 29 Compliance Audit Material
(Mercury Acidified Aqueous Solution)

REPORTING FORM: To be completed by laboratory

Request Number/Sample Number: M29-4583-01b/HG-6087 Date Issued: 05/25/10

Auditee:

Company: _____

Address: _____

Attention of: _____ Phone: _____

Requestor:

Agency: US EPA - Region 6

Address: 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202-6444

Attention of: Esther Coleman Phone: 214-665-8517

Project Name: FutureFuel Chemical Co.

Audit Results (Results in µg)

Compound	Result
Mercury	

INSTRUCTIONS FOR PREPARATION AND ANALYSIS OF METHOD 29 MERCURY (Hg) AUDIT SAMPLE

The ampule you have received contains approximately 20 mL of an aqueous solution that is 10% nitric acid by volume and has been spiked with mercury. Method 29 can consist of five analytical Hg fractions (1B, 2B, 3A, 3B, and 3C). The enclosed Hg audit sample corresponds to Hg Analytical Fraction 2B, which is produced from the Container No. 4 field fraction listed in Method 29, Section 8.3.4. To prepare each mercury audit sample solution for analysis, follow the steps below.

1) Wrap a paper towel around the ampule and with the ampule in an upright position, break off the top at the pre-scored mark by exerting pressure sideways.

2) From the ampule, pipette exactly 10 mL of the audit sample solution into a 200 mL volumetric flask. Add DI water to the flask to make a total volume of 200 mL. This sample is equivalent to "Container 4" of
Method 29, which contains Sample Fraction 2.

3) Pipette 100 mL of Sample Fraction 2 into a 300 mL BOD bottle and label the sample "Analytical Fraction 2B".

4) To digest the sample in the BOD bottle, sequentially add the sample digestion solutions and perform the sample preparation described in Section 7.1 of Method 7470A:

> Add 5 mL of H_2SO_4 and 2.5 mL of concentrated HNO_3, mixing after each addition. Add
> 15 mL of potassium permanganate solution to the sample bottle. Shake and add additional portions of potassium permanganate solution, if necessary, until the purple color persists for at least 15 min. Add 8 mL of potassium persulfate to the bottle and heat for 2 hr in a water bath maintained at 95°C. Cool and add 6 mL of sodium chloride-hydroxylamine sulfate to reduce the excess permanganate. After a delay of at least 30 sec, add 5 mL of stannous sulfate, and immediately attach the bottle to the aeration apparatus and continue as described in Section 7.3 of Method 7470A.

5) Analyze Analytical Fraction 2B as described in Section 7.3 of Method 7470A.

6) Calculate the mass of Hg in Sample Fraction 2 using the following equation.

$$Hg_{SF2} = \frac{Q_{AF2B}}{V_{AF2B}}\left(V_{SF2}\right)$$

where:

Hg_{SF2}	=	Total mass of Hg in Sample Fraction 2 (Container 4), µg
Q_{AF2B}	=	Total mass of Hg in 100 mL of Analytical Fraction 2B, µg
V_{AF2B}	=	Volume of Analytical Fraction 2B analyzed, (100 mL)
V_{SF2}	=	Total volume of Sample Fraction 2, (200 mL)

7) Record the **total mass of Hg in units of µg** on the Method 29 Reporting Form.

8) Report the Method 29 Hg audit sample results to the designated agent.

Maxxam Analytics

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4.0 Sample Chromatograms

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Maxxam Analytics

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Method 5 - Particulate Matter (PM)

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Inorganic Analysis Action / Comment Form

* Please note any action or anomalies impacting this set of samples

Client ID	Alliance
Maxxam Job #	B073337
Maxxam Sample ID's (start)	GC8420-01R
Analytical Worksheet(s) Filters	2176001
Solvent Rinse	2176003
Solvent Volumes	2176004

For additional comments, please staple additional pages(s)

Analysis	Particulates
Analyst ID	

Actions:	*Impacted Sample ID's
Bottle discrepancies	No
Filters damaged	No
Solvent rinse anomalies	No
Water impinger anomalies	N/A
Filter blank submitted	Yes
Solvent blank submitted	Yes
Water blank submitted	N/A
Other	

Comments

No anomalies were noted in this submission

Filter
Particulate Weight Log

Job #	B073337
Client	Alliance
Analysis	Particulate Weight on Filter
Balance ID	220-BALANAL2 Sartorius A120S
Condition	Dickson THDX S/N 6213019

Metals	Yes
Filter Blank Submitted	Yes
Date of Dessication	2010/06/10
Time of Dessication	10:30 AM

supplier	Pall	Pall
p/n	7205	7205
lot #	56484	55658

type: M5

DE Edges of filter frayed
LPC Loose particulate material in filter container
FT Filter torn
FCL Filter contains liquid after dessication
LFT Loose filter material

Increment 1

Analyst	B Moore	B Moore	B Moore	B Moore			
Weighing Date		2010/06/14	2010/06/15	2010/06/17			
Weighing Time		12:11 PM	12:02 PM	12:16 PM			
Temperature (°C)		20	20	20			
Humidity (%)		41	36	39			

Worksheet #	#	Maxxam #	Filter Condition	Filter ID #	Pre Weight gm	Weight #1 gm	Weight #2 gm	Weight #3 gm	Weight #4 gm	Weight #5 gm	Weight #6 gm	Weight #7 gm	Final Weight gm	Particulate mg	RDL mg
2176001	1	GC8420-01R	normal	10042627	0.37510	0.3768	0.3769						0.3769	1.8	0.3
2176001	2	GC8423-01R	normal	10032423	0.34975	0.3816	0.3812						0.3812	31.5	0.3
2176001	3	GC8424-01R	normal	10032424	0.34880	0.3880	0.3871	0.3875					0.3875	38.7	0.3
2176001	4	GC8425-01R	normal	10042628	0.37975	0.4223	0.4219						0.4219	42.2	0.3
	5														
	6														
	7														
	8														
	9														
	10														
				zero	0.0000	0.0000	0.0000	0.0000							
				0.3000 gm	0.2999	0.2998	0.3000	0.3000							
	11														
	12														
	13														
	14														
	15														
	16														
	17														
	18														
	19														
	20														
				zero											
				0.3000 gm											
	21														
	22														
	23														
	24														
	25														
	26														
	27														
	28														
	29														
	30														
				zero											
				0.3000 gm											
	31														
	32														
	33														
	34														
	35														
	36														
	37														
	38														
	39														
	40														
				zero											
				0.3000 gm											

Filters are placed in a dessicator for 24 hours minimum prior to beginning weighing cycle.
Filters are not be exposed to lab atmosphere for > 2 minutes at a relative humidity of 50 %.

Solvent
Particulate Weight Log

Job #	B073337
Client	Alliance
Analysis	Particulate Weight in Acetone Rinse
Test Code	PARTACE-TR (as per M5)
Balance ID	220-BALANAL2 Sartorius A120S
Condition	Dickson THDX S/N 6213019

Metals	Yes
Reagent Blank Submitted	Yes
Date of Dessication	2010/06/14
Time of Dessication	6:30 PM

Solvent	Acetone
Lab Supplier	Caledon
lot #	73071

Analyst	B Moore	B Moore	B Moore					
Weighing Date	2010/06/02	2010/06/17	2010/06/18					
Weighing Time	4:32 PM	12:21 PM	9:56 AM					
Temperature (°C)	20	20	20					
Humidity (%)	43	39	40					

reagent blank correction
GC8420-02R
0.0

Worksheet #	#	Maxxam #	Bottle Full gm	Bottle Empty gm	Solvent Volume mL	Residue	Pre Weight gm	Weight #1 gm	Weight #2 gm	Weight #3 gm	Weight #4 gm	Weight #5 gm	Weight #6 gm	Weight #7 gm	Final Weight gm	Particulate mg	RDL mg
2176003	1	Blank	258.9	178.7	101.5	O21	25.6249	25.6247	25.6250						25.6250	0.1	0.5
2176003	2	GC8420-02R	186.7	32.0	195.8	O22	25.3055	25.3048	25.3053						25.3053	-0.2	0.5
2176003	3	GC8423-02R	84.2	31.5	66.7	O23	25.2684	25.2833	25.2838						25.2838	15.4	0.5
2176003	4	GC8424-02R	122.4	32.0	114.4	O24	25.3122	25.3512	25.3515						25.3515	39.3	0.5
2176003	5	GC8425-02R	94.8	32.2	79.2	O25	25.3078	25.3377	25.3382						25.3382	30.4	0.5
	6																
	7																
	8																
	9																
	10																
						zero	0.0000	0.0000	0.0000								
						0.3000 gm	0.3000	0.3000	0.2998								
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20																
						zero											
						0.3000 gm											
	21																
	22																
	23																
	24																
	25																
	26																
	27																
	28																
	29																
	30																
						zero											
						0.3000 gm											
	31																
	32																
	33																
	34																
	35																
	36																
	37																
	38																
	39																
	40																
						zero											
						0.3000 gm											

The residue appearance is noted in the appropriate cell.
Vials are not be exposed to lab atmosphere for > 2 minutes at a relative humidity of 50 %. The residue appearance is noted.
Apearance of residue is noted in the appropriate column (light/dark/minimal/copious -"l""d""m""c")

Maxxam Analytics

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Method 29 – Determination of Mercury Emissions from Stationary Sources

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Inorganic Analysis Action / Comment Form

* Please note any action or anomalies impacting this set of samples

Client ID: Alliance Source

Maxxam Job #: B073337

Autosampler Index

Analysis	Test Code	Worksheet	Run Date	Run #	Start Lab ID	End Lab ID	START	END	Analyst ID
29HG-3C	HGBKH-TR	2180656	2010/06/18	A	GC8420-07	GC8425-07	15	25	F. SABET
29HG-3A	HGBKN-TR	2180319	2010/06/17	A	GC8420-05	GC8425-05	53	62	F.SABET
29HG-2B	HGBKNP-TR	2180337	2010/06/17	B	GC8420-04	GD7182-01	15	25	F. SABET
29HG-3B	HGBKPS1-TR	2179123	2010/06/17	A	GC8420-06	GC8425-06	27	34	F. SABET
29HG-1B	HGFR-TR	2183330	2010/06/22	A	GC8420-01	GC8425-01	15	25	F. SABET

Actions: *Impacted Sample ID's

Bottle discrepancies _____

Interferences observed _____

Internal calculations modified _____

Field / Trip blanks missing _____

Other _____

Explanation/comments:

_____

DATA REVIEW CHECKLIST:

ANALYSIS: FIMS I, AIR WORK, RUN I **Run Date:** 2010-06-12

WORKSHEET(s): 2177920, 2179123, 2179126, 2129674, 2180319

	Primary Review (Analyst):	ok	no	n/a
1	Sample analyses meet hold time criteria	[✓]	[ ]	[ ] 1
2	Analysis set-up meets method criteria	[✓]	[ ]	[ ] 2
3	Tuning and correct calibration used - criteria meets method criteria	[✓]	[ ]	[ ] 3
4	SQC/Control Charts updated, analysis in statistical/method control	[✓]	[ ]	[ ] 4
5	Internal area counts checked (if applicable)	[ ]	[ ]	[✓] 5
6	LCS, SRM are within acceptance criteria	[✓]	[ ]	[ ] 6
7	Surrogate Recovery (s) is within acceptance criteria	[ ]	[ ]	[✓] 7
8	Method Blank meets acceptance criteria	[✓]	[ ]	[ ] 8
9	Matrix Spike recovery (s) meets acceptance criteria	[✓]	[ ]	[ ] 9
10	Duplicate precision meets acceptance criteria	[✓]	[ ]	[ ] 10
11	QC is documented on the run logs	[✓]	[ ]	[ ] 11
12	Runs checked for carryover	[✓]	[ ]	[ ] 12
13	Prep log / worksheet(s) are present, signed / dated by a prep / instrument analysts	[✓]	[ ]	[ ] 13
14	Initial weights, splits, impringer volumes (where applicable) are documented	[✓]	[ ]	[ ] 14
15	Standards and reagents traceable to Certificates of Analysis	[✓]	[ ]	[ ] 15
16	Samples above calibration range diluted and reanalyzed	[✓]	[ ]	[ ] 16
17	Dilution factors have been checked and entered	[✓]	[ ]	[ ] 17
18	Analytical observations/anomalies documented in LIMS	[✓]	[ ]	[ ] 18
19	Random calculation checked and in correct units	[✓]	[ ]	[ ] 19
20	If corrective actions were applied they are documented, initialed & dated	[✓]	[ ]	[ ] 20
21	Manual integration –before & after data with a reason included, initialed & dated	[✓]	[ ]	[ ] 21
22	Transferred data is validated in LIMS for correctness	[✓]	[ ]	[ ] 22
23	Data package assembled (where required)	[✓]	[ ]	[ ] 23

Reviewed By: M. Brajic Date: 2010-06-12

Comments:

	Secondary Supervisor/Peer Data Review:	ok	no	n/a
1	Primary Review complete and correct	[✓]	[ ]	[ ] 1
2	Repeats documented and referenced	[✓]	[ ]	[ ] 2
3	Method and sample deviations noted, anomalies described (if applicable)	[ ]	[ ]	[✓] 3
4	Data and QC validated in LIMS	[✓]	[ ]	[ ] 4
5	Random calculation checked	[✓]	[ ]	[ ] 5
6	Benchsheet (s) signed and dated	[✓]	[ ]	[ ] 6
7	Data Package checked for completeness (if required)	[✓]	[ ]	[ ] 7

Reviewed By: [signature] Date: 2010-06-21

Comments:

Spex

$$y = mx + b$$

$$0.0313 = 0.01031x + \phi$$

$$x = \frac{0.0313}{0.01031} = 3.0358874 = 3.035$$

MB

Sample Information File C:\AAUSER\SAMPINFO\100617F1.SIF

Description : FIMS1s/n 1471 stock B6035082 INT. # 179 (Working std. 100617)
Batch ID : MB11
Volume Units :
Weight Units :
Analyst : MB
Sample Volume : 0.00

AS Loc	Sample ID	Sample Weight	Sample Units	User Dilution	Remarks
7	CCV				
8	CCB				
15	BL0615-2177970-3B				
16	BLS0615				
17	BLDS0615				
18	GD6694				
19	GD6694 D				
20	GD6694 S				
21	GD6694 DS				
22	MB-3B				
23	6695				
24	6696				
25	6697				
26	6698				
27	MB-3B-2179123-3B				
28	GC84320				
29	GC8423				
30	GC8423 D				
31	GC8423 S				
32	GC8423 DS				
33	8424				
34	8425				
35	MB-3B-2179126				
36	GD6801				
37	GD6802				
38	GD6802 D				
39	GD6802 S				
40	GD6802 DS				
41	6803				
42	6804				
43	BL0615-2179674-3A				
44	BLS0615				
45	BLDS0615				
46	GD6802				
47	6802 D				
48	6802 S				
49	6802DS				
50	6801				
51	6803				
52	6804				
53	BL0615-2180319-3A				
54	BLS0615				
55	BLDS0615				
56	GC8423				
57	GC8423 D				
58	GC8423 S				
59	GC8423 DS				
60	8420				
61	8424				
62	8425				

Worksheet Number: 2179123

Mercury 3B in KMnO4/H2SO4 Imp. - Stack Sampling Train
(ug)

Parameter Name	Units	REAG BL	DL	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE
Mercury (Hg)	ug	-0.0015	0.0125	96.9	0.025	92.6	0.025	97.1

						B073337		B073337
Parameter Name	DL	SPIKEDup1	DL	BLANK	DL	GC8420	DL	GC8423
Mercury (Hg)	0.025	100.3	0.025	-0.0035	0.025	0.0002	0.0085	2.4015

		B073337		B073337		B073337		
Parameter Name	DL	GC8423Dup1	DL	GC8424	DL	GC8425	DL	RDL
Mercury (Hg)	0.025	2.41	0.025	0.377	0.05	2.831	0.025	0.05

Parameter Name	MDL	IDL
Mercury (Hg)	0.01	0

M29 Mercury	HGBKPS-TR (3B)
Worksheet #	2179123
Date Analyzed	2010/06/17

Sample #	Raw Conc. ug/L	Dilution x	Final Vol ml	Result T ug	RDL ug/L	RDL ug	%
BL06115	-0.007	1	500	**-0.0035**	0.05	**0.0250**	
BLS0615	0.971	1	500	**0.4855**	0.05	**0.0250**	**97.1**
BLDS0615	1.003	1	500	**0.5015**	0.05	**0.0250**	**100.3**
GC8423	4.803	1	500	**2.4015**	0.05	**0.0250**	
GC8423 D	4.820	1	500	**2.4100**	0.05	**0.0250**	
GC8423 S	5.780	1	500	**2.8900**	0.05	**0.0250**	**96.9**
GC2483 DS	5.737	1	500	**2.8685**	0.05	**0.0250**	**92.6**
MB-3B	-0.006	1	250	**-0.0015**	0.05	**0.0125**	
8420	0.001	1	170	**0.0002**	0.05	**0.0085**	
8424	0.377	1	1000	**0.3770**	0.05	**0.0500**	
8425	5.662	1	500	**2.8310**	0.05	**0.0250**	

Assignment Date: Tuesday ; June 15, 2010
Assigned to: FARAG FARAG
Test Code: HGBKPS-TR Instrument Id:
Test Description: Mercury from the BH KMnO4/H2SO4 Impinger by CVAA. Typically Method 29 or M0060 fraction 3B.

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	REAG BL												2010/06/15
	MTRX SPK	0	MHG% GC8423-06										2010/06/15
	MTRX SPK	1	MHG% GC8423-06										2010/06/15
	SPIKE	0	MHG%										2010/06/15
	SPIKE	1	MHG%										2010/06/15
	BLANK												2010/06/15
B073337	GC8420-06R		BLANK-COND 2-M*			170.000			2	2010/07/02	2010/06/23 23:00		2010/06/15
B073337	GC8423-06R	0	RUN 1-COND 2-M*			500.000			1	2010/07/01	2010/06/23 23:00		2010/06/15
B073337	GC8423-06R	1	RUN 1-COND 2-M*						1	2010/07/01	2010/06/23 23:00		2010/06/15
B073337	GC8424-06R		RUN 2-COND 2-M*			1000.000			1	2010/07/01	2010/06/23 23:00		2010/06/15
B073337	GC8425-06R		RUN 3-COND 2-M*			500.000			1	2010/07/02	2010/06/23 23:00		2010/06/15

Remarks:

Samples extracted by: MIRA BRUJIC 2010-06-15
Instrumentation performed by: M. Brujic Date: 2010-06-17
Calculations performed by: M. Brujic Date: 2010-06-17
Validated by: Date: 2010 6 21

Worksheet Number: 2180319

Mercury 3A in HNO3 Rinse - Stack Sampling Train
(ug)

Parameter Name	Units	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE	DL	SPIKEDup1
Mercury (Hg)	ug	95.6	0.005	95.1	0.005	97.7	0.005	97.9

				B073337		B073337		B073337
Parameter Name	DL	BLANK	DL	GC8420	DL	GC8423	DL	GC8423Dup1
Mercury (Hg)	0.005	-0.0003	0.005	-0.0002	0.005	0.241	0.005	0.2358

		B073337		B073337				
Parameter Name	DL	GC8424	DL	GC8425	DL	RDL	MDL	IDL
Mercury (Hg)	0.005	0.2714	0.0057	0.3577	0.0048	0.006	0.006	0.006

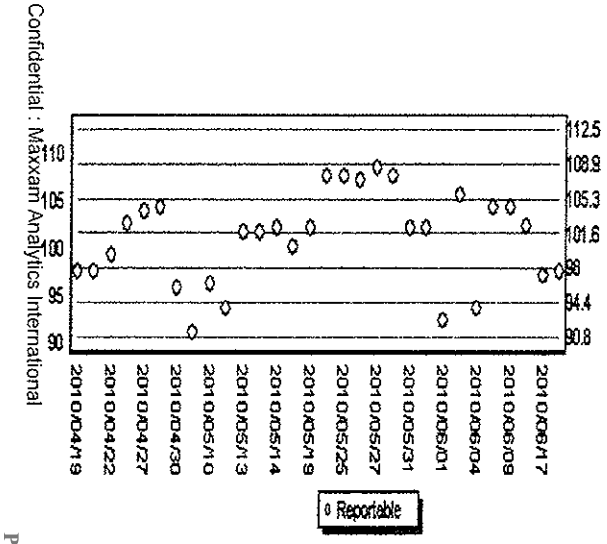
M29 Mercury	HGBKN-TR (3A)
Worksheet #	2180319
Date Analyzed	2010/06/17

Sample #	Raw Conc. ug/L	Dilution x	Final Vol ml	Result T ug	RDL ug/L	RDL ug	%
BL06115-3A	-0.003	1	100	**-0.0003**	0.05	**0.0050**	
BSL0615	0.977	1	100	**0.0977**	0.05	**0.0050**	**97.7**
BLDS0615	0.979	1	100	**0.0979**	0.05	**0.0050**	**97.9**
GC8423	2.410	1	100	**0.2410**	0.05	**0.0050**	
GC8423 D	2.358	1	100	**0.2358**	0.05	**0.0050**	
GC8423 S	3.340	1	100	**0.3340**	0.05	**0.0050**	**95.6**
GC8423 DS	3.335	1	100	**0.3335**	0.05	**0.0050**	**95.1**
GC8420	-0.002	1	100	**-0.0002**	0.05	**0.0050**	
GC8424	2.381	1	114	**0.2714**	0.05	**0.0057**	
GC8425	3.726	1	96	**0.3577**	0.05	**0.0048**	

FIMS 100 CV AA Workstation

Friday Jun 18, 2010 3:27 PM

HGBKN-TR Mercury % Control Charts SPIKE



Confidential : Maxxam Analytics International

Mira Brujic

MIRA BRUJIC

Assignment Date: Wednesday ; June 16, 2010
Assigned to: FARAG FARAG
Test Code: HGBKN-TR Instrument Id:
Test Description: Mercury from the BH HNO3 Rinse by CVAA. Typically Method 29 or M0060 fraction 3A.

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	MTRX SPK	0	MHG% GC8423-05										2010/06/16
	MTRX SPK	1	MHG% GC8423-05										2010/06/16
	SPIKE	0	MHG%										2010/06/16
	SPIKE	1	MHG%										2010/06/16
	BLANK												2010/06/16
B073337	GC8420-05R		BLANK-COND 2-M*			224.000 (100)			1	2010/07/02	2010/06/23 23:00		2010/06/15
B073337	GC8423-05R	0	RUN 1-COND 2-M*			100.000			1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8423-05R	1	RUN 1-COND 2-M*						1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8424-05R		RUN 2-COND 2-M*			114.000			1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8425-05R		RUN 3-COND 2-M*			96.000			1	2010/07/02	2010/06/23 23:00		2010/06/16

Remarks:

Samples extracted by: MIRA BRUJIC 2010-06-16
Instrumentation performed by: M. Brujic Date: 2010-6-17
Calculations performed by: M. Brujic Date: 2010-06-17
Validated by: Date: 20100621

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DG29

Calibration Solutions: SOP-00104

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	pm liquid working cal std	2.5*
4	Standard 3	3.33	pm liquid working cal std	5.0
5	Standard 4	5.0	pm liquid working cal std	7.5
6	Standard 5	6.67	pm liquid working cal std	10.0
7	Standard 6	8.33	pm liquid working cal std	12.5

* Standard 2 is diluted x50, i.e. 400uL of the 2.5ppb to 20mL of the dilution water, giving a Standard 2 of 0.05 ppb for calibration

Check List

- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Samples spiked
- ✓ Acids added
- ✓ Reagents added
- ✓ Bath at 95°C ± 2° C
- ✓ Samples digested
- ✓ Samples cooled - Hydroxylamine HCl added
- ✓ Samples bulked capped then shaken
- ✓ Rack order checked

HG BLEN - T R

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	11	ICV (Init. Calib. Verif.)	HGA	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05 ppm Liquid Working Reference QC Std.
	12	LLCW (low level check)	"	"	"	"	0.25 ppb = 50 ul of 0.1 ppm Liquid Working Cal Std.
	13	External Ref.	"	"	"	"	3.0 ppb = 600 ul of 0.1ppm Intermediate Spex Reference Std.
	14	Organic Ref. (DCS)	"	"	"	"	2.0 ppb = 400 ul of Intermediate Organic Reference Std.
	15	BL 0616	"	"	"	"	(Processed Blank)
	16	BL S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Liquid Working Cal Std.
	17	BL DS	"	"	"	"	(Duplicate Blank Spike)
1	18	GC 9423	"	"	"	"	
1	19	D	"	"	"	"	(Duplicate sample)
1	20	S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Liquid Working Cal Std.
1	21	DS	"	"	"	"	(Duplicate Spiked sample)
2	22	GC 8420	"	"	"	"	
3	23	424	"	"	"	"	
4	24	425	"	"	"	"	
5	25		"	"	"	"	
6	26		"	"	"	"	
7	27		"	"	"	"	
8	28		"	"	"	"	
9	29		"	"	"	"	
10	30		"	"	"	"	
	31	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
	32	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
11	33		"	"	"	"	
12	34		"	"	"	"	
13	35		"	"	"	"	
14	36		"	"	"	"	
15	37		"	"	"	"	
16	38		"	"	"	"	
17	39		"	"	"	"	
18	40		"	"	"	"	
19	41		"	"	"	"	
20	42		"	"	"	"	
	43	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
	44	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.

2010-06-16 MB

Comments:** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Refer to the BRL SOP-00104 for Applicable Test Codes

Procedure/Methodology:

Note:Calibration Standards, ICVs, CCVs, CCBs and LCS are prepared the same as the samples but are not digested.

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm stock plus 0.5 ml conc. HNO3 to 25 ml final volume
2 Prepare 0.1 ppm Liquid Working Calibration Standard daily: pipet 400 ul., of 25 ppm Interm plus 2.0 ml of conc. HNO3 to 100 ml final volume
3 Prepare a 0.05 ppm Liquid Working Reference QC Standard daily: pipet 50 ul of Stock Reference Standard (100ppm Hg) plus 2.0 ml of conc. HNO3 to 100 ml final volume
4 Using the LIMS Screen enter the required samples into a worksheet
5 Label the falcon tubes appropriately
6 Include one External Reference Material sample per daily run
7 Incude one Organic Mercury Control Standard per daily run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube. For Method 29 2B (HNO3/H2O2 impinger) transfer a 2 ml aliquot.
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 5% $KMnO_4$, purple **colour must remain for the duration of digest.**
12 For Method 29 2B (HNO3/H2O2 impinger) add 9 ml of 5% KMNO4.
Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$)
13 Mix samples, cap loosely and place in a water bath @ 95°C ± 2° C for 2 hours
14 Remove tubes and allow to cool to room temperature, samples may be cooled by placeing in a cool water bath.
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Dilute each sample to a final volume of 30 ml.
17 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	AccuTrace	B6035082	2011/04/30
Intermediate Cal Standard	Internal	No179 B6035082	2010/06/24
Stock Reference Standard	Delta	928005	2010/10/15
External Reference Material	Fisher	109 CL4-120HG	2011/07/04
Organic Mercury Control Standard	Delta	No96 100 4 G / 3	2010/06/21
5% potassium permanganate	Internal	BottA E11802	2010/06/03
5% potassium persulphate	Internal	BottA 92630	2010/06/03
20% hydroxylamine hydrochloride	Internal	Bott.A92979	2010/06/03
HNO_3	Fisher	1110030	2013/02/29
H_2SO_4	Fisher	3106112	2012/05/31
Bath Temps: 190.1 C	Time ON: 12:01	Time OFF: 2:20	
Prepared By: HB	Date: 2010-06-16	Checked by: HB	

Method Name: 7470hg-w
Method Description: 7470HG-W
Element: Hg

Date: 06/17/2010
Technique:FI-MHS
Calibration Type:
Hg, Zero Intercept: Linear
Wavelength: 253.7 nm
Sample Info **Name: 100617F1.SIF** **Results Data Set Name: 100617F1.SIF**

Element: Hg Seq. No.: 1 AS Loc.: 1 Date: 06/17/2010
Sample ID: Calib Blank

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0002	0.0011	0.0002	09:37:57	Yes
2			0.0001	0.0005	0.0001	09:38:30	Yes
3			0.0002	0.0013	0.0002	09:39:04	Yes
Mean:			0.0002				
SD :			0.0000				
%RSD:			20.0827				

Auto-zero performed.

Element: Hg Seq. No.: 2 AS Loc.: 2 Date: 06/17/2010
Sample ID: STD1

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0005	0.0046	0.0007	09:39:54	Yes
2			0.0005	0.0045	0.0007	09:40:25	Yes
3			0.0006	0.0050	0.0007	09:40:58	Yes
Mean:			0.0005				
SD :			0.0000				
%RSD:			3.5245				

[Hg] Standard number 1 applied. [0.050]
Correlation Coefficient: 1.00000 Slope: 0.01062

Element: Hg Seq. No.: 3 AS Loc.: 3 Date: 06/17/2010
Sample ID: STD2

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0515	0.3385	0.0517	09:41:47	Yes
2			0.0519	0.3380	0.0520	09:42:21	Yes
3			0.0516	0.3364	0.0517	09:42:53	Yes
Mean:			0.0517				
SD :			0.0002				
%RSD:			0.3250				

[Hg] Standard number 2 applied. [5.000]
Correlation Coefficient: 1.00000 Slope: 0.01033

Element: Hg Seq. No.: 4 AS Loc.: 4 Date: 06/17/2010
Sample ID: STD3

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0776	0.5080	0.0778	09:44:08	Yes
2			0.0776	0.5050	0.0778	09:44:41	Yes

3	0.0790	0.5128	0.0792	09:45:13	Yes
Mean:	0.0781				
SD :	0.0008				
%RSD:	1.0360				

[Hg] Standard number 3 applied. [7.500]
Correlation Coefficient: 0.99998 Slope: 0.01039

==========

Element: Hg Seq. No.: 5 AS Loc.: 5 Date: 06/17/2010
Sample ID: STD4

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1030	0.6729	0.1031	09:46:30	Yes
2			0.1039	0.6742	0.1041	09:47:03	Yes
3			0.1046	0.6791	0.1047	09:47:35	Yes
Mean:			0.1038				
SD :			0.0008				
%RSD:			0.7744				

[Hg] Standard number 4 applied. [10.00]
Correlation Coefficient: 0.99999 Slope: 0.01038

==========

Element: Hg Seq. No.: 6 AS Loc.: 6 Date: 06/17/2010
Sample ID: STD5

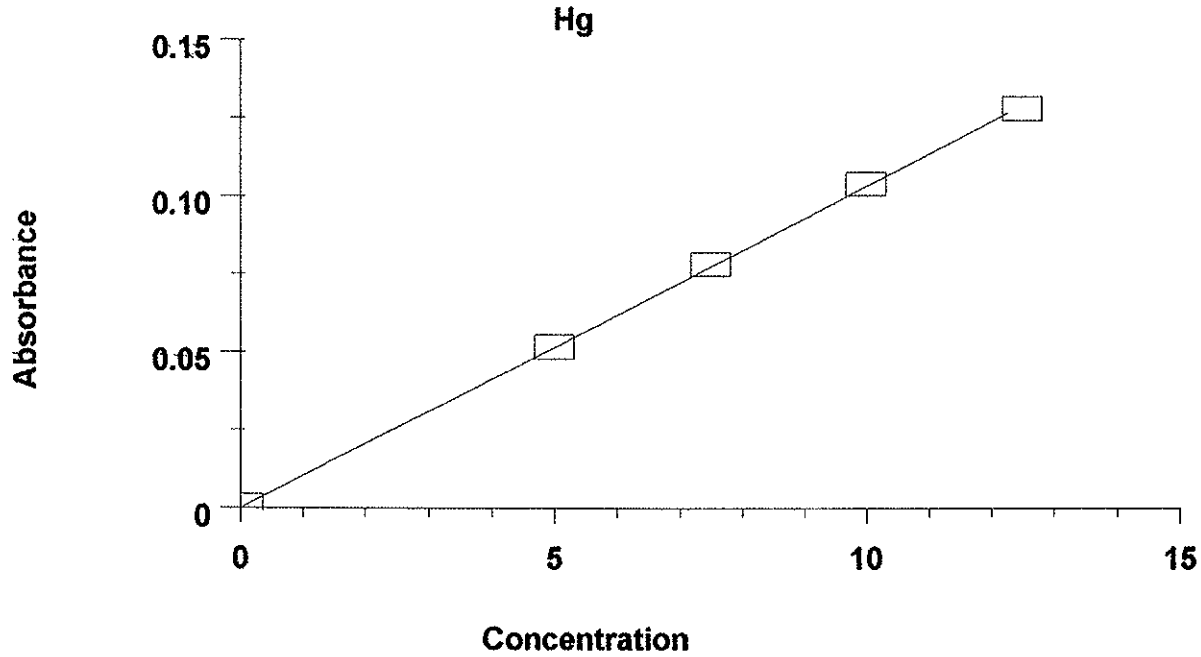
Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1279	0.8363	0.1280	09:48:52	Yes
2			0.1289	0.8407	0.1291	09:49:25	Yes
3			0.1268	0.8305	0.1270	09:49:57	Yes
Mean:			0.1279				
SD :			0.0011				
%RSD:			0.8387				

[Hg] Standard number 5 applied. [12.50]
Correlation Coefficient: 0.99989 Slope: 0.01031

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0002	---	----	----	----
STD1	0.0005	0.050	0.051	0.0000	3.5
STD2	0.0517	5.000	5.009	0.0002	0.3
STD3	0.0781	7.500	7.573	0.0008	1.0
STD4	0.1038	10.000	10.07	0.0008	0.8
STD5	0.1279	12.500	12.40	0.0011	0.8

Correlation Coefficient: 0.99989 Slope: 0.01031



Element: Hg Seq. No.: 7 AS Loc.: 9 Date: 06/17/2010
Sample ID: ICV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.457	1.457	0.0150	0.0980	0.0152	09:51:18	Yes
2	1.439	1.439	0.0148	0.0971	0.0150	09:51:49	Yes
3	1.469	1.469	0.0151	0.0982	0.0153	09:52:24	Yes
Mean:	1.455	1.455	0.0150				
SD :	0.0152	0.0152	0.0002				
%RSD:	1.0	1.0	1.0417				

92-/0

QC value within specified limits.

Element: Hg Seq. No.: 8 AS Loc.: 10 Date: 06/17/2010
Sample ID: ICB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	0.0005	0.0001	09:53:34	Yes
2	-0.011	-0.011	-0.0001	-0.0002	0.0000	09:54:06	Yes
3	-0.010	-0.010	-0.0001	-0.0003	0.0000	09:54:40	Yes
Mean:	-0.009	-0.009	-0.0001				
SD :	0.0025	0.0025	0.0000				
%RSD:	27.6	27.6	27.6353				

QC value within specified limits.

Element: Hg Seq. No.: 9 AS Loc.: 11 Date: 06/17/2010
Sample ID: SPEX HG-STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.029	3.029	0.0312	0.2050	0.0314	09:55:27	Yes
2	3.042	3.042	0.0314	0.2050	0.0315	09:56:01	Yes

3	3.034	3.034	0.0313	0.2043	0.0314	09:56:33	Yes
Mean:	3.035	3.035	0.0313				
SD :	0.0065	0.0065	0.0001				
%RSD:	0.2	0.2	0.2156				

QC value within specified limits.

101.6 %

==========

Element: Hg Seq. No.: 10 AS Loc.: 12 Date: 06/17/2010
Sample ID: LLC

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.232	0.232	0.0024	0.0168	0.0025	09:57:45	Yes
2	0.231	0.231	0.0024	0.0163	0.0025	09:58:18	Yes
3	0.237	0.237	0.0024	0.0170	0.0026	09:58:50	Yes
Mean:	0.233	0.233	0.0024				
SD :	0.0033	0.0033	0.0000				
%RSD:	1.4	1.4	1.4343				

QC value within specified limits.

93.2 %

==========

Element: Hg Seq. No.: 11 AS Loc.: 13 Date: 06/17/2010
Sample ID: DIL. CHECK

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.012	-0.012	-0.0001	-0.0003	0.0000	09:59:40	Yes
2	-0.006	-0.006	-0.0001	0.0001	0.0001	10:00:12	Yes
3	-0.007	-0.007	-0.0001	0.0000	0.0001	10:00:46	Yes
Mean:	-0.008	-0.008	-0.0001				
SD :	0.0030	0.0030	0.0000				
%RSD:	36.1	36.1	36.0591				

QC value within specified limits.

==========

Element: Hg Seq. No.: 12 AS Loc.: 14 Date: 06/17/2010
Sample ID: ORGANIC STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.931	1.931	0.0199	0.1320	0.0201	10:01:34	Yes
2	1.925	1.925	0.0199	0.1317	0.0200	10:02:06	Yes
3	1.950	1.950	0.0201	0.1334	0.0203	10:02:40	Yes
Mean:	1.935	1.935	0.0200				
SD :	0.0133	0.0133	0.0001				
%RSD:	0.7	0.7	0.6880				

QC value within specified limits.

96.75

==========

Element: Hg Seq. No.: 13 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.959	0.959	0.0099	0.0662	0.0100	10:03:55	Yes
2	0.952	0.952	0.0098	0.0660	0.0100	10:04:27	Yes
3	0.939	0.939	0.0097	0.0652	0.0098	10:05:01	Yes
Mean:	0.950	0.950	0.0098				
SD :	0.0103	0.0103	0.0001				
%RSD:	1.1	1.1	1.0840				

95.1 %

==========

Element: Hg Seq. No.: 14 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.015	-0.015	-0.0002	-0.0008	0.0000	10:05:49	Yes
2	-0.007	-0.007	-0.0001	0.0002	0.0001	10:06:23	Yes
3	-0.004	-0.004	0.0000	0.0008	0.0001	10:06:55	Yes
Mean:	-0.009	-0.009	-0.0001				
SD :	0.0054	0.0054	0.0001				
%RSD:	63.4	63.4	63.3579				

Element: Hg Seq. No.: 15 AS Loc.: 15 Date: 06/17/2010
Sample ID: BL0615-2177970-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.011	-0.011	-0.0001	-0.0002	0.0000	10:07:47	Yes
2	-0.015	-0.015	-0.0002	-0.0007	0.0000	10:08:21	Yes
3	-0.010	-0.010	-0.0001	-0.0001	0.0000	10:08:52	Yes
Mean:	-0.012	-0.012	-0.0001				
SD :	0.0024	0.0024	0.0000				
%RSD:	19.4	19.4	19.3979				

Element: Hg Seq. No.: 16 AS Loc.: 16 Date: 06/17/2010
Sample ID: BLS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.941	0.941	0.0097	0.0685	0.0099	10:09:41	Yes
2	0.922	0.922	0.0095	0.0673	0.0097	10:10:13	Yes
3	0.945	0.945	0.0097	0.0676	0.0099	10:10:47	Yes
Mean:	0.936	0.936	0.0097				
SD :	0.0126	0.0126	0.0001				
%RSD:	1.3	1.3	1.3440				

Re analyzed QC failed page 20

Element: Hg Seq. No.: 17 AS Loc.: 17 Date: 06/17/2010
Sample ID: BLDS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.930	0.930	0.0096	0.0666	0.0097	10:11:34	Yes
2	0.930	0.930	0.0096	0.0669	0.0097	10:12:08	Yes
3	0.929	0.929	0.0096	0.0669	0.0097	10:12:40	Yes
Mean:	0.929	0.929	0.0096				
SD :	0.0008	0.0008	0.0000				
%RSD:							

Element: Hg Seq. No.: 18 AS Loc.: 18 Date: 06/17/2010
Sample ID: GD6694

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.008	-0.008	-0.0001	0.0001	0.0001	10:13:29	Yes
2	-0.005	-0.005	0.0000	0.0004	0.0001	10:14:03	Yes
3	-0.010	-0.010	-0.0001	-0.0002	0.0001	10:14:34	Yes
Mean:	-0.007	-0.007	-0.0001				
SD :	0.0026	0.0026	0.0000				
%RSD:	34.4	34.4	34.3712				

Element: Hg Seq. No.: 19 AS Loc.: 19 Date: 06/17/2010

Sample ID: GD6694 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.008	-0.008	-0.0001	-0.0001	0.0001	10:15:24	Yes
2	-0.011	-0.011	-0.0001	-0.0004	0.0000	10:15:56	Yes
3	-0.007	-0.007	-0.0001	0.0002	0.0001	10:16:31	Yes
Mean:	-0.009	-0.009	-0.0001				
SD :	0.0019	0.0019	0.0000				
%RSD:	22.2	22.2	22.1593				

Element: Hg Seq. No.: 20 AS Loc.: 20 Date: 06/17/2010
Sample ID: GD6694 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.939	0.939	0.0097	0.0685	0.0098	10:17:18	Yes
2	0.947	0.947	0.0098	0.0687	0.0099	10:17:52	Yes
3	0.925	0.925	0.0095	0.0674	0.0097	10:18:24	Yes
Mean:	0.937	0.937	0.0097				
SD :	0.0109	0.0109	0.0001				
%RSD:	1.2	1.2	1.1589				

Element: Hg Seq. No.: 21 AS Loc.: 21 Date: 06/17/2010
Sample ID: GD6694 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.942	0.942	0.0097	0.0686	0.0099	10:19:13	Yes
2	0.933	0.933	0.0096	0.0678	0.0098	10:19:47	Yes
3	0.929	0.929	0.0096	0.0676	0.0097	10:20:18	Yes
Mean:	0.935	0.935	0.0096				
SD :	0.0067	0.0067	0.0001				
%RSD:	0.7	0.7	0.7142				

Received per QC failed page 21

Element: Hg Seq. No.: 22 AS Loc.: 22 Date: 06/17/2010
Sample ID: MB-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.010	-0.010	-0.0001	-0.0002	0.0001	10:21:07	Yes
2	-0.009	-0.009	-0.0001	0.0001	0.0001	10:21:39	Yes
3	-0.009	-0.009	-0.0001	0.0000	0.0001	10:22:14	Yes
Mean:	-0.009	-0.009	-0.0001				
SD :	0.0003	0.0003	0.0000				
%RSD:	3.1	3.1	3.1351				

Element: Hg Seq. No.: 23 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.871	0.871	0.0090	0.0648	0.0091	10:23:02	Yes
2	0.861	0.861	0.0089	0.0637	0.0090	10:23:34	Yes
3	0.860	0.860	0.0089	0.0638	0.0090	10:24:06	Yes
Mean:	0.864	0.864	0.0089				
SD :	0.0061	0.0061	0.0001				
%RSD:	0.7	0.7	0.7111				

QC failed, value less than lower limit for Hg.

Element: Hg Seq. No.: 24 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.865	0.865	0.0089	0.0648	0.0091	10:24:57	Yes
2	0.854	0.854	0.0088	0.0637	0.0090	10:25:30	Yes
3	0.854	0.854	0.0088	0.0638	0.0090	10:26:01	Yes
Mean:	0.858	0.858	0.0088				
SD :	0.0061	0.0061	0.0001				
%RSD:	0.7	0.7	0.7131				

QC failed, value less than lower limit for Hg.
Current analysis method stopped.

Element: Hg Seq. No.: 25 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.276	1.276	0.0132	0.0815	0.0133	10:31:37	Yes
2	1.204	1.204	0.0124	0.0680	0.0126	10:32:21	Yes
3	1.060	1.060	0.0109	0.0549	0.0111	10:32:53	Yes
Mean:	1.180	1.180	0.0122				
SD :	0.1099	0.1099	0.0011				
%RSD:	9.3	9.3	9.3122				

Element: Hg Seq. No.: 26 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	0.0001	0.0001	10:34:13	Yes
2	-0.007	-0.007	-0.0001	-0.0003	0.0001	10:34:44	Yes
3	0.000	0.000	0.0000	0.0010	0.0001	10:35:19	Yes
Mean:	-0.004	-0.004	0.0000				
SD :	0.0034	0.0034	0.0000				
%RSD:	79.4	79.4	79.4093				

Element: Hg Seq. No.: 27 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.068	1.068	0.0110	0.0581	0.0112	10:37:04	Yes
2	0.902	0.902	0.0093	0.0496	0.0095	10:37:36	Yes
3	0.787	0.787	0.0081	0.0414	0.0083	10:38:10	Yes
Mean:	0.919	0.919	0.0095				
SD :	0.1413	0.1413	0.0015				
%RSD:	15.4	15.4	15.3728				

Element: Hg Seq. No.: 28 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.003	-0.003	0.0000	0.0005	0.0001	10:38:59	Yes
2	-0.001	-0.001	0.0000	0.0007	0.0001	10:39:31	Yes
3	-0.004	-0.004	0.0000	0.0004	0.0001	10:40:06	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0013	0.0013	0.0000				
%RSD:	45.3	45.3	45.2617				

Element: Hg Seq. No.: 29 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.106	1.106	0.0114	0.0605	0.0116	10:42:10	Yes
2	1.120	1.120	0.0116	0.0585	0.0117	10:42:48	Yes
3	1.059	1.059	0.0109	0.0640	0.0111	10:43:20	Yes
Mean:	1.095	1.095	0.0113				
SD :	0.0322	0.0322	0.0003				
%RSD:	2.9	2.9	2.9420				

109.5%

Element: Hg Seq. No.: 30 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	0.0000	0.0001	10:44:39	Yes
2	-0.005	-0.005	-0.0001	0.0001	0.0001	10:45:10	Yes
3	-0.003	-0.003	0.0000	0.0007	0.0001	10:45:44	Yes
Mean:	-0.005	-0.005	0.0000				
SD :	0.0014	0.0014	0.0000				
%RSD:	29.9	29.9	29.9147				

Element: Hg Seq. No.: 31 AS Loc.: 15 Date: 06/17/2010
Sample ID: BL0615-2177970-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.010	-0.010	-0.0001	-0.0003	0.0001	10:48:33	Yes
2	-0.006	-0.006	-0.0001	0.0002	0.0001	10:49:04	Yes
3	-0.006	-0.006	-0.0001	0.0007	0.0001	10:49:39	Yes
Mean:	-0.007	-0.007	-0.0001				
SD :	0.0021	0.0021	0.0000				
%RSD:	27.7	27.7	27.6966				

Element: Hg Seq. No.: 32 AS Loc.: 16 Date: 06/17/2010
Sample ID: BLS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.132	1.132	0.0117	0.0633	0.0118	10:50:25	Yes
2	1.127	1.127	0.0116	0.0633	0.0118	10:50:59	Yes
3	1.133	1.133	0.0117	0.0637	0.0118	10:51:31	Yes
Mean:	1.131	1.131	0.0117				
SD :	0.0033	0.0033	0.0000				
%RSD:	0.3	0.3	0.2896				

113 %
Reanalyze

Element: Hg Seq. No.: 33 AS Loc.: 17 Date: 06/17/2010
Sample ID: BLDS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.004	1.004	0.0103	0.0555	0.0105	10:52:47	Yes
2	0.997	0.997	0.0103	0.0552	0.0104	10:53:20	Yes
3	1.008	1.008	0.0104	0.0554	0.0105	10:53:52	Yes
Mean:	1.003	1.003	0.0103				
SD :	0.0057	0.0057	0.0001				
%RSD:	0.6	0.6	0.5683				

101 %

Element: Hg Seq. No.: 34 AS Loc.: 18 Date: 06/17/2010
Sample ID: GD6694

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0008	0.0001	10:55:08	Yes
2	-0.005	-0.005	-0.0001	0.0001	0.0001	10:55:41	Yes
3	-0.004	-0.004	0.0000	0.0006	0.0001	10:56:13	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0027	0.0027	0.0000				
%RSD:	85.6	85.6	85.5681				

Element: Hg Seq. No.: 35 AS Loc.: 19 Date: 06/17/2010
Sample ID: GD6694 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0008	0.0001	10:57:03	Yes
2	-0.003	-0.003	0.0000	0.0004	0.0001	10:57:37	Yes
3	0.000	0.000	0.0000	0.0007	0.0001	10:58:08	Yes
Mean:	-0.001	-0.001	0.0000				
SD :	0.0010	0.0010	0.0000				
%RSD:	74.4	74.4	74.3963				

Element: Hg Seq. No.: 36 AS Loc.: 20 Date: 06/17/2010
Sample ID: GD6694 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.019	1.019	0.0105	0.0563	0.0107	10:58:58	Yes
2	1.013	1.013	0.0104	0.0560	0.0106	10:59:30	Yes
3	1.022	1.022	0.0105	0.0565	0.0107	11:00:04	Yes
Mean:	1.018	1.018	0.0105				
SD :	0.0047	0.0047	0.0000				
%RSD:	0.5	0.5	0.4602				

102.2%

Element: Hg Seq. No.: 37 AS Loc.: 21 Date: 06/17/2010
Sample ID: GD6694 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.032	1.032	0.0106	0.0569	0.0108	11:01:21	Yes
2	1.034	1.034	0.0107	0.0570	0.0108	11:01:53	Yes
3	1.026	1.026	0.0106	0.0568	0.0107	11:02:27	Yes
Mean:	1.031	1.031	0.0106				
SD :	0.0040	0.0040	0.0000				
%RSD:	0.4	0.4	0.3848				

103.1%

Element: Hg Seq. No.: 38 AS Loc.: 22 Date: 06/17/2010
Sample ID: MB-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.003	-0.003	0.0000	0.0009	0.0001	11:03:44	Yes
2	-0.008	-0.008	-0.0001	-0.0001	0.0001	11:04:17	Yes
3	-0.005	-0.005	-0.0001	0.0004	0.0001	11:04:49	Yes
Mean:	-0.005	-0.005	-0.0001				
SD :	0.0025	0.0025	0.0000				
%RSD:	46.1	46.1	46.1055				

Element: Hg Seq. No.: 39 AS Loc.: 23 Date: 06/17/2010
Sample ID: 6695

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.018	0.018	0.0002	0.0018	0.0003	11:05:39	Yes
2	0.019	0.019	0.0002	0.0020	0.0003	11:06:11	Yes
3	0.020	0.020	0.0002	0.0019	0.0004	11:06:45	Yes
Mean:	0.019	0.019	0.0002				
SD :	0.0011	0.0011	0.0000				
%RSD:	6.0	6.0	5.9913				

Element: Hg Seq. No.: 40 AS Loc.: 24 Date: 06/17/2010
Sample ID: 6696

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.008	0.008	0.0001	0.0008	0.0002	11:07:36	Yes
2	0.013	0.013	0.0001	0.0019	0.0003	11:08:10	Yes
3	0.009	0.009	0.0001	0.0010	0.0002	11:08:42	Yes
Mean:	0.010	0.010	0.0001				
SD :	0.0029	0.0029	0.0000				
%RSD:	29.6	29.6	29.5653				

Element: Hg Seq. No.: 41 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.987	0.987	0.0102	0.0542	0.0103	11:09:35	Yes
2	0.982	0.982	0.0101	0.0533	0.0103	11:10:08	Yes
3	0.985	0.985	0.0102	0.0538	0.0103	11:10:40	Yes
Mean:	0.984	0.984	0.0102				
SD :	0.0027	0.0027	0.0000				
%RSD:	0.3	0.3	0.2779				

98.4 %

Element: Hg Seq. No.: 42 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.007	-0.007	-0.0001	0.0000	0.0001	11:11:30	Yes
2	-0.008	-0.008	-0.0001	0.0001	0.0001	11:12:02	Yes
3	-0.010	-0.010	-0.0001	-0.0005	0.0000	11:12:36	Yes
Mean:	-0.008	-0.008	-0.0001				
SD :	0.0019	0.0019	0.0000				
%RSD:	22.2	22.2	22.2161				

Element: Hg Seq. No.: 43 AS Loc.: 25 Date: 06/17/2010
Sample ID: 6697

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.018	0.018	0.0002	0.0013	0.0003	11:14:24	Yes
2	0.020	0.020	0.0002	0.0018	0.0004	11:14:58	Yes
3	0.022	0.022	0.0002	0.0020	0.0004	11:15:29	Yes
Mean:	0.020	0.020	0.0002				
SD :	0.0021	0.0021	0.0000				
%RSD:	10.2	10.2	10.1681				

Element: Hg Seq. No.: 44 AS Loc.: 26 Date: 06/17/2010
Sample ID: 6698

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.033	0.033	0.0003	0.0024	0.0005	11:16:18	Yes
2	0.035	0.035	0.0004	0.0026	0.0005	11:16:50	Yes
3	0.034	0.034	0.0004	0.0025	0.0005	11:17:24	Yes
Mean:	0.034	0.034	0.0003				
SD :	0.0011	0.0011	0.0000				
%RSD:	3.3	3.3	3.2571				

Element: Hg Seq. No.: 45 AS Loc.: 27 Date: 06/17/2010
Sample ID: MB-3B-2179123-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.007	-0.007	-0.0001	0.0000	0.0001	11:18:11	Yes
2	-0.008	-0.008	-0.0001	0.0001	0.0001	11:18:45	Yes
3	-0.003	-0.003	0.0000	0.0006	0.0001	11:19:16	Yes
Mean:	-0.006	-0.006	-0.0001				
SD :	0.0025	0.0025	0.0000				
%RSD:	40.6	40.6	40.6285				

Element: Hg Seq. No.: 46 AS Loc.: 28 Date: 06/17/2010
Sample ID: GC84320

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.001	0.001	0.0000	0.0008	0.0002	11:20:06	Yes
2	0.001	0.001	0.0000	0.0010	0.0002	11:20:40	Yes
3	0.003	0.003	0.0000	0.0009	0.0002	11:21:11	Yes
Mean:	0.001	0.001	0.0000				
SD :	0.0012	0.0012	0.0000				
%RSD:	92.6	92.6	92.6395				

Element: Hg Seq. No.: 47 AS Loc.: 29 Date: 06/17/2010
Sample ID: GC8423

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.795	4.795	0.0495	0.2629	0.0496	11:22:01	Yes
2	4.830	4.830	0.0498	0.2646	0.0500	11:22:32	Yes
3	4.784	4.784	0.0493	0.2628	0.0495	11:23:06	Yes
Mean:	4.803	4.803	0.0495				
SD :	0.0237	0.0237	0.0002				
%RSD:	0.5	0.5	0.4939				

Element: Hg Seq. No.: 48 AS Loc.: 30 Date: 06/17/2010
Sample ID: GC8423 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.839	4.839	0.0499	0.2653	0.0501	11:24:19	Yes
2	4.815	4.815	0.0497	0.2648	0.0498	11:24:51	Yes
3	4.807	4.807	0.0496	0.2646	0.0497	11:25:25	Yes
Mean:	4.820	4.820	0.0497				
SD :	0.0165	0.0165	0.0002				
%RSD:	0.3	0.3	0.3429				

Element: Hg Seq. No.: 49 AS Loc.: 31 Date: 06/17/2010
Sample ID: GC8423 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.776	5.776	0.0596	0.3170	0.0597	11:26:38	Yes
2	5.807	5.807	0.0599	0.3172	0.0600	11:27:10	Yes
3	5.758	5.758	0.0594	0.3163	0.0595	11:27:44	Yes
Mean:	5.780	5.780	0.0596				
SD :	0.0246	0.0246	0.0003				
%RSD:	0.4	0.4	0.4262				

96.85

Element: Hg Seq. No.: 50 AS Loc.: 32 Date: 06/17/2010
Sample ID: GC8423 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.719	5.719	0.0590	0.3160	0.0591	11:28:57	Yes
2	5.764	5.764	0.0594	0.3163	0.0596	11:29:29	Yes
3	5.730	5.730	0.0591	0.3157	0.0592	11:30:03	Yes
Mean:	5.737	5.737	0.0592				
SD :	0.0233	0.0233	0.0002				
%RSD:	0.4	0.4	0.4054				

97.55%

Element: Hg Seq. No.: 51 AS Loc.: 33 Date: 06/17/2010
Sample ID: 8424

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.374	0.374	0.0039	0.0214	0.0040	11:31:17	Yes
2	0.376	0.376	0.0039	0.0207	0.0040	11:31:49	Yes
3	0.380	0.380	0.0039	0.0215	0.0041	11:32:23	Yes
Mean:	0.377	0.377	0.0039				
SD :	0.0028	0.0028	0.0000				
%RSD:	0.8	0.8	0.7532				

Element: Hg Seq. No.: 52 AS Loc.: 34 Date: 06/17/2010
Sample ID: 8425

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.677	5.677	0.0585	0.3118	0.0587	11:33:12	Yes
2	5.658	5.658	0.0584	0.3110	0.0585	11:33:43	Yes
3	5.653	5.653	0.0583	0.3114	0.0584	11:34:14	Yes
Mean:	5.662	5.662	0.0584				
SD :	0.0127	0.0127	0.0001				
%RSD:	0.2	0.2	0.2236				

Element: Hg Seq. No.: 53 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.991	0.991	0.0102	0.0544	0.0104	11:35:34	Yes
2	0.988	0.988	0.0102	0.0547	0.0103	11:36:05	Yes
3	0.975	0.975	0.0101	0.0541	0.0102	11:36:40	Yes
Mean:	0.985	0.985	0.0102				
SD :	0.0084	0.0084	0.0001				
%RSD:	0.9	0.9	0.8564				

98.5%

Element: Hg Seq. No.: 54 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.002	-0.002	0.0000	0.0003	0.0001	11:37:27	Yes
2	-0.004	-0.004	0.0000	0.0008	0.0001	11:38:01	Yes
3	-0.003	-0.003	0.0000	0.0007	0.0001	11:38:33	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0010	0.0010	0.0000				
%RSD:	32.7	32.7	32.7190				

Element: Hg Seq. No.: 55 AS Loc.: 35 Date: 06/17/2010
Sample ID: MB-3B-2179126

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.009	-0.009	-0.0001	-0.0004	0.0001	11:40:54	Yes
2	-0.010	-0.010	-0.0001	-0.0004	0.0000	11:41:26	Yes
3	-0.004	-0.004	0.0000	0.0005	0.0001	11:42:00	Yes
Mean:	-0.008	-0.008	-0.0001				
SD :	0.0033	0.0033	0.0000				
%RSD:	41.3	41.3	41.3461				

Element: Hg Seq. No.: 56 AS Loc.: 36 Date: 06/17/2010
Sample ID: GD6801

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.009	-0.009	-0.0001	-0.0004	0.0001	11:42:48	Yes
2	-0.003	-0.003	0.0000	0.0007	0.0001	11:43:20	Yes
3	-0.009	-0.009	-0.0001	-0.0003	0.0001	11:43:54	Yes
Mean:	-0.007	-0.007	-0.0001				
SD :	0.0034	0.0034	0.0000				
%RSD:	50.5	50.5	50.5150				

Element: Hg Seq. No.: 57 AS Loc.: 37 Date: 06/17/2010
Sample ID: GD6802

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.093	1.093	0.0113	0.0618	0.0114	11:44:41	Yes
2	1.110	1.110	0.0115	0.0612	0.0116	11:45:15	Yes
3	1.115	1.115	0.0115	0.0620	0.0116	11:45:47	Yes
Mean:	1.106	1.106	0.0114				
SD :	0.0116	0.0116	0.0001				
%RSD:	1.0	1.0	1.0496				

Element: Hg Seq. No.: 58 AS Loc.: 38 Date: 06/17/2010
Sample ID: GD6802 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.108	1.108	0.0114	0.0616	0.0116	11:47:05	Yes
2	1.104	1.104	0.0114	0.0622	0.0115	11:47:38	Yes
3	1.380	1.380	0.0142	0.1090	0.0144	11:48:10	Yes
Mean:	1.197	1.197	0.0123				
SD :	0.1581	0.1581	0.0016				
%RSD:	13.2	13.2	13.2030				

Element: Hg Seq. No.: 59 AS Loc.: 39 Date: 06/17/2010
Sample ID: GD6802 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.616	2.616	0.0270	0.1870	0.0271	11:49:29	Yes
2	2.082	2.082	0.0215	0.1060	0.0216	11:50:00	Yes
3	2.142	2.142	0.0221	0.1164	0.0222	11:50:32	Yes
Mean:	2.280	2.280	0.0235				
SD :	0.2923	0.2923	0.0030				
%RSD:	12.8	12.8	12.8190				

112.85 o/o

Element: Hg Seq. No.: 60 AS Loc.: 40 Date: 06/17/2010
Sample ID: GD6802 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.126	2.126	0.0219	0.1181	0.0221	11:51:49	Yes
2	2.155	2.155	0.0222	0.1223	0.0224	11:52:20	Yes
3	2.360	2.360	0.0243	0.1461	0.0245	11:52:55	Yes
Mean:	2.214	2.214	0.0228				
SD :	0.1274	0.1274	0.0013				
%RSD:	5.8	5.8	5.7573				

106.25

Element: Hg Seq. No.: 61 AS Loc.: 41 Date: 06/17/2010
Sample ID: 6803

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.525	1.525	0.0157	0.0465	0.0159	11:54:06	Yes
2	0.188	0.188	0.0019	0.0092	0.0021	11:54:37	Yes
3	0.544	0.544	0.0056	0.0609	0.0058	11:55:12	Yes
Mean:	0.752	0.752	0.0078				
SD :	0.6925	0.6925	0.0071				
%RSD:	92.1	92.1	92.0625				

Element: Hg Seq. No.: 62 AS Loc.: 42 Date: 06/17/2010
Sample ID: 6804

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.098	-0.098	-0.0010	-0.0501	-0.0009	11:55:55	Yes
2	4.454	4.454	0.0459	0.0057	0.0461	11:56:36	Yes
3	5.634	5.634	0.0581	0.0264	0.0583	11:56:53	Yes
Mean:	3.330	3.330	0.0343				
SD :	3.027	3.027	0.0312				
%RSD:	90.9	90.9	90.8990				

Element: Hg Seq. No.: 63 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.678	0.678	0.0070	0.0477	0.0071	12:02:17	Yes
2	0.683	0.683	0.0070	0.0493	0.0072	12:02:50	Yes
3	0.666	0.666	0.0069	0.0468	0.0070	12:03:23	Yes
Mean:	0.676	0.676	0.0070				
SD :	0.0087	0.0087	0.0001				
%RSD:	1.3	1.3	1.2836				

Element: Hg Seq. No.: 64 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.012	-0.012	-0.0001	-0.0011	0.0000	12:04:12	Yes
2	-0.006	-0.006	-0.0001	0.0002	0.0001	12:04:45	Yes
3	-0.011	-0.011	-0.0001	-0.0007	0.0000	12:05:18	Yes
Mean:	-0.010	-0.010	-0.0001				
SD :	0.0030	0.0030	0.0000				
%RSD:	31.0	31.0	31.0172				

Element: Hg Seq. No.: 65 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.986	0.986	0.0102	0.0505	0.0103	12:14:33	Yes
2	0.962	0.962	0.0099	0.0529	0.0101	12:15:04	Yes
3	0.963	0.963	0.0099	0.0531	0.0101	12:15:39	Yes
Mean:	0.970	0.970	0.0100				
SD :	0.0136	0.0136	0.0001				
%RSD:	1.4	1.4	1.4068				

96.3

Element: Hg Seq. No.: 66 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.008	-0.008	-0.0001	0.0000	0.0001	12:16:27	Yes
2	-0.003	-0.003	0.0000	0.0008	0.0001	12:17:00	Yes
3	-0.006	-0.006	-0.0001	0.0004	0.0001	12:17:32	Yes
Mean:	-0.006	-0.006	-0.0001				
SD :	0.0028	0.0028	0.0000				
%RSD:	47.6	47.6	47.6161				

Element: Hg Seq. No.: 67 AS Loc.: 43 Date: 06/17/2010
Sample ID: BL0615-2179674-3A

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	0.0004	0.0001	12:23:14	Yes
2	-0.005	-0.005	-0.0001	0.0006	0.0001	12:23:46	Yes
3	0.002	0.002	0.0000	0.0018	0.0002	12:24:21	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0045	0.0045	0.0000				
%RSD:	153.8	153.8	153.7539				

Element: Hg Seq. No.: 68 AS Loc.: 44 Date: 06/17/2010
Sample ID: BLS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.980	0.980	0.0101	0.0552	0.0103	12:25:09	Yes
2	0.958	0.958	0.0099	0.0525	0.0100	12:25:41	Yes
3	0.974	0.974	0.0100	0.0554	0.0102	12:26:15	Yes
Mean:	0.971	0.971	0.0100				
SD :	0.0113	0.0113	0.0001				
%RSD:	1.2	1.2	1.1625				

97.4%

Element: Hg Seq. No.: 69 AS Loc.: 45 Date: 06/17/2010
Sample ID: BLDS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.986	0.986	0.0102	0.0564	0.0103	12:27:01	Yes
2	0.985	0.985	0.0102	0.0557	0.0103	12:27:36	Yes
3	0.983	0.983	0.0101	0.0560	0.0103	12:28:07	Yes
Mean:	0.985	0.985	0.0102				
SD :	0.0012	0.0012	0.0000				
%RSD:	0.1	0.1	0.1238				

98.5%

Element: Hg Seq. No.: 70 AS Loc.: 46 Date: 06/17/2010
Sample ID: GD6802

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.457	0.457	0.0047	0.0260	0.0049	12:28:56	Yes
2	0.454	0.454	0.0047	0.0265	0.0048	12:29:28	Yes
3	0.456	0.456	0.0047	0.0272	0.0049	12:30:02	Yes
Mean:	0.456	0.456	0.0047				
SD :	0.0013	0.0013	0.0000				
%RSD:	0.3	0.3	0.2908				

Element: Hg Seq. No.: 71 AS Loc.: 47 Date: 06/17/2010
Sample ID: 6802 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.472	0.472	0.0049	0.0272	0.0050	12:30:51	Yes
2	0.475	0.475	0.0049	0.0265	0.0051	12:31:22	Yes
3	0.473	0.473	0.0049	0.0266	0.0050	12:31:57	Yes
Mean:	0.473	0.473	0.0049				
SD :	0.0019	0.0019	0.0000				
%RSD:	0.4	0.4	0.4096				

Element: Hg Seq. No.: 72 AS Loc.: 48 Date: 06/17/2010
Sample ID: 6802 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.476	1.476	0.0152	0.0820	0.0154	12:32:44	Yes
2	1.488	1.488	0.0153	0.0820	0.0155	12:33:19	Yes
3	1.458	1.458	0.0150	0.0814	0.0152	12:33:50	Yes
Mean:	1.474	1.474	0.0152				
SD :	0.0153	0.0153	0.0002				
%RSD:	1.0	1.0	1.0393				

100-9%

Element: Hg Seq. No.: 73 AS Loc.: 49 Date: 06/17/2010
Sample ID: 6802DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.496	1.496	0.0154	0.0832	0.0156	12:35:05	Yes
2	1.488	1.488	0.0153	0.0823	0.0155	12:35:38	Yes
3	1.495	1.495	0.0154	0.0833	0.0156	12:36:10	Yes
Mean:	1.493	1.493	0.0154				
SD :	0.0040	0.0040	0.0000				
%RSD:	0.3	0.3	0.2670				

102.85%

Element: Hg Seq. No.: 74 AS Loc.: 50 Date: 06/17/2010
Sample ID: 6801

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.046	0.046	0.0005	0.0041	0.0006	12:37:25	Yes
2	0.041	0.041	0.0004	0.0034	0.0006	12:37:58	Yes
3	0.039	0.039	0.0004	0.0038	0.0006	12:38:30	Yes
Mean:	0.042	0.042	0.0004				
SD :	0.0036	0.0036	0.0000				
%RSD:	8.5	8.5	8.5112				

✓

Element: Hg Seq. No.: 75 AS Loc.: 51 Date: 06/17/2010
Sample ID: 6803

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.532	4.532	0.0467	0.2530	0.0469	12:39:19	Yes
2	4.586	4.586	0.0473	0.2521	0.0474	12:39:53	Yes
3	4.579	4.579	0.0472	0.2538	0.0474	12:40:24	Yes
Mean:	4.566	4.566	0.0471				
SD :	0.0291	0.0291	0.0003				
%RSD:	0.6	0.6	0.6375				

Element: Hg Seq. No.: 76 AS Loc.: 52 Date: 06/17/2010
Sample ID: 6804

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.424	0.424	0.0044	0.0243	0.0045	12:41:40	Yes
2	0.426	0.426	0.0044	0.0238	0.0045	12:42:14	Yes
3	0.424	0.424	0.0044	0.0238	0.0045	12:42:45	Yes
Mean:	0.425	0.425	0.0044				
SD :	0.0011	0.0011	0.0000				
%RSD:	0.3	0.3	0.2556				

✓

Element: Hg Seq. No.: 77 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.949	0.949	0.0098	0.0531	0.0099	12:43:35	Yes
2	0.952	0.952	0.0098	0.0532	0.0100	12:44:07	Yes
3	0.956	0.956	0.0099	0.0535	0.0100	12:44:42	Yes
Mean:	0.952	0.952	0.0098				
SD :	0.0035	0.0035	0.0000				
%RSD:	0.4	0.4	0.3648				

95.2

Element: Hg Seq. No.: 78 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.003	-0.003	0.0000	0.0004	0.0001	12:45:31	Yes
2	-0.008	-0.008	-0.0001	0.0000	0.0001	12:46:03	Yes
3	-0.005	-0.005	-0.0001	-0.0004	0.0001	12:46:36	Yes
Mean:	-0.005	-0.005	-0.0001				
SD :	0.0026	0.0026	0.0000				
%RSD:	49.6	49.6	49.6025				

Element: Hg Seq. No.: 79 AS Loc.: 53 Date: 06/17/2010
Sample ID: BL0615-2180319-3A

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.003	-0.003	0.0000	0.0008	0.0001	12:48:45	Yes
2	-0.002	-0.002	0.0000	0.0005	0.0001	12:49:38	Yes
3	-0.003	-0.003	0.0000	0.0002	0.0001	12:50:10	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0005	0.0005	0.0000				
%RSD:	19.1	19.1	19.1256				

Element: Hg Seq. No.: 80 AS Loc.: 54 Date: 06/17/2010
Sample ID: BLS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.974	0.974	0.0100	0.0547	0.0102	12:50:59	Yes
2	0.981	0.981	0.0101	0.0558	0.0103	12:51:33	Yes
3	0.975	0.975	0.0101	0.0552	0.0102	12:52:04	Yes
Mean:	0.977	0.977	0.0101				
SD :	0.0035	0.0035	0.0000				
%RSD:	0.4	0.4	0.3562				

98.1 6

Element: Hg Seq. No.: 81 AS Loc.: 55 Date: 06/17/2010
Sample ID: BLDS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.972	0.972	0.0100	0.0553	0.0102	12:52:57	Yes
2	0.986	0.986	0.0102	0.0549	0.0103	12:53:29	Yes
3	0.980	0.980	0.0101	0.0552	0.0103	12:54:04	Yes
Mean:	0.979	0.979	0.0101				
SD :	0.0067	0.0067	0.0001				
%RSD:	0.7	0.7	0.6848				

98.2

Element: Hg Seq. No.: 82 AS Loc.: 56 Date: 06/17/2010
Sample ID: GC8423

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.408	2.408	0.0248	0.1352	0.0250	12:54:53	Yes
2	2.411	2.411	0.0249	0.1350	0.0250	12:55:25	Yes
3	2.411	2.411	0.0249	0.1358	0.0250	12:55:57	Yes
Mean:	2.410	2.410	0.0249				
SD :	0.0017	0.0017	0.0000				
%RSD:							

Element: Hg Seq. No.: 83 AS Loc.: 57 Date: 06/17/2010
Sample ID: GC8423 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.356	2.356	0.0243	0.1301	0.0244	12:57:09	Yes
2	2.382	2.382	0.0246	0.1320	0.0247	12:57:41	Yes
3	2.337	2.337	0.0241	0.1296	0.0242	12:58:14	Yes
Mean:	2.358	2.358	0.0243				
SD :	0.0229	0.0229	0.0002				
%RSD:	1.0	1.0	0.9705				

Element: Hg Seq. No.: 84 AS Loc.: 58 Date: 06/17/2010
Sample ID: GC8423 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.344	3.344	0.0345	0.1883	0.0346	12:59:26	Yes
2	3.333	3.333	0.0344	0.1869	0.0345	12:59:58	Yes
3	3.344	3.344	0.0345	0.1857	0.0346	01:00:32	Yes
Mean:	3.340	3.340	0.0345				
SD :	0.0062	0.0062	0.0001				
%RSD:	0.2	0.2	0.1863				

95.6 %

Element: Hg Seq. No.: 85 AS Loc.: 59 Date: 06/17/2010
Sample ID: GC8423 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.348	3.348	0.0345	0.1874	0.0347	01:01:43	Yes
2	3.338	3.338	0.0344	0.1865	0.0346	01:02:14	Yes
3	3.320	3.320	0.0342	0.1855	0.0344	01:02:49	Yes
Mean:	3.335	3.335	0.0344				
SD :	0.0142	0.0142	0.0001				
%RSD:	0.4	0.4	0.4246				

99.1 %

Element: Hg Seq. No.: 86 AS Loc.: 60 Date: 06/17/2010
Sample ID: 8420

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0007	0.0001	01:04:00	Yes
2	-0.005	-0.005	-0.0001	0.0001	0.0001	01:04:31	Yes
3	0.000	0.000	0.0000	0.0007	0.0001	01:05:06	Yes
Mean:	-0.002	-0.002	0.0000				
SD :	0.0027	0.0027	0.0000				
%RSD:	153.1	153.1	153.0797				

Element: Hg Seq. No.: 87 AS Loc.: 61 Date: 06/17/2010
Sample ID: 8424

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.382	2.382	0.0246	0.1329	0.0247	01:05:52	Yes
2	2.384	2.384	0.0246	0.1327	0.0247	01:06:26	Yes
3	2.376	2.376	0.0245	0.1329	0.0247	01:06:58	Yes
Mean:	2.381	2.381	0.0246				
SD :	0.0043	0.0043	0.0000				
%RSD:	0.2	0.2	0.1815				

Element: Hg Seq. No.: 88 AS Loc.: 62 Date: 06/17/2010
Sample ID: 8425

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.708	3.708	0.0382	0.2088	0.0384	01:08:12	Yes
2	3.732	3.732	0.0385	0.2083	0.0386	01:08:45	Yes
3	3.739	3.739	0.0386	0.2067	0.0387	01:09:17	Yes
Mean:	3.726	3.726	0.0384				
SD :	0.0162	0.0162	0.0002				
%RSD:	0.4	0.4	0.4337				

Element: Hg Seq. No.: 89 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.949	0.949	0.0098	0.0530	0.0099	01:10:33	Yes
2	0.949	0.949	0.0098	0.0529	0.0099	01:11:06	Yes
3	0.947	0.947	0.0098	0.0527	0.0099	01:11:38	Yes
Mean:	0.948	0.948	0.0098				
SD :	0.0016	0.0016	0.0000				
%RSD:	0.2	0.2	0.1691				

94.7%

Element: Hg Seq. No.: 90 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.010	-0.010	-0.0001	-0.0004	0.0001	01:12:28	Yes
2	-0.010	-0.010	-0.0001	-0.0005	0.0000	01:13:02	Yes
3	0.000	0.000	0.0000	0.0012	0.0001	01:13:33	Yes
Mean:	-0.007	-0.007	-0.0001				
SD :	0.0056	0.0056	0.0001				
%RSD:	83.6	83.6	83.5852				

Element: Hg Seq. No.: 91 AS Loc.: 16 Date: 06/17/2010
Sample ID: BLS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.979	0.979	0.0101	0.0542	0.0102	01:16:51	Yes
2	0.967	0.967	0.0100	0.0543	0.0101	01:17:22	Yes
3	0.967	0.967	0.0100	0.0542	0.0101	01:17:57	Yes
Mean:	0.971	0.971	0.0100				
SD :	0.0070	0.0070	0.0001				
%RSD:	0.7	0.7	0.7183				

97.8-1/0

Element: Hg Seq. No.: 92 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.944	0.944	0.0097	0.0531	0.0099	01:18:47	Yes
2	0.944	0.944	0.0097	0.0527	0.0099	01:19:19	Yes
3	0.962	0.962	0.0099	0.0535	0.0101	01:19:50	Yes
Mean:	0.950	0.950	0.0098				
SD :	0.0103	0.0103	0.0001				
%RSD:	1.1	1.1	1.0838				

95.0

Element: Hg Seq. No.: 93 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0008	0.0001	01:20:41	Yes
2	-0.004	-0.004	0.0000	-0.0002	0.0001	01:21:14	Yes
3	-0.005	-0.005	0.0000	0.0006	0.0001	01:21:46	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0021	0.0021	0.0000				
%RSD:	63.7	63.7	63.7067				

DATA REVIEW CHECKLIST:

ANALYSIS: FIMST AIR WORK RUN II **Run Date:** 2010-06-12

WORKSHEET(s): WS: 218 0337, 2179672, 2177259

	Primary Review (Analyst):	ok	no	n/a
1	Sample analyses meet hold time criteria	[✓]	[ ]	[ ] 1
2	Analysis set-up meets method criteria	[✓]	[ ]	[ ] 2
3	Tuning and correct calibration used - criteria meets method criteria	[✓]	[ ]	[ ] 3
4	SQC/Control Charts updated, analysis in statistical/method control	[✓]	[ ]	[ ] 4
5	Internal area counts checked (if applicable)	[ ]	[ ]	[✓] 5
6	LCS, SRM are within acceptance criteria	[✓]	[ ]	[ ] 6
7	Surrogate Recovery (s) is within acceptance criteria	[ ]	[ ]	[✓] 7
8	Method Blank meets acceptance criteria	[✓]	[ ]	[ ] 8
9	Matrix Spike recovery (s) meets acceptance criteria	[✓]	[ ]	[ ] 9
10	Duplicate precision meets acceptance criteria	[✓]	[ ]	[ ] 10
11	QC is documented on the run logs	[✓]	[ ]	[ ] 11
12	Runs checked for carryover	[✓]	[ ]	[ ] 12
13	Prep log / worksheet(s) are present, signed / dated by a prep / instrument analysts	[✓]	[ ]	[ ] 13
14	Initial weights, splits, impringer volumes (where applicable) are documented	[✓]	[ ]	[ ] 14
15	Standards and reagents traceable to Certificates of Analysis	[✓]	[ ]	[ ] 15
16	Samples above calibration range diluted and reanalyzed	[✓]	[ ]	[ ] 16
17	Dilution factors have been checked and entered	[✓]	[ ]	[ ] 17
18	Analytical observations/anomalies documented in LIMS	[✓]	[ ]	[ ] 18
19	Random calculation checked and in correct units	[✓]	[ ]	[ ] 19
20	If corrective actions were applied they are documented, initialed & dated	[✓]	[ ]	[ ] 20
21	Manual integration –before & after data with a reason included, initialed & dated	[✓]	[ ]	[ ] 21
22	Transferred data is validated in LIMS for correctness	[✓]	[ ]	[ ] 22
23	Data package assembled (where required)	[✓]	[ ]	[ ] 23

Reviewed By: M Brupic Date: 2010-06-12

Comments:

	Secondary Supervisor/Peer Data Review:	ok	no	n/a
1	Primary Review complete and correct	[✓]	[ ]	[ ] 1
2	Repeats documented and referenced	[✓]	[ ]	[ ] 2
3	Method and sample deviations noted, anomalies described (if applicable)	[ ]	[ ]	[✓] 3
4	Data and QC validated in LIMS	[✓]	[ ]	[ ] 4
5	Random calculation checked	[✓]	[ ]	[ ] 5
6	Benchsheet (s) signed and dated	[✓]	[ ]	[ ] 6
7	Data Package checked for completeness (if required)	[✓]	[ ]	[ ] 7

Reviewed By: [signature] Date: 2010-06-21

Comments:

SpAX

$$y = mx + b$$

$$0.0312 = 0.01038x + 0$$

$$x = \frac{0.0312}{0.01038} = 3.00528\,03 = 3.006$$

MB

Sample Information File C:\AAUSER\SAMPINFO\100617F2.SIF

Description : FIMS1s/n 1471 stock B6035082 INT. # 179 (Working std. 100617)
Batch ID : MB11
Volume Units :
Weight Units :
Analyst : MB
Sample Volume : 0.00

AS Loc	Sample ID	Sample Weight	Sample Units	User Dilution	Remarks
7	CCV				
8	CCB				
15	BL0615-2180337-2B				
16	BLS0615				
17	BLDS0615				
18	8423 10 X			10.0000	
19	8423 D 10X			10.0000	
20	8423 S 10 X			10.0000	
21	8423 DS 10X			10.0000	
22	8420 10 X			10.0000	
23	8424 10 X			10.0000	
24	8425 10X			10.0000	
25	GD7182 10 X			10.0000	
26	GD6801-2179672-2B 10X			10.0000	
27	6802 10 X			10.0000	
28	6802 D 10X			10.0000	
29	6802S 10X			10.0000	
30	6802 DS			10.0000	
31	6803 10X			10.0000	
32	6804 10X			10.0000	
33	GD6694 10 X-2177754			10.0000	
34	GD6694 D 10 X			10.0000	
35	6694 S 10X			10.0000	
36	6694 DS 10 X			10.0000	
37	6695 10X			10.0000	
38	6696 10X			10.0000	
39	6697 20 X			20.0000	
40	6698 10 X			10.0000	

Worksheet Number: 2180337

Mercury 2B in HNO3/H2O2 Imp. - Stack Sampling Train
(ug)

Parameter Name	Units	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE	DL	SPIKEDup1
Mercury (Hg)	ug	101.6	0.25	98.9	0.25	99.6	0.015	101.4

				B073337		B073337		B073337
Parameter Name	DL	BLANK	DL	GC8420	DL	GC8423	DL	GC8423Dup1
Mercury (Hg)	0.015	-0.0006	0.015	0.012	0.15	3.26	0.25	3.235

		B073337		B073337		B073337		
Parameter Name	DL	GC8424	DL	GC8425	DL	GD7182	DL	RDL
Mercury (Hg)	0.25	5.1192	0.27	4.3344	0.28	16.578	0.1	0.01

Parameter Name	MDL	IDL
Mercury (Hg)	0.002	0

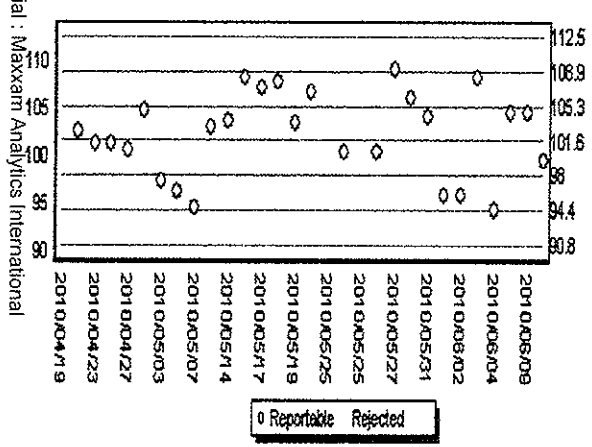
M29 Mercury HGBKNP-TR (2B)
Worksheet # 2180337
Date Analyzed 2010/06/17

Sample #	Raw Conc. ug/L	Dilution x	Final Vol ml	Result T ug	RDL ug/L	RDL ug	%
BL0615-2B	-0.002	1	300	**-0.0006**	0.05	**0.0150**	
BLS0615	0.996	1	300	**0.2988**	0.05	**0.0150**	**99.6**
BLDS0615	1.014	1	300	**0.3042**	0.05	**0.0150**	**101.4**
GC8423 10 X	0.652	10	500	**3.2600**	0.05	**0.2500**	
GC8423 D10X	0.647	10	500	**3.2350**	0.05	**0.2500**	
GC8423 S 10X	1.665	10	500	**8.3250**	0.05	**0.2500**	**101.6**
GC8423 DS 10X	1.638	10	500	**8.1900**	0.05	**0.2500**	**98.9**
GC8420 10 X	0.004	10	300	**0.0120**	0.05	**0.1500**	
GC8424 10X	0.948	10	540	**5.1192**	0.05	**0.2700**	
GC8425 10 X	0.774	10	560	**4.3344**	0.05	**0.2800**	
GD7182 10 X	8.289	10	200	**16.5780**	0.05	**0.1000**	

FIMS 100 CV AA Workstation

Friday Jun 18, 2010 1:57 PM

HGBKNP-TR Mercury % Control Charts SPIKE



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MIRA BRUJIC

Assignment Date: Wednesday ; June 16, 2010
Assigned to: FARAG FARAG
Test Code: HGBKNP-TR Instrument Id:
Test Description: Mercury from the BH HNO3/H2O2 Impinger by CVAA. Typically Method 29 or M0060 fraction 2B.

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	MTRX SPK	0	MHG% GC8423-04										2010/06/16
	MTRX SPK	1	MHG% GC8423-04										2010/06/16
	SPIKE	0	MHG%										2010/06/16
	SPIKE	1	MHG%										2010/06/16
	BLANK												2010/06/16
B073337	GC8420-04R		BLANK-COND 2-M*			300.000			1	2010/07/02	2010/06/23 23:00		2010/06/16
B073337	GC8423-04R	0	RUN 1-COND 2-M*			500.000			1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8423-04R	1	RUN 1-COND 2-M*						1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8424-04R		RUN 2-COND 2-M*			540.000			1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8425-04R		RUN 3-COND 2-M*			560.000			1	2010/07/02	2010/06/23 23:00		2010/06/16
B073337	GD7182-01R		M29-4583-01B/H*			200			1	2010/06/22	2010/06/23 23:00		2010/06/16

Remarks:

Samples extracted by: MIRA BRUJIC 2010-06-16
Instrumentation performed by: M. Brujic Date: 2010-06-17
Calculations performed by: M. Brujic Date: 2010-06-17
Validated by: Date: 2010-06-21

Audit Vial/Filter preparation Log Sheet

Maxxam Sample No.: GD7182

Vial/Filter ID: HG-6087 x 20

Outlined dilution for Prep: 20 times Not used in final calculation

Actual Dilution: 20 times Not used in final calculation

Applied Dilution: N/A times This will be 1 for vial or 300 for filters unless additional dilution was done

Volume Taken: 1 mL

Final Volume: 20 mL

Date: 2010-06-16

Analyst's Initials: HB

Witnessed by: 2010/06/16

Attach Audit Vial/Filter Preparation Log Sheet and audit sample paper work to the digestion prep sheet.

Dilution at Instrument: 10x diluted

Date: 2010-06-17

Analyst Initials: HB

Unit Reported: Circle one

Total ug or ug/mL

Validation Calculation Check by Reviewer:

8.289 µg/L x 10 x 200 ml = 16.5780

Date: 2010-06-17

Reviewer's Initials: MM

Method 29 Compliance Audit Material
(Mercury Acidified Aqueous Solution)

REPORTING FORM: To be completed by laboratory

~~6D84~~ 6D7182
MM

Request Number/Sample Number: M29-4583-01b/HG-6087

Date Issued: 05/25/10

Auditee:

Company: _____

Address: _____

Attention of: _____ Phone: _____

Requestor:

Agency: US EPA - Region 6

Address: 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202-6444

Attention of: Esther Coleman Phone: 214-665-8517

Project Name: FutureFuel Chemical Co.

Audit Results (Results in µg)

Compound	Result
Mercury	16.578 T. µg

GD 7182

INSTRUCTIONS FOR PREPARATION AND ANALYSIS OF METHOD 29 MERCURY (Hg) AUDIT SAMPLE

The ampule you have received contains approximately 20 mL of an aqueous solution that is 10% nitric acid by volume and has been spiked with mercury. Method 29 can consist of five analytical Hg fractions (1B, 2B, 3A, 3B, and 3C). The enclosed Hg audit sample corresponds to Hg Analytical Fraction 2B, which is produced from the Container No. 4 field fraction listed in Method 29, Section 8.3.4. To prepare each mercury audit sample solution for analysis, follow the steps below.

1) Wrap a paper towel around the ampule and with the ampule in an upright position, break off the top at the pre-scored mark by exerting pressure sideways.

2) From the ampule, pipette exactly **10 mL** of the audit sample solution into **a 200 mL volumetric** flask. Add DI water to the flask to make a total volume of **200 mL**. This sample is equivalent to "Container 4" of
Method 29, which contains Sample Fraction 2.

x20.

3) Pipette 100 mL of Sample Fraction 2 into a 300 mL BOD bottle and label the sample "Analytical Fraction 2B".

4) To digest the sample in the BOD bottle, sequentially add the sample digestion solutions and perform the sample preparation described in Section 7.1 of Method 7470A:

> Add 5 mL of H_2SO_4 and 2.5 mL of concentrated HNO_3, mixing after each addition. Add
> 15 mL of potassium permanganate solution to the sample bottle. Shake and add additional portions of potassium permanganate solution, if necessary, until the purple color persists for at least 15 min. Add 8 mL of potassium persulfate to the bottle and heat for 2 hr in a water bath maintained at 95°C. Cool and add 6 mL of sodium chloride-hydroxylamine sulfate to reduce the excess permanganate. After a delay of at least 30 sec, add 5 mL of stannous sulfate, and immediately attach the bottle to the aeration apparatus and continue as described in Section 7.3 of Method 7470A.

5) Analyze Analytical Fraction 2B as described in Section 7.3 of Method 7470A.

6) Calculate the mass of Hg in Sample Fraction 2 using the following equation.

$$Hg_{SF2} = \frac{Q_{AF2B}}{V_{AF2B}}\left(V_{SF2}\right)$$

where:

Hg_{SF2}	=	Total mass of Hg in Sample Fraction 2 (Container 4), µg
Q_{AF2B}	=	Total mass of Hg in 100 mL of Analytical Fraction 2B, µg
V_{AF2B}	=	Volume of Analytical Fraction 2B analyzed, (100 mL)
V_{SF2}	=	Total volume of Sample Fraction 2, (200 mL)

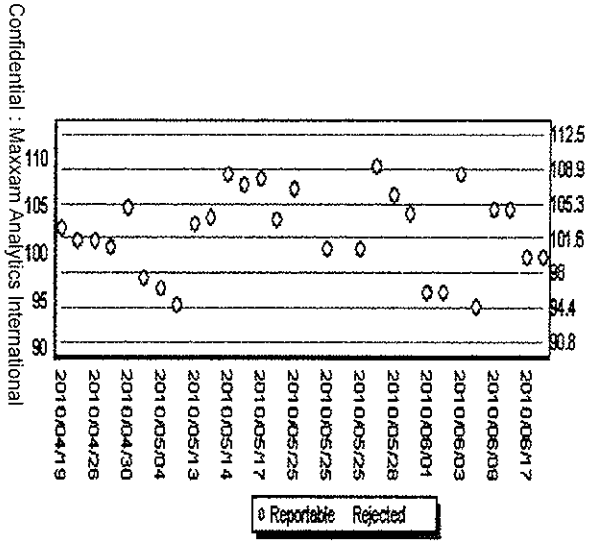
7) Record the **total mass of Hg in units of µg** on the Method 29 Reporting Form.

8) Report the Method 29 Hg audit sample results to the designated agent.

FIMS 100 CV AA Workstation

Friday Jun 18, 2010 2:08 PM

HGBKNP-TR Mercury % Control Charts SPIKE



Confidential : Maxxam Analytics International

Mira Brujic

MIRA BRUJIC

Method Name: 7470hg-w
Method Description: 7470HG-W
Element: Hg

Date: 06/17/2010
Technique:FI-MHS
Calibration Type:
Hg, Zero Intercept: Linear
Wavelength: 253.7 nm
Sample Info Name: 100617F2.SIF Results Data Set Name: 100617F2.SIF

Element: Hg Seq. No.: 3 AS Loc.: 1 Date: 06/17/2010
Sample ID: Calib Blank

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0001	0.0008	0.0001	02:06:39	Yes
2			0.0001	0.0008	0.0001	02:07:13	Yes
3			0.0001	0.0003	0.0001	02:07:44	Yes
Mean:			0.0001				
SD :			0.0000				
%RSD:			26.2116				

Auto-zero performed.

Element: Hg Seq. No.: 4 AS Loc.: 2 Date: 06/17/2010
Sample ID: STD1

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0006	0.0032	0.0007	02:08:35	Yes
2			0.0006	0.0034	0.0007	02:09:09	Yes
3			0.0006	0.0036	0.0007	02:09:40	Yes
Mean:			0.0006				
SD :			0.0000				
%RSD:			3.8161				

[Hg] Standard number 1 applied. [0.050]
Correlation Coefficient: 1.00000 Slope: 0.01146

Element: Hg Seq. No.: 5 AS Loc.: 3 Date: 06/17/2010
Sample ID: STD2

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0529	0.2918	0.0530	02:10:31	Yes
2			0.0526	0.2895	0.0527	02:11:02	Yes
3			0.0530	0.2902	0.0531	02:11:37	Yes
Mean:			0.0528				
SD :			0.0002				
%RSD:			0.3995				

[Hg] Standard number 2 applied. [5.000]
Correlation Coefficient: 1.00000 Slope: 0.01056

Element: Hg Seq. No.: 6 AS Loc.: 4 Date: 06/17/2010
Sample ID: STD3

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0786	0.4345	0.0787	02:12:51	Yes
2			0.0783	0.4302	0.0784	02:13:22	Yes

3	0.0793	0.4331	0.0794	02:13:57	Yes
Mean:	0.0788				
SD :	0.0005				
%RSD:	0.6502				

[Hg] Standard number 3 applied. [7.500]
Correlation Coefficient: 0.99999 Slope: 0.01052

Element: Hg Seq. No.: 7 AS Loc.: 5 Date: 06/17/2010
Sample ID: STD4

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1038	0.5779	0.1039	02:15:12	Yes
2			0.1050	0.5773	0.1052	02:15:44	Yes
3			0.1046	0.5742	0.1047	02:16:18	Yes
Mean:			0.1045				
SD :			0.0006				
%RSD:			0.5895				

[Hg] Standard number 4 applied. [10.00]
Correlation Coefficient: 0.99998 Slope: 0.01048

Element: Hg Seq. No.: 8 AS Loc.: 6 Date: 06/17/2010
Sample ID: STD5

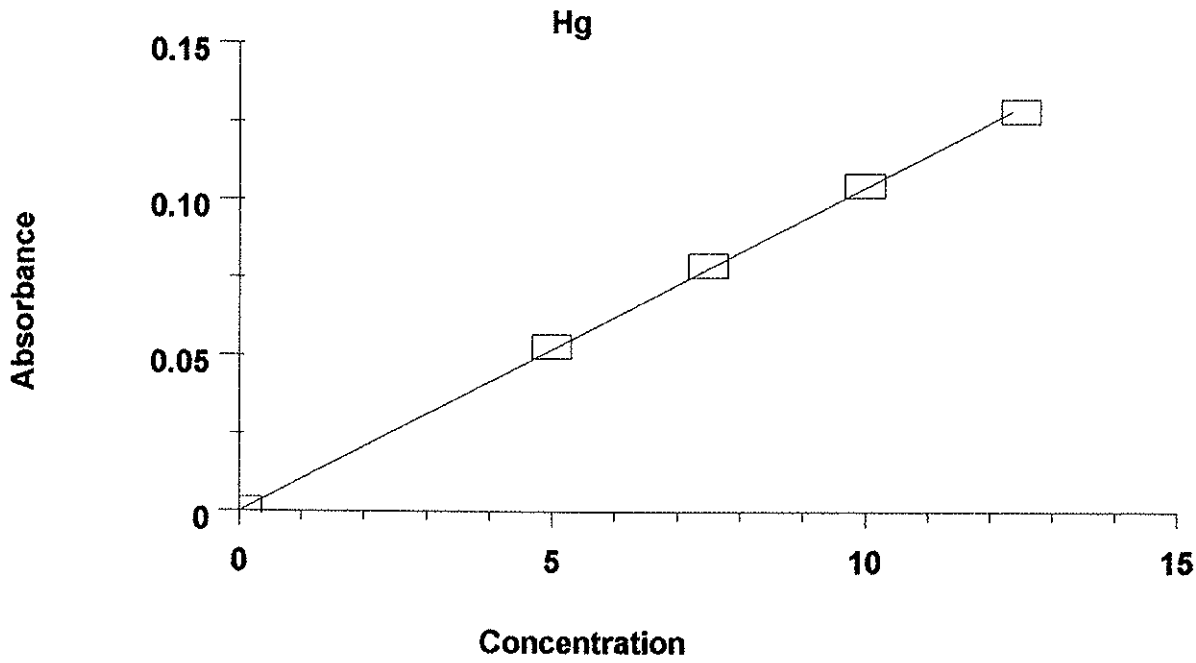
Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1293	0.7151	0.1294	02:17:34	Yes
2			0.1261	0.7046	0.1262	02:18:06	Yes
3			0.1295	0.7134	0.1296	02:18:40	Yes
Mean:			0.1283				
SD :			0.0019				
%RSD:			1.5044				

[Hg] Standard number 5 applied. [12.50]
Correlation Coefficient: 0.99978 Slope: 0.01038

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0001	---	----	----	----
STD1	0.0006	0.050	0.055	0.0000	3.8
STD2	0.0528	5.000	5.087	0.0002	0.4
STD3	0.0788	7.500	7.587	0.0005	0.7
STD4	0.1045	10.000	10.07	0.0006	0.6
STD5	0.1283	12.500	12.36	0.0019	1.5

Correlation Coefficient: 0.99978 Slope: 0.01038



Element: Hg Seq. No.: 9 AS Loc.: 9 Date: 06/17/2010
Sample ID: ICV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.473	1.473	0.0153	0.0847	0.0154	02:19:59	Yes
2	1.472	1.472	0.0153	0.0840	0.0154	02:20:33	Yes
3	1.488	1.488	0.0154	0.0845	0.0156	02:21:05	Yes
Mean:	1.478	1.478	0.0153				
SD :	0.0092	0.0092	0.0001				
%RSD:	0.6	0.6	0.6194				

QC value within specified limits.

98-5%

Element: Hg Seq. No.: 10 AS Loc.: 10 Date: 06/17/2010
Sample ID: ICB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	-0.0004	0.0000	02:22:16	Yes
2	-0.001	-0.001	0.0000	0.0004	0.0001	02:22:50	Yes
3	0.004	0.004	0.0000	0.0008	0.0002	02:23:22	Yes
Mean:	-0.001	-0.001	0.0000				
SD :	0.0052	0.0052	0.0001				
%RSD:	504.9	504.9	504.8772				

QC value within specified limits.

✓

Element: Hg Seq. No.: 11 AS Loc.: 11 Date: 06/17/2010
Sample ID: SPEX HG-STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.002	3.002	0.0312	0.1727	0.0313	02:24:12	Yes
2	3.019	3.019	0.0313	0.1736	0.0314	02:24:43	Yes

3	2.998	2.998	0.0311	0.1729	0.0312	02:25:18	Yes
Mean:	3.006	3.006	0.0312				
SD :	0.0112	0.0112	0.0001				
%RSD:	0.4	0.4	0.3737				

QC value within specified limits.

102-1.6

Element: Hg Seq. No.: 12 AS Loc.: 12 Date: 06/17/2010
Sample ID: LLC

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.249	0.249	0.0026	0.0147	0.0027	02:26:29	Yes
2	0.250	0.250	0.0026	0.0150	0.0027	02:27:01	Yes
3	0.244	0.244	0.0025	0.0142	0.0026	02:27:35	Yes
Mean:	0.248	0.248	0.0026				
SD :	0.0032	0.0032	0.0000				
%RSD:	1.3	1.3	1.3051				

QC value within specified limits.

99.2%

Element: Hg Seq. No.: 13 AS Loc.: 13 Date: 06/17/2010
Sample ID: DIL. CHECK

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0004	0.0001	02:28:25	Yes
2	0.000	0.000	0.0000	0.0001	0.0001	02:28:56	Yes
3	0.004	0.004	0.0000	0.0008	0.0001	02:29:31	Yes
Mean:	0.001	0.001	0.0000				
SD :	0.0022	0.0022	0.0000				
%RSD:	211.4	211.4	211.3625				

QC value within specified limits.

Element: Hg Seq. No.: 14 AS Loc.: 14 Date: 06/17/2010
Sample ID: ORGANIC STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.963	1.963	0.0204	0.1133	0.0205	02:30:17	Yes
2	1.964	1.964	0.0204	0.1140	0.0205	02:30:51	Yes
3	1.996	1.996	0.0207	0.1143	0.0208	02:31:24	Yes
Mean:	1.974	1.974	0.0205				
SD :	0.0184	0.0184	0.0002				
%RSD:	0.9	0.9	0.9319				

QC value within specified limits.

98.7%

Element: Hg Seq. No.: 15 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.002	1.002	0.0104	0.0579	0.0105	02:32:39	Yes
2	1.004	1.004	0.0104	0.0581	0.0105	02:33:12	Yes
3	1.003	1.003	0.0104	0.0576	0.0105	02:33:45	Yes
Mean:	1.003	1.003	0.0104				
SD :	0.0011	0.0011	0.0000				
%RSD:	0.1	0.1	0.1119				

100.3%

Element: Hg Seq. No.: 16 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	-0.0003	0.0000	02:35:03	Yes
2	-0.001	-0.001	0.0000	0.0004	0.0001	02:35:36	Yes
3	-0.003	-0.003	0.0000	0.0002	0.0001	02:36:08	Yes
Mean:	-0.004	-0.004	0.0000				
SD :	0.0025	0.0025	0.0000				
%RSD:	68.1	68.1	68.0525				

Element: Hg Seq. No.: 17 AS Loc.: 15 Date: 06/17/2010
Sample ID: BL0615-2180337-2B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.004	-0.004	0.0000	0.0000	0.0001	02:37:00	Yes
2	-0.002	-0.002	0.0000	0.0004	0.0001	02:37:34	Yes
3	0.000	0.000	0.0000	0.0004	0.0001	02:38:06	Yes
Mean:	-0.002	-0.002	0.0000				
SD :	0.0016	0.0016	0.0000				
%RSD:	76.6	76.6	76.5746				

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Element: Hg Seq. No.: 18 AS Loc.: 16 Date: 06/17/2010
Sample ID: BLS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.999	0.999	0.0104	0.0577	0.0105	02:38:55	Yes
2	0.995	0.995	0.0103	0.0573	0.0104	02:39:27	Yes
3	0.996	0.996	0.0103	0.0571	0.0104	02:40:02	Yes
Mean:	0.996	0.996	0.0103				
SD :	0.0022	0.0022	0.0000				
%RSD:	0.2	0.2	0.2226				

99.8 %

Element: Hg Seq. No.: 19 AS Loc.: 17 Date: 06/17/2010
Sample ID: BLDS0615

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.008	1.008	0.0105	0.0584	0.0106	02:40:51	Yes
2	1.020	1.020	0.0106	0.0589	0.0107	02:41:22	Yes
3	1.015	1.015	0.0105	0.0587	0.0106	02:41:54	Yes
Mean:	1.014	1.014	0.0105				
SD :	0.0063	0.0063	0.0001				
%RSD:	0.6	0.6	0.6201				

101.6 %

Element: Hg Seq. No.: 20 AS Loc.: 18 Date: 06/17/2010
Sample ID: 8423 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	6.547	0.655	0.0068	0.0384	0.0069	02:43:12	Yes
2	6.463	0.646	0.0067	0.0384	0.0068	02:43:44	Yes
3	6.553	0.655	0.0068	0.0388	0.0069	02:44:18	Yes
Mean:	6.521	0.652	0.0068				
SD :	0.0502	0.0050	0.0001				
%RSD:	0.8	0.8	0.7704				

Element: Hg Seq. No.: 21 AS Loc.: 19 Date: 06/17/2010

Sample ID: 8423 D 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	6.510	0.651	0.0068	0.0384	0.0069	02:45:05	Yes
2	6.501	0.650	0.0067	0.0383	0.0069	02:45:40	Yes
3	6.404	0.640	0.0066	0.0378	0.0068	02:46:11	Yes
Mean:	6.472	0.647	0.0067				
SD :	0.0587	0.0059	0.0001				
%RSD:	0.9	0.9	0.9076				

Element: Hg Seq. No.: 22 AS Loc.: 20 Date: 06/17/2010
Sample ID: 8423 S 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	16.63	1.663	0.0173	0.0977	0.0174	02:47:01	Yes
2	16.65	1.665	0.0173	0.0971	0.0174	02:47:33	Yes
3	16.66	1.666	0.0173	0.0970	0.0174	02:48:07	Yes
Mean:	16.65	1.665	0.0173				
SD :	0.0132	0.0013	0.0000				
%RSD:							

101.55 %

Element: Hg Seq. No.: 23 AS Loc.: 21 Date: 06/17/2010
Sample ID: 8423 DS 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	16.51	1.651	0.0171	0.0962	0.0172	02:49:25	Yes
2	16.32	1.632	0.0169	0.0955	0.0171	02:49:58	Yes
3	16.33	1.633	0.0169	0.0954	0.0171	02:50:29	Yes
Mean:	16.38	1.638	0.0170				
SD :	0.1047	0.0105	0.0001				
%RSD:	0.6	0.6	0.6388				

98.85 %

Element: Hg Seq. No.: 24 AS Loc.: 22 Date: 06/17/2010
Sample ID: 8420 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.063	0.006	0.0001	0.0008	0.0002	02:51:47	Yes
2	0.005	0.001	0.0000	0.0002	0.0001	02:52:21	Yes
3	0.039	0.004	0.0000	0.0005	0.0002	02:52:52	Yes
Mean:	0.036	0.004	0.0000				
SD :	0.0289	0.0029	0.0000				
%RSD:	81.2	81.2	81.2091				

Element: Hg Seq. No.: 25 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.967	0.967	0.0100	0.0564	0.0101	02:53:43	Yes
2	0.969	0.969	0.0101	0.0563	0.0102	02:54:14	Yes
3	0.969	0.969	0.0101	0.0561	0.0102	02:54:48	Yes
Mean:	0.968	0.968	0.0101				
SD :	0.0013	0.0013	0.0000				
%RSD:	0.1	0.1	0.1361				

QC value within specified limits.

96.8 %

Element: Hg Seq. No.: 26 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.002	-0.002	0.0000	0.0002	0.0001	02:55:38	Yes
2	-0.004	-0.004	0.0000	-0.0001	0.0001	02:56:10	Yes
3	-0.003	-0.003	0.0000	-0.0003	0.0001	02:56:44	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0010	0.0010	0.0000				
%RSD:	33.8	33.8	33.7899				

QC value within specified limits.

Element: Hg Seq. No.: 27 AS Loc.: 23 Date: 06/17/2010
Sample ID: 8424 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.426	0.943	0.0098	0.0553	0.0099	02:57:31	Yes
2	9.482	0.948	0.0098	0.0561	0.0100	02:58:06	Yes
3	9.545	0.954	0.0099	0.0561	0.0100	02:58:37	Yes
Mean:	9.484	0.948	0.0098				
SD :	0.0595	0.0059	0.0001				
%RSD:	0.6	0.6	0.6271				

Element: Hg Seq. No.: 28 AS Loc.: 24 Date: 06/17/2010
Sample ID: 8425 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.779	0.778	0.0081	0.0465	0.0082	02:59:31	Yes
2	7.756	0.776	0.0081	0.0461	0.0082	03:00:02	Yes
3	7.690	0.769	0.0080	0.0451	0.0081	03:00:37	Yes
Mean:	7.742	0.774	0.0080				
SD :	0.0464	0.0046	0.0000				
%RSD:	0.6	0.6	0.5996				

Element: Hg Seq. No.: 29 AS Loc.: 25 Date: 06/17/2010
Sample ID: GD7182

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	67.20	67.20	0.6976	4.1898	0.6977	03:01:26	Yes
Sample absorbance is greater than that of the highest standard.							
2	67.28	67.28	0.6985	4.1734	0.6986	03:01:58	Yes
Sample absorbance is greater than that of the highest standard.							
3	67.24	67.24	0.6980	4.1756	0.6982	03:02:32	Yes
Sample absorbance is greater than that of the highest standard.							
Mean:	67.24	67.24	0.6981				
SD :	0.0418	0.0418	0.0004				
%RSD:							

Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.

10 X

Reanalyze.

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Element: Hg Seq. No.: 30 AS Loc.: 26 Date: 06/17/2010
Sample ID: GD6801-2179672-2B 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored

1	-0.057	-0.006	-0.0001	-0.0012	0.0001	03:03:42	Yes
2	0.011	0.001	0.0000	-0.0002	0.0001	03:04:14	Yes
3	0.042	0.004	0.0000	0.0007	0.0002	03:04:49	Yes
Mean:	-0.001	0.000	0.0000				
SD :	0.0503	0.0050	0.0001				
%RSD:	3611	3611	3611.3292				

Element: Hg Seq. No.: 31 AS Loc.: 27 Date: 06/17/2010
Sample ID: 6802 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.691	0.569	0.0059	0.0325	0.0060	03:05:36	Yes
2	5.770	0.577	0.0060	0.0334	0.0061	03:06:11	Yes
3	5.733	0.573	0.0060	0.0330	0.0061	03:06:42	Yes
Mean:	5.731	0.573	0.0059				
SD :	0.0394	0.0039	0.0000				
%RSD:	0.7	0.7	0.6868				

Element: Hg Seq. No.: 32 AS Loc.: 28 Date: 06/17/2010
Sample ID: 6802 D 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.598	0.560	0.0058	0.0323	0.0059	03:07:33	Yes
2	5.648	0.565	0.0059	0.0321	0.0060	03:08:06	Yes
3	5.634	0.563	0.0058	0.0324	0.0060	03:08:37	Yes
Mean:	5.627	0.563	0.0058				
SD :	0.0258	0.0026	0.0000				
%RSD:	0.5	0.5	0.4582				

Element: Hg Seq. No.: 33 AS Loc.: 29 Date: 06/17/2010
Sample ID: 6802S 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	15.92	1.592	0.0165	0.0906	0.0166	03:09:28	Yes
2	15.97	1.597	0.0166	0.0904	0.0167	03:09:59	Yes
3	15.89	1.589	0.0165	0.0907	0.0166	03:10:34	Yes
Mean:	15.93	1.593	0.0165				
SD :	0.0377	0.0038	0.0000				
%RSD:	0.2	0.2	0.2366				

102.5%

Element: Hg Seq. No.: 34 AS Loc.: 30 Date: 06/17/2010
Sample ID: 6802 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	15.65	1.565	0.0162	0.0883	0.0164	03:11:46	Yes
2	15.67	1.567	0.0163	0.0882	0.0164	03:12:18	Yes
3	15.59	1.559	0.0162	0.0890	0.0163	03:12:53	Yes
Mean:	15.63	1.563	0.0162				
SD :	0.0425	0.0042	0.0000				
%RSD:	0.3	0.3	0.2716				

99.5%

Element: Hg Seq. No.: 35 AS Loc.: 31 Date: 06/17/2010
Sample ID: 6803 10X

Repl	SampleConc	StndConc	BlnkCorr	Peak	Peak	Time	Peak

#	µg/L	µg/L	Signal	Area	Height		Stored
1	13.84	1.384	0.0144	0.0791	0.0145	03:14:05	Yes
2	13.87	1.387	0.0144	0.0792	0.0145	03:14:37	Yes
3	13.84	1.384	0.0144	0.0788	0.0145	03:15:12	Yes
Mean:	13.85	1.385	0.0144				
SD :	0.0185	0.0019	0.0000				
%RSD:	0.1	0.1	0.1338				

Element: Hg Seq. No.: 36 AS Loc.: 32 Date: 06/17/2010
Sample ID: 6804 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	14.21	1.421	0.0148	0.0800	0.0149	03:16:26	Yes
2	14.20	1.420	0.0147	0.0801	0.0148	03:16:58	Yes
3	14.06	1.406	0.0146	0.0805	0.0147	03:17:33	Yes
Mean:	14.15	1.415	0.0147				
SD :	0.0848	0.0085	0.0001				
%RSD:	0.6	0.6	0.5994				

Element: Hg Seq. No.: 37 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.008	1.008	0.0105	0.0572	0.0106	03:18:48	Yes
2	1.011	1.011	0.0105	0.0570	0.0106	03:19:22	Yes
3	1.020	1.020	0.0106	0.0574	0.0107	03:19:53	Yes
Mean:	1.013	1.013	0.0105				
SD :	0.0065	0.0065	0.0001				
%RSD:	0.6	0.6	0.6406				

QC value within specified limits. 101.3 %

Element: Hg Seq. No.: 38 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.006	-0.006	-0.0001	-0.0005	0.0000	03:21:11	Yes
2	0.000	0.000	0.0000	0.0003	0.0001	03:21:45	Yes
3	-0.003	-0.003	0.0000	0.0003	0.0001	03:22:16	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0030	0.0030	0.0000				
%RSD:	98.3	98.3	98.2901				

QC value within specified limits.

Element: Hg Seq. No.: 39 AS Loc.: 33 Date: 06/17/2010
Sample ID: GD6694 10X WS 217754

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.154	0.415	0.0043	0.0243	0.0044	03:23:07	Yes
2	4.126	0.413	0.0043	0.0241	0.0044	03:23:39	Yes
3	4.078	0.408	0.0042	0.0234	0.0043	03:24:13	Yes
Mean:	4.120	0.412	0.0043				
SD :	0.0383	0.0038	0.0000				
%RSD:	0.9	0.9	0.9296				

Element: Hg Seq. No.: 40 AS Loc.: 34 Date: 06/17/2010

Sample ID: GD6694 D 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.115	0.411	0.0043	0.0236	0.0044	03:25:03	Yes
2	24.99	2.499	0.0259	0.2943	0.0261	03:25:35	Yes
3	11.82	1.182	0.0123	0.0856	0.0124	03:26:07	Yes
Mean:	13.64	1.364	0.0142				
SD :	10.56	1.056	0.0110				
%RSD:	77.4	77.4	77.3904				

Element: Hg Seq. No.: 41 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.896	0.896	0.0093	0.0566	0.0094	03:31:20	Yes
2	0.928	0.928	0.0096	0.0565	0.0097	03:32:15	Yes
3	1.009	1.009	0.0105	0.0584	0.0106	03:32:50	Yes
Mean:	0.944	0.944	0.0098				
SD :	0.0582	0.0582	0.0006				
%RSD:	6.2	6.2	6.1680				

94.4 %

Element: Hg Seq. No.: 42 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.031	0.031	0.0003	0.0043	0.0004	03:33:37	Yes
2	0.014	0.014	0.0001	0.0023	0.0003	03:34:11	Yes
3	0.015	0.015	0.0002	0.0025	0.0003	03:34:43	Yes
Mean:	0.020	0.020	0.0002				
SD :	0.0096	0.0096	0.0001				
%RSD:	48.2	48.2	48.1900				

Element: Hg Seq. No.: 43 AS Loc.: 33 Date: 06/17/2010
Sample ID: GD6694 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.925	0.393	0.0041	0.0220	0.0042	03:36:16	Yes
2	3.920	0.392	0.0041	0.0221	0.0042	03:36:48	Yes
3	4.077	0.408	0.0042	0.0240	0.0043	03:37:20	Yes
Mean:	3.974	0.397	0.0041				
SD :	0.0893	0.0089	0.0001				
%RSD:	2.2	2.2	2.2464				

Element: Hg Seq. No.: 44 AS Loc.: 34 Date: 06/17/2010
Sample ID: GD6694 D 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.094	0.409	0.0043	0.0248	0.0044	03:38:09	Yes
2	4.177	0.418	0.0043	0.0257	0.0044	03:38:43	Yes
3	4.197	0.420	0.0044	0.0274	0.0045	03:39:15	Yes
Mean:	4.156	0.416	0.0043				
SD :	0.0546	0.0055	0.0001				
%RSD:	1.3	1.3	1.3125				

Element: Hg Seq. No.: 45 AS Loc.: 35 Date: 06/17/2010
Sample ID: 6694 S 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	13.56	1.356	0.0141	0.0785	0.0142	03:40:04	Yes
2	13.90	1.390	0.0144	0.0810	0.0145	03:40:35	Yes
3	14.04	1.404	0.0146	0.0811	0.0147	03:41:10	Yes
Mean:	13.84	1.384	0.0144				
SD :	0.2514	0.0251	0.0003				
%RSD:	1.8	1.8	1.8174				

97.25

Element: Hg Seq. No.: 46 AS Loc.: 36 Date: 06/17/2010
Sample ID: 6694 DS 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	14.61	1.461	0.0152	0.0854	0.0153	03:42:25	Yes
2	14.56	1.456	0.0151	0.0849	0.0152	03:42:57	Yes
3	14.54	1.454	0.0151	0.0850	0.0152	03:43:31	Yes
Mean:	14.57	1.457	0.0151				
SD :	0.0376	0.0038	0.0000				
%RSD:	0.3	0.3	0.2581				

105.0/0

Element: Hg Seq. No.: 47 AS Loc.: 37 Date: 06/17/2010
Sample ID: 6695 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.252	0.725	0.0075	0.0440	0.0076	03:44:48	Yes
2	7.353	0.735	0.0076	0.0456	0.0077	03:45:21	Yes
3	7.227	0.723	0.0075	0.0438	0.0076	03:45:53	Yes
Mean:	7.277	0.728	0.0076				
SD :	0.0664	0.0066	0.0001				
%RSD:	0.9	0.9	0.9124				

Element: Hg Seq. No.: 48 AS Loc.: 38 Date: 06/17/2010
Sample ID: 6696 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.695	0.570	0.0059	0.0348	0.0060	03:46:44	Yes
2	5.656	0.566	0.0059	0.0345	0.0060	03:47:15	Yes
3	5.617	0.562	0.0058	0.0341	0.0059	03:47:50	Yes
Mean:	5.656	0.566	0.0059				
SD :	0.0390	0.0039	0.0000				
%RSD:	0.7	0.7	0.6894				

Element: Hg Seq. No.: 49 AS Loc.: 39 Date: 06/17/2010
Sample ID: 6697 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	132.5	13.25	0.1376	0.7575	0.1377	03:48:37	Yes
2	132.5	13.25	0.1375	0.7574	0.1376	03:49:11	Yes
3	132.9	13.29	0.1380	0.7544	0.1381	03:49:43	Yes
Mean:	132.6	13.26	0.1377				
SD :	0.2501	0.0250	0.0003				
%RSD:	0.2	0.2	0.1886				

~~200X~~ MB
~~2X diluted~~
PAGE: 54 200X DILUTER REANALYZ

Element: Hg Seq. No.: 50 AS Loc.: 40 Date: 06/17/2010
Sample ID: 669810X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.720	5.720	0.0594	0.3288	0.0595	03:50:55	Yes
2	5.694	5.694	0.0591	0.3282	0.0592	03:51:30	Yes
3	5.702	5.702	0.0592	0.3270	0.0593	03:52:02	Yes
Mean:	5.705	5.705	0.0592				
SD :	0.0135	0.0135	0.0001				
%RSD:	0.2	0.2	0.2360				

Reanalyz
page: 54

Element: Hg Seq. No.: 51 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.015	1.015	0.0105	0.0611	0.0106	03:53:17	Yes
2	1.006	1.006	0.0104	0.0597	0.0106	03:53:50	Yes
3	0.998	0.998	0.0104	0.0622	0.0105	03:54:22	Yes
Mean:	1.006	1.006	0.0104				
SD :	0.0086	0.0086	0.0001				
%RSD:	0.9	0.9	0.8502				

100.6 %

Element: Hg Seq. No.: 52 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.054	0.054	0.0006	0.0064	0.0007	03:55:41	Yes
2	0.051	0.051	0.0005	0.0064	0.0006	03:56:12	Yes
3	0.048	0.048	0.0005	0.0065	0.0006	03:56:44	Yes
Mean:	0.051	0.051	0.0005				
SD :	0.0032	0.0032	0.0000				
%RSD:	6.3	6.3	6.2823				

Element: Hg Seq. No.: 53 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.986	0.986	0.0102	0.0601	0.0103	04:06:53	Yes
2	0.980	0.980	0.0102	0.0573	0.0103	04:07:27	Yes
3	0.968	0.968	0.0101	0.0565	0.0102	04:07:58	Yes
Mean:	0.978	0.978	0.0102				
SD :	0.0090	0.0090	0.0001				
%RSD:	0.9	0.9	0.9217				

97.8%

Element: Hg Seq. No.: 54 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.008	0.008	0.0001	0.0019	0.0002	04:08:48	Yes
2	0.001	0.001	0.0000	0.0007	0.0001	04:09:20	Yes
3	0.004	0.004	0.0000	0.0011	0.0001	04:09:54	Yes
Mean:	0.004	0.004	0.0000				
SD :	0.0035	0.0035	0.0000				
%RSD:	82.2	82.2	82.2208				

Element: Hg Seq. No.: 55 AS Loc.: 25 Date: 06/17/2010
Sample ID: GD7182 10 X - AUDIT SAMPLE

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	82.36	8.236	0.0855	0.4673	0.0856	04:11:33	Yes
2	83.26	8.326	0.0864	0.4648	0.0865	04:12:05	Yes
3	83.06	8.306	0.0862	0.4662	0.0863	04:12:39	Yes
Mean:	82.89	8.289	0.0861				
SD :	0.4736	0.0474	0.0005				
%RSD:	0.6	0.6	0.5714				

Re analyz 2

Element: Hg Seq. No.: 56 AS Loc.: 39 Date: 06/17/2010
Sample ID: 6697 20 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	130.8	6.541	0.0679	0.3690	0.0680	04:13:53	Yes
2	131.2	6.560	0.0681	0.3694	0.0682	04:14:26	Yes
3	131.5	6.576	0.0683	0.3704	0.0684	04:14:59	Yes
Mean:	131.2	6.559	0.0681				
SD :	0.3523	0.0176	0.0002				
%RSD:	0.3	0.3	0.2685				

Reanalyz2.

Element: Hg Seq. No.: 57 AS Loc.: 40 Date: 06/17/2010
Sample ID: 6698 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	54.79	5.479	0.0569	0.3120	0.0570	04:16:13	Yes
2	54.24	5.424	0.0563	0.3097	0.0564	04:16:47	Yes
3	55.13	5.513	0.0572	0.3118	0.0573	04:17:18	Yes
Mean:	54.72	5.472	0.0568				
SD :	0.4475	0.0447	0.0005				
%RSD:	0.8	0.8	0.8178				

Reanalyz2.

Element: Hg Seq. No.: 58 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.957	0.957	0.0099	0.0538	0.0100	04:18:32	Yes
2	0.959	0.959	0.0100	0.0544	0.0101	04:19:06	Yes
3	0.953	0.953	0.0099	0.0539	0.0100	04:19:37	Yes
Mean:	0.956	0.956	0.0099				
SD :	0.0031	0.0031	0.0000				
%RSD:	0.3	0.3	0.3270				

95.6 %

Element: Hg Seq. No.: 59 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0006	0.0001	04:20:27	Yes
2	-0.007	-0.007	-0.0001	-0.0009	0.0000	04:20:59	Yes
3	-0.006	-0.006	-0.0001	-0.0004	0.0001	04:21:33	Yes
Mean:	-0.004	-0.004	0.0000				
SD :	0.0036	0.0036	0.0000				
%RSD:	83.3	83.3	83.2561				

Element: Hg Seq. No.: 94 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.926	0.926	0.0096	0.0524	0.0097	01:47:19	Yes
2	0.930	0.930	0.0096	0.0535	0.0097	01:47:50	Yes
3	0.934	0.934	0.0096	0.0533	0.0098	01:48:25	Yes
Mean:	0.930	0.930	0.0096				
SD :	0.0042	0.0042	0.0000				
%RSD:	0.4	0.4	0.4493				

93.0

Element: Hg Seq. No.: 95 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.006	0.006	0.0001	0.0021	0.0002	01:49:18	Yes
2	0.005	0.005	0.0000	0.0024	0.0002	01:50:26	Yes
3	-0.004	-0.004	0.0000	0.0002	0.0001	01:51:03	Yes
Mean:	0.002	0.002	0.0000				
SD :	0.0056	0.0056	0.0001				
%RSD:	239.9	239.9	239.9088				

✓

Element: Hg Seq. No.: 9 AS Loc.: 7 Date: 06/15/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.015	1.015	0.0141	0.0751	0.0141	09:50:03	No

Element: Hg Seq. No.: 10 AS Loc.: 8 Date: 06/15/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.012	0.012	0.0002	0.0013	0.0002	09:51:20	No

Element: Hg Seq. No.: 1 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.028	1.028	0.0106	0.0584	0.0108	02:03:47	Yes

Element: Hg Seq. No.: 2 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0014	0.0001	02:05:05	Yes

Element: Hg Seq. No.: 9 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.565	0.565	0.0079	0.0530	0.0079	08:42:15	No

Element: Hg Seq. No.: 10 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0001	-0.0001	0.0001	08:43:11	No

Element: Hg Seq. No.: 7 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.003	0.003	0.0000	0.0002	0.0000	08:40:11	No

Element: Hg Seq. No.: 8 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.005	0.005	0.0001	-0.0004	0.0001	08:40:59	No

Element: Hg Seq. No.: 3 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.083	0.083	0.0012	0.0060	0.0012	08:35:32	No

Element: Hg Seq. No.: 4 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.015	-0.015	-0.0002	-0.0080	-0.0002	08:36:23	No

Element: Hg Seq. No.: 5 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.194	0.194	0.0027	0.0192	0.0027	08:38:04	No

Element: Hg Seq. No.: 6 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.015	-0.015	-0.0002	-0.0073	-0.0002	08:38:52	No

Element: Hg Seq. No.: 11 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.581	0.581	0.0081	0.0462	0.0081	08:44:31	No

Element: Hg Seq. No.: 12 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.008	0.008	0.0001	0.0007	0.0001	08:45:20	No

Element: Hg Seq. No.: 15 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.810	0.810	0.0113	0.0578	0.0113	08:50:58	No

Element: Hg Seq. No.: 16 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.007	0.007	0.0001	0.0001	0.0001	08:51:46	No

Element: Hg Seq. No.: 13 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.728	0.728	0.0102	0.0497	0.0102	08:48:47	No

Element: Hg Seq. No.: 14 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.010	0.010	0.0001	0.0006	0.0001	08:49:36	No

Element: Hg Seq. No.: 1 AS Loc.: 7 Date: 06/17/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.047	0.047	0.0007	0.0032	0.0007	08:26:32	No

Element: Hg Seq. No.: 2 AS Loc.: 8 Date: 06/17/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.009	-0.009	-0.0001	-0.0034	-0.0001	08:27:17	No

DATA REVIEW CHECKLIST:

ANALYSIS: FIMS I, AIR WORK, RUN I Run Date: 2010-06-18

WORKSHEET(s): 2180656, 2180647, 2180652

	Primary Review (Analyst):	ok	no	n/a
1	Sample analyses meet hold time criteria	[✓]	[ ]	[ ] 1
2	Analysis set-up meets method criteria	[✓]	[ ]	[ ] 2
3	Tuning and correct calibration used - criteria meets method criteria	[✓]	[ ]	[ ] 3
4	SQC/Control Charts updated, analysis in statistical/method control	[✓]	[ ]	[ ] 4
5	Internal area counts checked (if applicable)	[ ]	[ ]	[✓] 5
6	LCS, SRM are within acceptance criteria	[✓]	[ ]	[ ] 6
7	Surrogate Recovery (s) is within acceptance criteria	[ ]	[ ]	[✓] 7
8	Method Blank meets acceptance criteria	[✓]	[ ]	[ ] 8
9	Matrix Spike recovery (s) meets acceptance criteria	[✓]	[ ]	[ ] 9
10	Duplicate precision meets acceptance criteria	[✓]	[ ]	[ ] 10
11	QC is documented on the run logs	[✓]	[ ]	[ ] 11
12	Runs checked for carryover	[✓]	[ ]	[ ] 12
13	Prep log / worksheet(s) are present, signed / dated by a prep / instrument analysts	[✓]	[ ]	[ ] 13
14	Initial weights, splits, impringer volumes (where applicable) are documented	[✓]	[ ]	[ ] 14
15	Standards and reagents traceable to Certificates of Analysis	[✓]	[ ]	[ ] 15
16	Samples above calibration range diluted and reanalyzed	[✓]	[ ]	[ ] 16
17	Dilution factors have been checked and entered	[✓]	[ ]	[ ] 17
18	Analytical observations/anomalies documented in LIMS	[✓]	[ ]	[ ] 18
19	Random calculation checked and in correct units	[✓]	[ ]	[ ] 19
20	If corrective actions were applied they are documented, initialed & dated	[✓]	[ ]	[ ] 20
21	Manual integration –before & after data with a reason included, initialed & dated	[✓]	[ ]	[ ] 21
22	Transferred data is validated in LIMS for correctness	[✓]	[ ]	[ ] 22
23	Data package assembled (where required)	[✓]	[ ]	[ ] 23

Reviewed By: M. Brupic Date: 2010-06-18

Comments:

	Secondary Supervisor/Peer Data Review:	ok	no	n/a
1	Primary Review complete and correct	[✓]	[ ]	[ ] 1
2	Repeats documented and referenced	[ ]	[ ]	[✓] 2
3	Method and sample deviations noted, anomalies described (if applicable)	[ ]	[ ]	[✓] 3
4	Data and QC validated in LIMS	[✓]	[ ]	[ ] 4
5	Random calculation checked	[✓]	[ ]	[ ] 5
6	Benchsheet (s) signed and dated	[✓]	[ ]	[ ] 6
7	Data Package checked for completeness (if required)	[✓]	[ ]	[ ] 7

Reviewed By: [signature] Date: 2010-06-21

Comments:

Spex

$$y = mx + b$$

$$0.0369 = 0.01243x + 0$$

$$x = \frac{0.0369}{0.01243} = 2.928349 \approx 2.931$$

MB

Sample Information File C:\AAUSER\SAMPINFO\100618F1.SIF

Description : FIMS1s/n 1471 stock B6035082 INT. # 179 (Working std. 100618)
Batch ID : MB11
Volume Units :
Weight Units :
Analyst : MB
Sample Volume : 0.00

AS Loc	Sample ID	Sample Weight	Sample Units	User Dilution	Remarks
7	CCV				
8	CCB				
15	BL0616-2180656-3C				
16	BLS0616				
17	BLDS0616				
18	GC8423 10 X			10.0000	
19	GC8423 D 10 X			10.0000	
20	GC8423 PS 10X			10.0000	
21	GC8423 PDS 10 X			10.0000	
22	MB				
23	8420				
24	8424				
25	8425				
26	MB-2180642-3C				
27	GD6694				
28	GD6694 D				
29	GD6694 S				
30	GD6694 DS				
31	6695				
32	6696				
33	6697				
34	6698				
35	MB-2180657-3C				
36	6801				
37	6802 5 X			5.0000	
38	6802 D 5 X			5.0000	
39	6802 PS 5 X			5.0000	
40	6802 PDS 5 X			5.0000	
41	6803 5 X			5.0000	
42	6804				

Worksheet Number: 2180656

Mercury 3C in HCl Rinse - Stack Sampling Train
(ug)

Parameter Name	Units	REAG BL	DL	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE
Mercury (Hg)	ug	-0.0048	0.0125	97.6	0.125	94.8	0.125	102.4

Parameter Name	DL	SPIKEDup1	DL	BLANK	DL	B073337 GC8420	DL	B073337 GC8423
Mercury (Hg)	0.025	102.6	0.025	-0.009	0.025	-0.0018	0.0125	7.1175

Parameter Name	DL	B073337 GC8423Dup1	DL	B073337 GC8424	DL	B073337 GC8425	DL	RDL
Mercury (Hg)	0.125	7.1325	0.125	3.2425	0.025	0.2275	0.025	0.05

Parameter Name	MDL	IDL
Mercury (Hg)	0.01	0

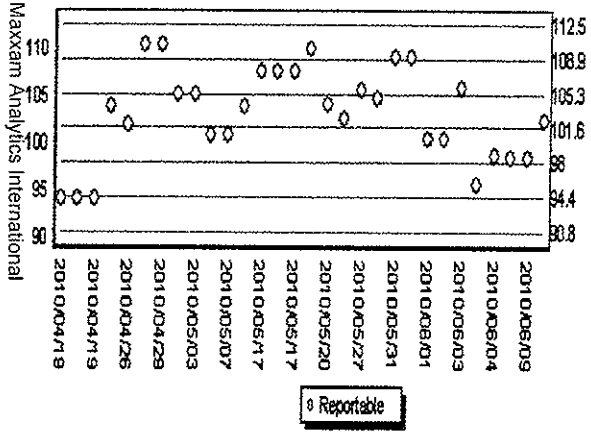
M29 Mercury HGBKH-TR (3C)
Worksheet # 2180656
Date Analyzed 2010/06/18

Sample #	Raw Conc. ug/L	Dilution x	Final Vol ml	Result T ug	RDL ug/L	RDL ug	%
BL0616	-0.018	1	500	**-0.0090**	0.05	**0.0250**	
BLS0616	1.024	1	500	**0.5120**	0.05	**0.0250**	**102.4**
BLDS0616	1.026	1	500	**0.5130**	0.05	**0.0250**	**102.6**
GC8423 10 X	2.847	10	250	**7.1175**	0.05	**0.1250**	
GC8423 D 10X	2.853	10	250	**7.1325**	0.05	**0.1250**	
GC8423 PS 10 X	3.826	10	250	**9.5650**	0.05	**0.1250**	**97.6**
GC8523 PDS 10 X	3.798	10	250	**9.4950**	0.05	**0.1250**	**94.8**
MB-3C	-0.019	1	250	**-0.0048**	0.05	**0.0125**	
GC8420	-0.007	1	250	**-0.0018**	0.05	**0.0125**	
GC8424	6.485	1	500	**3.2425**	0.05	**0.0250**	
GC8425	0.455	1	500	**0.2275**	0.05	**0.0250**	

FIMS 100 CV AA Workstation

Monday Jun 21, 2010 8:35 AM

HGBKH-TR Mercury % Control Charts SPIKE



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Mira Brujic

MIRA BRUJIC

Assignment Date: Wednesday ; June 16, 2010
Assigned to: FARAG FARAG
Test Code: HGBKH-TR Instrument Id:
Test Description: Mercury from the BH HCl Knockout by CVAA. Typically Method 29 or M0060 fraction 3C.

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	REAG BL												2010/06/16
	MTRX SPK	0	MHG% GC8423-07										2010/06/16
	MTRX SPK	1	MHG% GC8423-07										2010/06/16
	SPIKE	0	MHG%										2010/06/16
	SPIKE	1	MHG%										2010/06/16
	BLANK												2010/06/16
B073337	GC8420-07R		BLANK-COND 2-M*			250.000			1	2010/07/02	2010/06/23 23:00		2010/06/16
B073337	GC8423-07R	0	RUN 1-COND 2-M*			250.000			1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8423-07R	1	RUN 1-COND 2-M*						1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8424-07R		RUN 2-COND 2-M*			500.000			1	2010/07/01	2010/06/23 23:00		2010/06/16
B073337	GC8425-07R		RUN 3-COND 2-M*			500.000			1	2010/07/02	2010/06/23 23:00		2010/06/16

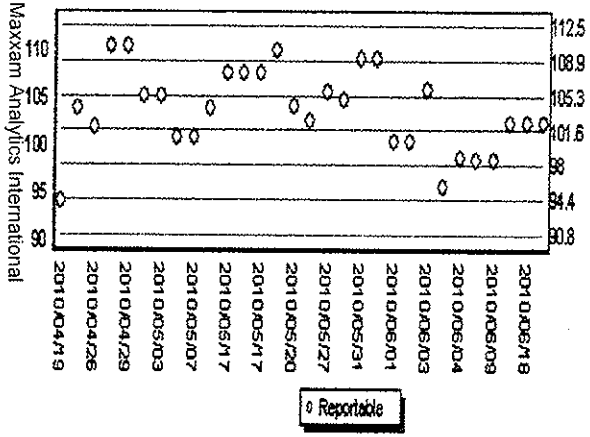
Remarks: Sample # GC8420 Washed with RODI water only (No HCl received)

Samples extracted by: MIRA BRUJIC 2010-06-16
Instrumentation performed by: M. Brujic Date: 2010-06-18
Calculations performed by: M. Brujic Date: 2010-06-18
Validated by: [signature] Date: 2010-06-21

FIMS 100 CV AA Workstation

Monday Jun 21, 2010 9:04 AM

HGBKH-TR Mercury % Control Charts SPIKE



Mira Brujic

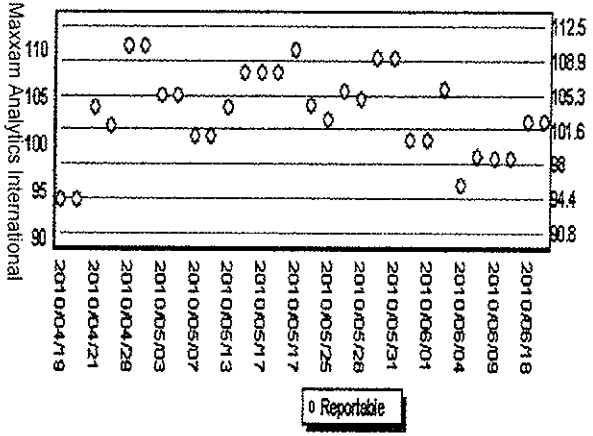
MIRA BRUJIC

Confidential : Maxxam Analytics International

FIMS 100 CV AA Workstation

Monday Jun 21, 2010 8:52 AM

HGBKH-TR Mercury % Control Charts SPIKE



Confidential : Maxxam Analytics International

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Test Code: HGBKH-TR Instrument Id:
Test Description: Mercury from the BH HCl Knockout by CVAA. Typically Method 29 or M0060 fraction 3C.

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	REAG BL												2010/06/16
	MTRX SPK	0	MHG% GD6802-07										2010/06/16
	MTRX SPK	1	MHG% GD6802-07										2010/06/16
	SPIKE	0	MHG%										2010/06/16
	SPIKE	1	MHG%										2010/06/16
	BLANK												2010/06/16
B075160	GD6801-07R		BLANK-COVANTA-*			250.000			1	2010/07/07	2010/06/24 23:00		2010/06/16
B075160	GD6802-07R	0	RUN 1-COVANTA-*			250.000			1	2010/07/07	2010/06/24 23:00		2010/06/16
B075160	GD6802-07R	1	RUN 1-COVANTA-*			250.000			1	2010/07/07	2010/06/24 23:00		2010/06/16
B075160	GD6803-07R		RUN 2-COVANTA-*			250.000			1	2010/07/07	2010/06/24 23:00		2010/06/16
B075160	GD6804-07R		RUN 3-COVANTA-*			250.000			1	2010/07/07	2010/06/24 23:00		2010/06/16

Remarks:

Samples extracted by: MIRA BRUJIC 2010-06-16
Instrumentation performed by: M. Brujic Date: 2010-06-18
Calculations performed by: M. Brujic Date: 2010-06-18
Validated by: Date: 2010-06-21

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DG29

Calibration Solutions: SOP-00104

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	pm liquid working cal std	2.5*
4	Standard 3	3.33	pm liquid working cal std	5.0
5	Standard 4	5.0	pm liquid working cal std	7.5
6	Standard 5	6.67	pm liquid working cal std	10.0
7	Standard 6	8.33	pm liquid working cal std	12.5

* Standard 2 is diluted x50, i.e. 400uL of the 2.5ppb to 20mL of the dilution water, giving a Standard 2 of 0.05 ppb for calibration

Check List

- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Samples spiked
- ✓ Acids added
- ✓ Reagents added
- ✓ Bath at 95°C ± 2° C
- ✓ Samples digested
- ✓ Samples cooled - Hydroxylamine HCl added
- ✓ Samples bulked capped then shaken
- ✓ Rack order checked

HG BLH -TR

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	11	ICV (Init. Calib. Verif.)	3 M3C	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05 ppm Liquid Working Reference QC Std.
	12	LLCW (low level check)	"	"	"	"	0.25 ppb = 50 ul of 0.1 ppm Liquid Working Cal Std.
	13	External Ref.	"	"	"	"	3.0 ppb = 600 ul of 0.1ppm Intermediate Spex Reference Std.
	14	Organic Ref. (DCS)	"	"	"	"	2.0 ppb = 400 ul of Intermediate Organic Reference Std.
	15	BL 0614	"	"	"	"	(Processed Blank)
	16	BL S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Liquid Working Cal Std.
	17	BL DS	"	"	"	"	(Duplicate Blank Spike)
1	18	GC 8423-27	"	"	"	"	
1	19	D	"	"	"	"	(Duplicate sample)
1	20	S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Liquid Working Cal Std.
1	21	DS	"	"	"	"	(Duplicate Spiked sample)
2	22	GC 8420	"	"	"	"	+MB
3	23	424	"	"	"	"	
4	24	425	"	"	"	"	
5	25	GD66 94	"	"	"	"	+MB , FULL QC
6	26	695	"	"	"	"	
7	27	696	"	"	"	"	
8	28	697	"	"	"	"	
9	29	698	"	"	"	"	
10	30	GD6801	"	"	"	"	+MB
	31	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
	32	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
11	33	GD6802	"	"	"	"	FULL QC
12	34	803	"	"	"	"	
13	35	804	"	"	"	"	
14	36		"	"	"	"	
15	37		"	"	"	"	
16	38		"	"	"	"	
17	39		"	"	"	"	
18	40		"	"	"	"	2010-06-16
19	41		"	"	"	"	MB
20	42		"	"	"	"	
	43	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
	44	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.

Comments:** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Refer to the BRL SOP-00104 for Applicable Test Codes

Procedure/Methodology:

Note:Calibration Standards, ICVs, CCVs, CCBs and LCS are prepared the same as the samples but are not digested.

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm stock plus 0.5 ml conc. HNO3 to 25 ml final volume
2 Prepare 0.1 ppm Liquid Working Calibration Standard daily: pipet 400 ul., of 25 ppm Interm plus 2.0 ml of conc. HNO3 to 100 ml final volume
3 Prepare a 0.05 ppm Liquid Working Reference QC Standard daily: pipet 50 ul of Stock Reference Standard (100ppm Hg) plus 2.0 ml of conc. HNO3 to 100 ml final volume
4 Using the LIMS Screen enter the required samples into a worksheet
5 Label the falcon tubes appropriately
6 Include one External Reference Material sample per daily run
7 Incude one Organic Mercury Control Standard per daily run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube. For Method 29 2B (HNO3/H2O2 impinger) transfer a 2 ml aliquot.
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 5% $KMnO_4$, **purple colour must remain for the duration of digest.**
12 For Method 29 2B (HNO3/H2O2 impinger) add 9 ml of 5% KMNO4.
Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$)
13 Mix samples, cap loosely and place in a water bath @ 95°C ± 2° C for 2 hours
14 Remove tubes and allow to cool to room temperature, samples may be cooled by placeing in a cool water bath.
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Dilute each sample to a final volume of 30 ml.
17 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	AccuTrace	B6035062	2011/04/30
Intermediate Cal Standard	Internal	No179 B6035062	2010/06/21
Stock Reference Standard	Delta	928008	2010/10/16
External Reference Material	Fisher	109 CL4-120HG	2011/07/04
Organic Mercury Control Standard	Delta	No96 JOC 4 C / B	2010/06/21
5% potassium permanganate	Internal	BottA E11602	2010/08/03
5% potassium persulphate	Internal	BottA 92630	2010/08/03
20% hydroxylamine hydrochloride	Internal	Bott.A92979	2010/08/03
HNO_3	Fisher	1110030	2013/02/29
H_2SO_4	Fisher	3106112	2012/05/31
Bath Temps: / / C	Time ON:	Time OFF:	
Prepared By: Date:	Checked by:		

Method Name: 7470hg-w
Method Description: 7470HG-W
Element: Hg

Date: 06/18/2010
Technique:FI-MHS
Calibration Type:
Hg, Zero Intercept: Linear
Wavelength: 253.7 nm
Sample Info Name: 100618F1.SIF **Results Data Set Name: 100618F1.SIF**

Element: Hg Seq. No.: 9 AS Loc.: 1 Date: 06/18/2010
Sample ID: Calib Blank

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0003	0.0011	0.0003	08:37:13	Yes
2			0.0004	0.0026	0.0004	08:37:47	Yes
3			0.0003	0.0015	0.0003	08:38:19	Yes
Mean:			0.0003				
SD :			0.0001				
%RSD:			18.8532				

Auto-zero performed.

Element: Hg Seq. No.: 10 AS Loc.: 2 Date: 06/18/2010
Sample ID: STD1

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0004	0.0045	0.0008	08:39:08	Yes
2			0.0004	0.0046	0.0008	08:39:40	Yes
3			0.0004	0.0040	0.0008	08:40:14	Yes
Mean:			0.0004				
SD :			0.0000				
%RSD:			1.6290				

[Hg] Standard number 1 applied. [0.050]
Correlation Coefficient: 1.00000 Slope: 0.00860

Element: Hg Seq. No.: 11 AS Loc.: 3 Date: 06/18/2010
Sample ID: STD2

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0644	0.3536	0.0647	08:41:04	Yes
2			0.0651	0.3557	0.0654	08:41:35	Yes
3			0.0649	0.3566	0.0653	08:42:07	Yes
Mean:			0.0648				
SD :			0.0004				
%RSD:			0.5834				

[Hg] Standard number 2 applied. [5.000]
Correlation Coefficient: 0.99999 Slope: 0.01296

Element: Hg Seq. No.: 12 AS Loc.: 4 Date: 06/18/2010
Sample ID: STD3

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0949	0.5242	0.0952	08:43:24	Yes
2			0.0950	0.5268	0.0954	08:43:56	Yes

3	0.0955	0.5248	0.0958	08:44:30	Yes
Mean:	0.0951				
SD :	0.0003				
%RSD:	0.3057				

[Hg] Standard number 3 applied. [7.500]
Correlation Coefficient: 0.99986 Slope: 0.01277

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Element: Hg Seq. No.: 13 AS Loc.: 5 Date: 06/18/2010
Sample ID: STD4

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1264	0.7024	0.1268	08:45:44	Yes
2			0.1251	0.7014	0.1254	08:46:15	Yes
3			0.1243	0.6924	0.1246	08:46:50	Yes
Mean:			0.1252				
SD :			0.0011				
%RSD:			0.8728				

[Hg] Standard number 4 applied. [10.00]
Correlation Coefficient: 0.99977 Slope: 0.01264

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Element: Hg Seq. No.: 14 AS Loc.: 6 Date: 06/18/2010
Sample ID: STD5

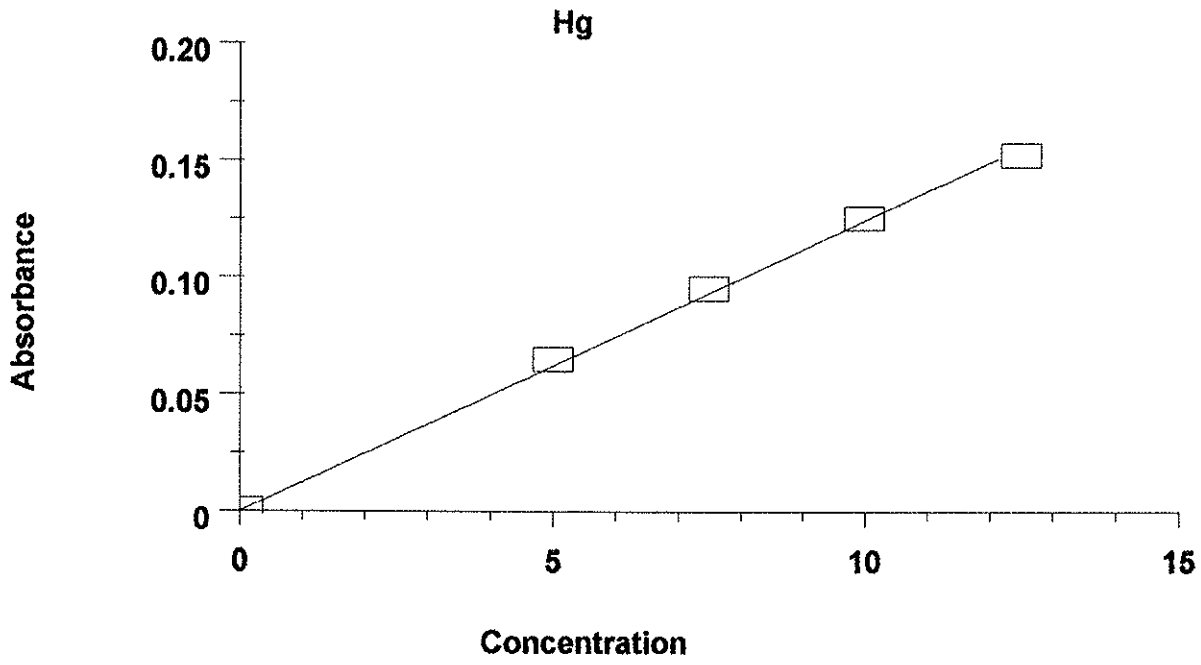
Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1533	0.8635	0.1536	08:48:06	Yes
2			0.1514	0.8594	0.1517	08:48:38	Yes
3			0.1523	0.8537	0.1526	08:49:12	Yes
Mean:			0.1523				
SD :			0.0009				
%RSD:			0.6124				

[Hg] Standard number 5 applied. [12.50]
Correlation Coefficient: 0.99926 Slope: 0.01243

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0003	---	----	----	----
STD1	0.0004	0.050	0.035	0.0000	1.6
STD2	0.0648	5.000	5.212	0.0004	0.6
STD3	0.0951	7.500	7.653	0.0003	0.3
STD4	0.1252	10.000	10.07	0.0011	0.9
STD5	0.1523	12.500	12.25	0.0009	0.6

Correlation Coefficient: 0.99926 Slope: 0.01243 ----



Element: Hg Seq. No.: 15 AS Loc.: 9 Date: 06/18/2010
Sample ID: ICV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.470	1.470	0.0183	0.1032	0.0186	08:50:30	Yes
2	1.432	1.432	0.0178	0.1008	0.0181	08:51:02	Yes
3	1.462	1.462	0.0182	0.1031	0.0185	08:51:36	Yes
Mean:	1.455	1.455	0.0181				
SD :	0.0203	0.0203	0.0003				
%RSD:	1.4	1.4	1.3982				

97%

QC value within specified limits.

Element: Hg Seq. No.: 16 AS Loc.: 10 Date: 06/18/2010
Sample ID: ICB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.008	-0.008	-0.0001	0.0012	0.0002	08:52:47	Yes
2	-0.004	-0.004	-0.0001	0.0015	0.0003	08:53:19	Yes
3	-0.006	-0.006	-0.0001	0.0012	0.0003	08:53:53	Yes
Mean:	-0.006	-0.006	-0.0001				
SD :	0.0020	0.0020	0.0000				
%RSD:	31.8	31.8	31.7972				

QC value within specified limits.

Element: Hg Seq. No.: 17 AS Loc.: 11 Date: 06/18/2010
Sample ID: SPEX HG-STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.916	2.916	0.0363	0.2047	0.0366	08:54:42	Yes
2	2.926	2.926	0.0364	0.2065	0.0367	08:55:13	Yes

3	2.953	2.953	0.0367	0.2067	0.0370	08:55:45	Yes
Mean:	2.931	2.931	0.0364				
SD :	0.0189	0.0189	0.0002				
%RSD:	0.6	0.6	0.6451				

QC value within specified limits.

97.7%

==========

Element: Hg Seq. No.: 18 AS Loc.: 12 Date: 06/18/2010
Sample ID: LLC

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.239	0.239	0.0030	0.0173	0.0033	08:57:00	Yes
2	0.238	0.238	0.0030	0.0172	0.0033	08:57:31	Yes
3	0.242	0.242	0.0030	0.0177	0.0033	08:58:06	Yes
Mean:	0.240	0.240	0.0030				
SD :	0.0016	0.0016	0.0000				
%RSD:	0.7	0.7	0.6679				

QC value within specified limits.

96%

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Element: Hg Seq. No.: 19 AS Loc.: 13 Date: 06/18/2010
Sample ID: DIL. CHECK

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.008	-0.008	-0.0001	0.0008	0.0002	08:58:52	Yes
2	-0.010	-0.010	-0.0001	0.0006	0.0002	08:59:25	Yes
3	-0.011	-0.011	-0.0001	0.0008	0.0002	08:59:56	Yes
Mean:	-0.010	-0.010	-0.0001				
SD :	0.0014	0.0014	0.0000				
%RSD:	13.8	13.8	13.8445				

QC value within specified limits.

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Element: Hg Seq. No.: 20 AS Loc.: 14 Date: 06/18/2010
Sample ID: ORGANIC STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.938	1.938	0.0241	0.1377	0.0244	09:00:48	Yes
2	1.922	1.922	0.0239	0.1363	0.0242	09:01:20	Yes
3	1.914	1.914	0.0238	0.1349	0.0241	09:01:54	Yes
Mean:	1.925	1.925	0.0239				
SD :	0.0121	0.0121	0.0001				
%RSD:	0.6	0.6	0.6263				

QC value within specified limits.

96.25

==========

Element: Hg Seq. No.: 21 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.948	0.948	0.0118	0.0670	0.0121	09:03:10	Yes
2	0.950	0.950	0.0118	0.0674	0.0122	09:03:41	Yes
3	0.954	0.954	0.0119	0.0674	0.0122	09:04:16	Yes
Mean:	0.951	0.951	0.0118				
SD :	0.0034	0.0034	0.0000				
%RSD:	0.4	0.4	0.3620				

95.1

==========

Element: Hg Seq. No.: 22 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.009	-0.009	-0.0001	0.0009	0.0002	09:05:05	Yes
2	-0.012	-0.012	-0.0001	0.0004	0.0002	09:05:37	Yes
3	-0.010	-0.010	-0.0001	0.0008	0.0002	09:06:11	Yes
Mean:	-0.010	-0.010	-0.0001				
SD :	0.0014	0.0014	0.0000				
%RSD:	13.4	13.4	13.4460				

Element: Hg Seq. No.: 23 AS Loc.: 15 Date: 06/18/2010
Sample ID: BL06116-2180656-3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.017	-0.017	-0.0002	0.0003	0.0001	09:07:02	Yes
2	-0.017	-0.017	-0.0002	0.0002	0.0001	09:07:38	Yes
3	-0.020	-0.020	-0.0002	-0.0005	0.0001	09:08:09	Yes
Mean:	-0.018	-0.018	-0.0002				
SD :	0.0016	0.0016	0.0000				
%RSD:	8.9	8.9	8.8975				

Element: Hg Seq. No.: 24 AS Loc.: 16 Date: 06/18/2010
Sample ID: BLS0616

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.019	1.019	0.0127	0.0719	0.0130	09:08:58	Yes
2	1.029	1.029	0.0128	0.0726	0.0131	09:09:32	Yes
3	1.022	1.022	0.0127	0.0724	0.0131	09:10:04	Yes
Mean:	1.024	1.024	0.0127				
SD :	0.0052	0.0052	0.0001				
%RSD:	0.5	0.5	0.5047				

104.2%

Element: Hg Seq. No.: 25 AS Loc.: 17 Date: 06/18/2010
Sample ID: BLDS0616

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.032	1.032	0.0128	0.0747	0.0132	09:11:19	Yes
2	1.025	1.025	0.0127	0.0739	0.0131	09:11:53	Yes
3	1.021	1.021	0.0127	0.0735	0.0130	09:12:24	Yes
Mean:	1.026	1.026	0.0128				
SD :	0.0058	0.0058	0.0001				
%RSD:	0.6	0.6	0.5682				

104.4%

Element: Hg Seq. No.: 26 AS Loc.: 18 Date: 06/18/2010
Sample ID: GC8423

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	25.04	25.04	0.3113	1.8241	0.3116	09:13:40	Yes
Sample absorbance is greater than that of the highest standard.							
2	24.95	24.95	0.3101	1.8084	0.3105	09:14:14	Yes
Sample absorbance is greater than that of the highest standard.							
3	24.90	24.90	0.3095	1.8052	0.3099	09:14:46	Yes
Sample absorbance is greater than that of the highest standard.							
Mean:	24.96	24.96	0.3103				
SD :	0.0718	0.0718	0.0009				
%RSD:	0.3	0.3	0.2875				

Reads 2

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Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.

==========

Element: Hg Seq. No.: 27 AS Loc.: 19 Date: 06/18/2010
Sample ID: GC8423 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	24.84	24.84	0.3088	1.8183	0.3091	09:16:01	Yes
Sample absorbance is greater than that of the highest standard.							
2	24.84	24.84	0.3088	1.8092	0.3092	09:16:35	Yes
Sample absorbance is greater than that of the highest standard.							
3	25.03	25.03	0.3111	1.8153	0.3114	09:17:06	Yes
Sample absorbance is greater than that of the highest standard.							
Mean:	24.90	24.90	0.3096				
SD :	0.1067	0.1067	0.0013				
%RSD:	0.4	0.4	0.4283				

Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.

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==========

Element: Hg Seq. No.: 28 AS Loc.: 20 Date: 06/18/2010
Sample ID: GC8423 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	25.22	25.22	0.3135	1.8379	0.3138	09:18:23	Yes
Sample absorbance is greater than that of the highest standard.							
2	25.27	25.27	0.3142	1.8442	0.3145	09:18:57	Yes
Sample absorbance is greater than that of the highest standard.							
3	25.19	25.19	0.3131	1.8322	0.3135	09:19:29	Yes
Sample absorbance is greater than that of the highest standard.							
Mean:	25.23	25.23	0.3136				
SD :	0.0434	0.0434	0.0005				
%RSD:	0.2	0.2	0.1720				

Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.

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==========

Element: Hg Seq. No.: 29 AS Loc.: 21 Date: 06/18/2010
Sample ID: GC8423 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	25.39	25.39	0.3157	1.8536	0.3160	09:20:47	Yes
Sample absorbance is greater than that of the highest standard.							
2	25.33	25.33	0.3148	1.8436	0.3152	09:21:19	Yes
Sample absorbance is greater than that of the highest standard.							
3	25.56	25.56	0.3177	1.8573	0.3181	09:21:51	Yes
Sample absorbance is greater than that of the highest standard.							
Mean:	25.43	25.43	0.3161				
SD :	0.1201	0.1201	0.0015				
%RSD:	0.5	0.5	0.4722				

Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.

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==========

Element: Hg Seq. No.: 30 AS Loc.: 22 Date: 06/18/2010
Sample ID: MB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.017	-0.017	-0.0002	0.0009	0.0001	09:23:10	Yes

2	-0.020	-0.020	-0.0002	0.0003	0.0001	09:23:42	Yes
3	-0.019	-0.019	-0.0002	0.0005	0.0001	09:24:16	Yes
Mean:	-0.019	-0.019	-0.0002				
SD :	0.0015	0.0015	0.0000				
%RSD:	8.2	8.2	8.1584				

Element: Hg Seq. No.: 31 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.948	0.948	0.0118	0.0669	0.0121	09:25:04	Yes
2	0.953	0.953	0.0118	0.0680	0.0122	09:25:37	Yes
3	0.954	0.954	0.0119	0.0671	0.0122	09:26:09	Yes
Mean:	0.952	0.952	0.0118				
SD :	0.0033	0.0033	0.0000				
%RSD:	0.3	0.3	0.3447				

QC value within specified limits. 95.2 %

Element: Hg Seq. No.: 32 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.010	-0.010	-0.0001	0.0013	0.0002	09:27:00	Yes
2	-0.007	-0.007	-0.0001	0.0012	0.0003	09:27:31	Yes
3	-0.012	-0.012	-0.0001	0.0009	0.0002	09:28:05	Yes
Mean:	-0.010	-0.010	-0.0001				
SD :	0.0025	0.0025	0.0000				
%RSD:	25.5	25.5	25.5487				

QC value within specified limits.

Element: Hg Seq. No.: 33 AS Loc.: 23 Date: 06/18/2010
Sample ID: 8420

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0030	0.0003	09:28:55	Yes
2	-0.011	-0.011	-0.0001	0.0010	0.0002	09:29:27	Yes
3	-0.009	-0.009	-0.0001	0.0014	0.0002	09:30:01	Yes
Mean:	-0.007	-0.007	-0.0001				
SD :	0.0054	0.0054	0.0001				
%RSD:	76.5	76.5	76.5057				

Element: Hg Seq. No.: 34 AS Loc.: 24 Date: 06/18/2010
Sample ID: 8424

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	6.481	6.481	0.0806	0.4726	0.0809	09:30:51	Yes
2	6.501	6.501	0.0808	0.4713	0.0812	09:31:26	Yes
3	6.474	6.474	0.0805	0.4683	0.0808	09:31:57	Yes
Mean:	6.485	6.485	0.0806				
SD :	0.0137	0.0137	0.0002				
%RSD:	0.2	0.2	0.2109				

Element: Hg Seq. No.: 35 AS Loc.: 25 Date: 06/18/2010
Sample ID: 8425

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.460	0.460	0.0057	0.0362	0.0061	09:33:10	Yes
2	0.451	0.451	0.0056	0.0343	0.0059	09:33:43	Yes
3	0.454	0.454	0.0056	0.0345	0.0060	09:34:14	Yes
Mean:	0.455	0.455	0.0057				
SD :	0.0050	0.0050	0.0001				
%RSD:	1.1	1.1	1.0912				

Element: Hg Seq. No.: 36 AS Loc.: 26 Date: 06/18/2010
Sample ID: MB-2180642-3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.023	-0.023	-0.0003	-0.0002	0.0001	09:35:03	Yes
2	-0.020	-0.020	-0.0002	0.0004	0.0001	09:35:37	Yes
3	-0.021	-0.021	-0.0003	0.0001	0.0001	09:36:08	Yes
Mean:	-0.022	-0.022	-0.0003				
SD :	0.0017	0.0017	0.0000				
%RSD:	7.7	7.7	7.7058				

Element: Hg Seq. No.: 37 AS Loc.: 27 Date: 06/18/2010
Sample ID: GD6694

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.767	0.767	0.0095	0.0581	0.0099	09:36:58	Yes
2	0.760	0.760	0.0095	0.0569	0.0098	09:37:29	Yes
3	0.771	0.771	0.0096	0.0582	0.0099	09:38:04	Yes
Mean:	0.766	0.766	0.0095				
SD :	0.0055	0.0055	0.0001				
%RSD:	0.7	0.7	0.7167				

Element: Hg Seq. No.: 38 AS Loc.: 28 Date: 06/18/2010
Sample ID: GD6694 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.795	0.795	0.0099	0.0600	0.0102	09:38:50	Yes
2	0.798	0.798	0.0099	0.0600	0.0103	09:39:24	Yes
3	0.790	0.790	0.0098	0.0594	0.0102	09:39:56	Yes
Mean:	0.794	0.794	0.0099				
SD :	0.0039	0.0039	0.0000				
%RSD:	0.5	0.5	0.4881				

Element: Hg Seq. No.: 39 AS Loc.: 29 Date: 06/18/2010
Sample ID: GD6694 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.680	1.680	0.0209	0.1257	0.0212	09:40:46	Yes
2	1.691	1.691	0.0210	0.1259	0.0214	09:41:20	Yes
3	1.691	1.691	0.0210	0.1255	0.0214	09:41:51	Yes
Mean:	1.688	1.688	0.0210				
SD :	0.0062	0.0062	0.0001				
%RSD:	0.4	0.4	0.3697				

90 & %

Element: Hg Seq. No.: 40 AS Loc.: 30 Date: 06/18/2010
Sample ID: GD6694 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.696	1.696	0.0211	0.1266	0.0214	09:43:06	Yes
2	1.678	1.678	0.0209	0.1237	0.0212	09:43:39	Yes
3	1.684	1.684	0.0209	0.1248	0.0213	09:44:10	Yes
Mean:	1.686	1.686	0.0210				
SD :	0.0093	0.0093	0.0001				
%RSD:	0.5	0.5	0.5496				

90.6%

Element: Hg Seq. No.: 41 AS Loc.: 31 Date: 06/18/2010
Sample ID: 6695

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.542	3.542	0.0440	0.2597	0.0444	09:45:24	Yes
2	3.541	3.541	0.0440	0.2581	0.0444	09:45:58	Yes
3	3.533	3.533	0.0439	0.2573	0.0443	09:46:29	Yes
Mean:	3.539	3.539	0.0440				
SD :	0.0051	0.0051	0.0001				
%RSD:	0.1	0.1	0.1432				

Element: Hg Seq. No.: 42 AS Loc.: 32 Date: 06/18/2010
Sample ID: 6696

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.887	1.887	0.0235	0.1388	0.0238	09:47:43	Yes
2	1.879	1.879	0.0234	0.1386	0.0237	09:48:17	Yes
3	1.879	1.879	0.0234	0.1383	0.0237	09:48:48	Yes
Mean:	1.882	1.882	0.0234				
SD :	0.0048	0.0048	0.0001				
%RSD:	0.3	0.3	0.2570				

Element: Hg Seq. No.: 43 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.914	0.914	0.0114	0.0665	0.0117	09:50:05	Yes
2	0.899	0.899	0.0112	0.0652	0.0115	09:50:38	Yes
3	0.916	0.916	0.0114	0.0661	0.0117	09:51:10	Yes
Mean:	0.910	0.910	0.0113				
SD :	0.0095	0.0095	0.0001				
%RSD:	1.0	1.0	1.0487				

QC value within specified limits.

91.0

Element: Hg Seq. No.: 44 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.010	-0.010	-0.0001	0.0012	0.0002	09:52:00	Yes
2	-0.017	-0.017	-0.0002	0.0001	0.0001	09:52:32	Yes
3	-0.011	-0.011	-0.0001	0.0009	0.0002	09:53:06	Yes
Mean:	-0.013	-0.013	-0.0002				
SD :	0.0039	0.0039	0.0000				
%RSD:	30.2	30.2	30.2348				

QC value within specified limits.

Element: Hg Seq. No.: 45 AS Loc.: 33 Date: 06/18/2010
Sample ID: 6697

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	10.21	10.21	0.1270	0.7442	0.1273	09:53:56	Yes
2	10.13	10.13	0.1259	0.7430	0.1263	09:54:28	Yes
3	10.25	10.25	0.1275	0.7455	0.1278	09:55:03	Yes
Mean:	10.20	10.20	0.1268				
SD :	0.0625	0.0625	0.0008				
%RSD:	0.6	0.6	0.6126				

Element: Hg Seq. No.: 46 AS Loc.: 34 Date: 06/18/2010
Sample ID: 6698

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.001	5.001	0.0622	0.3656	0.0625	09:56:17	Yes
2	5.046	5.046	0.0627	0.3670	0.0631	09:56:49	Yes
3	5.031	5.031	0.0625	0.3665	0.0629	09:57:24	Yes
Mean:	5.026	5.026	0.0625				
SD :	0.0226	0.0226	0.0003				
%RSD:	0.4	0.4	0.4493				

Element: Hg Seq. No.: 47 AS Loc.: 35 Date: 06/18/2010
Sample ID: MB-2180657-3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.018	-0.018	-0.0002	0.0010	0.0001	09:58:38	Yes
2	-0.018	-0.018	-0.0002	0.0008	0.0001	09:59:10	Yes
3	-0.024	-0.024	-0.0003	-0.0004	0.0000	09:59:46	Yes
Mean:	-0.020	-0.020	-0.0002				
SD :	0.0038	0.0038	0.0000				
%RSD:	18.8	18.8	18.8387				

Element: Hg Seq. No.: 48 AS Loc.: 36 Date: 06/18/2010
Sample ID: 6801

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.065	0.065	0.0008	0.0065	0.0011	10:00:32	Yes
2	0.059	0.059	0.0007	0.0056	0.0011	10:01:08	Yes
3	0.062	0.062	0.0008	0.0063	0.0011	10:01:40	Yes
Mean:	0.062	0.062	0.0008				
SD :	0.0027	0.0027	0.0000				
%RSD:	4.3	4.3	4.3246				

Element: Hg Seq. No.: 49 AS Loc.: 37 Date: 06/18/2010
Sample ID: 6802

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	15.41	15.41	0.1916	1.1357	0.1919	10:02:29	Yes
Sample absorbance is greater than that of the highest standard.							
2	15.37	15.37	0.1911	1.1325	0.1914	10:03:03	Yes
Sample absorbance is greater than that of the highest standard.							
3	15.48	15.48	0.1925	1.1382	0.1928	10:03:34	Yes
Sample absorbance is greater than that of the highest standard.							

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```
Mean:      15.42      15.42     0.1917
SD  :     0.0554     0.0554     0.0007
%RSD:        0.4        0.4     0.3593
Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.
```

Reanalyze page 22 5X

```
==========================================================================
Element: Hg     Seq. No.: 50        AS Loc.: 38    Date: 06/18/2010
Sample ID: 6802 D
--------------------------------------------------------------------------
Repl    SampleConc  StndConc   BlnkCorr  Peak     Peak      Time    Peak
 #      µg/L        µg/L       Signal    Area     Height            Stored
 1        15.23      15.23     0.1893   1.1258   0.1897   10:04:52 Yes
Sample absorbance is greater than that of the highest standard.
 2        15.26      15.26     0.1897   1.1227   0.1901   10:05:26 Yes
Sample absorbance is greater than that of the highest standard.
 3        15.31      15.31     0.1903   1.1263   0.1906   10:05:57 Yes
Sample absorbance is greater than that of the highest standard.
Mean:     15.27      15.27     0.1898
SD  :    0.0381     0.0381     0.0005
%RSD:       0.2        0.2     0.2497
Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.
```

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```
==========================================================================
Element: Hg     Seq. No.: 51        AS Loc.: 39    Date: 06/18/2010
Sample ID: 6802S
--------------------------------------------------------------------------
Repl    SampleConc  StndConc   BlnkCorr  Peak     Peak      Time    Peak
 #      µg/L        µg/L       Signal    Area     Height            Stored
 1        15.98      15.98     0.1987   1.1818   0.1991   10:07:15 Yes
Sample absorbance is greater than that of the highest standard.
 2        16.06      16.06     0.1996   1.1821   0.1999   10:07:49 Yes
Sample absorbance is greater than that of the highest standard.
 3        15.99      15.99     0.1987   1.1790   0.1991   10:08:20 Yes
Sample absorbance is greater than that of the highest standard.
Mean:     16.01      16.01     0.1990
SD  :    0.0405     0.0405     0.0005
%RSD:       0.3        0.3     0.2532
Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.
```

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```
==========================================================================
Element: Hg     Seq. No.: 52        AS Loc.: 40    Date: 06/18/2010
Sample ID: D6802 DS
--------------------------------------------------------------------------
Repl    SampleConc  StndConc   BlnkCorr  Peak     Peak      Time    Peak
 #      µg/L        µg/L       Signal    Area     Height            Stored
 1        2.461      2.461     0.0306   0.1930   0.0309   10:09:35 Yes
 2        2.460      2.460     0.0306   0.1917   0.0309   10:10:08 Yes
 3        2.469      2.469     0.0307   0.1916   0.0310   10:10:40 Yes
Mean:     2.463      2.463     0.0306
SD  :    0.0051     0.0051     0.0001
%RSD:       0.2        0.2     0.2082
```

```
==========================================================================
Element: Hg     Seq. No.: 53        AS Loc.: 41    Date: 06/18/2010
Sample ID: 6803
--------------------------------------------------------------------------
Repl    SampleConc  StndConc   BlnkCorr  Peak     Peak      Time    Peak
 #      µg/L        µg/L       Signal    Area     Height            Stored
 1        16.27      16.27     0.2022   1.2103   0.2026   10:11:52 Yes
Sample absorbance is greater than that of the highest standard.
 2        16.33      16.33     0.2030   1.2091   0.2033   10:12:26 Yes
```

Sample absorbance is greater than that of the highest standard.

3	16.40	16.40	0.2039	1.2121	0.2042	10:12:58 Yes

Sample absorbance is greater than that of the highest standard.

Mean:	16.33	16.33	0.2030
SD :	0.0671	0.0671	0.0008
%RSD:	0.4	0.4	0.4109

Sample absorbance is greater than that of the highest standard.
Result for Hg is greater then 100 percent of calibration range.

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==========

Element: Hg Seq. No.: 54 AS Loc.: 42 Date: 06/18/2010
Sample ID: 6804

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.515	9.515	0.1183	0.7222	0.1186	10:14:10	Yes
2	9.530	9.530	0.1185	0.7223	0.1188	10:14:43	Yes
3	9.676	9.676	0.1203	0.7264	0.1206	10:15:15	Yes
Mean:	9.574	9.574	0.1190				
SD :	0.0891	0.0891	0.0011				
%RSD:	0.9	0.9	0.9307				

==========

Element: Hg Seq. No.: 55 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.911	0.911	0.0113	0.0666	0.0117	10:16:30	Yes
2	0.929	0.929	0.0115	0.0666	0.0119	10:17:03	Yes
3	0.916	0.916	0.0114	0.0665	0.0117	10:17:35	Yes
Mean:	0.919	0.919	0.0114				
SD :	0.0090	0.0090	0.0001				
%RSD:	1.0	1.0	0.9842				

91-9%

QC value within specified limits.

==========

Element: Hg Seq. No.: 56 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.010	-0.010	-0.0001	0.0010	0.0002	10:18:25	Yes
2	-0.010	-0.010	-0.0001	0.0009	0.0002	10:18:58	Yes
3	-0.012	-0.012	-0.0002	0.0006	0.0002	10:19:30	Yes
Mean:	-0.011	-0.011	-0.0001				
SD :	0.0013	0.0013	0.0000				
%RSD:	12.4	12.4	12.4388				

QC value within specified limits.

Element: Hg Seq. No.: 57 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.966	0.966	0.0120	0.0693	0.0124	10:37:42	Yes
2	0.949	0.949	0.0118	0.0678	0.0121	10:38:15	Yes
3	0.954	0.954	0.0119	0.0684	0.0122	10:38:47	Yes
Mean:	0.956	0.956	0.0119				
SD :	0.0088	0.0088	0.0001				
%RSD:	0.9	0.9	0.9212				

95.6%

Element: Hg Seq. No.: 58 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.014	-0.014	-0.0002	0.0005	0.0002	10:39:37	Yes
2	-0.015	-0.015	-0.0002	0.0007	0.0002	10:40:09	Yes
3	-0.011	-0.011	-0.0001	0.0011	0.0002	10:40:43	Yes
Mean:	-0.014	-0.014	-0.0002				
SD :	0.0019	0.0019	0.0000				
%RSD:	14.1	14.1	14.0810				

Element: Hg Seq. No.: 59 AS Loc.: 18 Date: 06/18/2010
Sample ID: GC8423 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	28.53	2.853	0.0355	0.2025	0.0358	10:42:24	Yes
2	28.47	2.847	0.0354	0.2008	0.0357	10:42:57	Yes
3	28.43	2.843	0.0353	0.2014	0.0357	10:43:29	Yes
Mean:	28.47	2.847	0.0354				
SD :	0.0506	0.0051	0.0001				
%RSD:	0.2	0.2	0.1776				

Reanalyz.
10x

Element: Hg Seq. No.: 60 AS Loc.: 19 Date: 06/18/2010
Sample ID: GC8423 D 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	28.62	2.862	0.0356	0.2036	0.0359	10:44:45	Yes
2	28.47	2.847	0.0354	0.2021	0.0357	10:45:18	Yes
3	28.50	2.850	0.0354	0.2030	0.0358	10:45:50	Yes
Mean:	28.53	2.853	0.0355				
SD :	0.0800	0.0080	0.0001				
%RSD:	0.3	0.3	0.2803				

Reanalyz.
10x

Element: Hg Seq. No.: 61 AS Loc.: 20 Date: 06/18/2010
Sample ID: GC8423 PS 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	38.20	3.820	0.0475	0.2724	0.0478	10:47:07	Yes
2	38.41	3.841	0.0477	0.2724	0.0481	10:47:40	Yes
3	38.17	3.817	0.0475	0.2713	0.0478	10:48:12	Yes
Mean:	38.26	3.826	0.0476				
SD :	0.1277	0.0128	0.0002				
%RSD:	0.3	0.3	0.3337				

97.6%
Reanalyz.
10x

Element: Hg Seq. No.: 62 AS Loc.: 21 Date: 06/18/2010
Sample ID: GC8423 PDS 10 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	38.14	3.814	0.0474	0.2724	0.0478	10:49:30	Yes
2	37.81	3.781	0.0470	0.2691	0.0473	10:50:03	Yes
3	37.98	3.798	0.0472	0.2712	0.0476	10:50:35	Yes
Mean:	37.98	3.798	0.0472				
SD :	0.1645	0.0165	0.0002				
%RSD:	0.4	0.4	0.4332				

Reanalyz.
10x
94.8%

Element: Hg Seq. No.: 63 AS Loc.: 37 Date: 06/18/2010
Sample ID: 6802 5 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	18.20	3.640	0.0452	0.2601	0.0456	10:51:53	Yes
2	17.94	3.588	0.0446	0.2589	0.0449	10:52:25	Yes
3	18.23	3.646	0.0453	0.2599	0.0457	10:52:57	Yes
Mean:	18.12	3.625	0.0451				
SD :	0.1591	0.0318	0.0004				
%RSD:	0.9	0.9	0.8781				

Element: Hg Seq. No.: 64 AS Loc.: 38 Date: 06/18/2010
Sample ID: 6802 D 5 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	18.31	3.662	0.0455	0.2613	0.0459	10:54:16	Yes
2	18.14	3.627	0.0451	0.2607	0.0454	10:54:48	Yes
3	18.19	3.638	0.0452	0.2619	0.0456	10:55:22	Yes
Mean:	18.21	3.643	0.0453				
SD :	0.0900	0.0180	0.0002				
%RSD:	0.5	0.5	0.4942				

Element: Hg Seq. No.: 65 AS Loc.: 39 Date: 06/18/2010
Sample ID: 6802 PS 5 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	22.94	4.588	0.0570	0.3306	0.0574	10:56:39	Yes
2	22.88	4.577	0.0569	0.3280	0.0572	10:57:11	Yes
3	22.95	4.591	0.0571	0.3283	0.0574	10:57:45	Yes
Mean:	22.92	4.585	0.0570				
SD :	0.0371	0.0074	0.0001				
%RSD:	0.2	0.2	0.1616				

95.1 %

Element: Hg Seq. No.: 66 AS Loc.: 40 Date: 06/18/2010
Sample ID: 6802 PDS 5 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	22.87	4.575	0.0569	0.3283	0.0572	10:58:58	Yes
2	22.84	4.569	0.0568	0.3285	0.0571	10:59:30	Yes
3	22.81	4.562	0.0567	0.3272	0.0571	11:00:04	Yes
Mean:	22.84	4.568	0.0568				
SD :	0.0322	0.0064	0.0001				
%RSD:	0.1	0.1	0.1410				

93.4 %

Element: Hg Seq. No.: 67 AS Loc.: 41 Date: 06/18/2010
Sample ID: 6803 5 X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	19.57	3.915	0.0487	0.2811	0.0490	11:01:14	Yes
2	19.50	3.900	0.0485	0.2787	0.0488	11:01:46	Yes
3	19.51	3.902	0.0485	0.2802	0.0488	11:02:20	Yes
Mean:	19.53	3.905	0.0485				
SD :	0.0411	0.0082	0.0001				
%RSD:	0.2	0.2	0.2106				

✓

Element: Hg Seq. No.: 68 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.966	0.966	0.0120	0.0704	0.0123	11:03:34	Yes
2	0.960	0.960	0.0119	0.0694	0.0123	11:04:06	Yes
3	0.961	0.961	0.0119	0.0692	0.0123	11:04:40	Yes
Mean:	0.962	0.962	0.0120				
SD :	0.0032	0.0032	0.0000				
%RSD:	0.3	0.3	0.3288				

96.2 %

Element: Hg Seq. No.: 69 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.015	-0.015	-0.0002	0.0008	0.0002	11:05:29	Yes
2	-0.016	-0.016	-0.0002	0.0003	0.0001	11:06:01	Yes
3	-0.014	-0.014	-0.0002	0.0007	0.0002	11:06:35	Yes
Mean:	-0.015	-0.015	-0.0002				
SD :	0.0010	0.0010	0.0000				
%RSD:	6.7	6.7	6.6532				

Element: Hg Seq. No.: 5 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.023	1.023	0.0105	0.0570	0.0105	08:31:43	Yes

Element: Hg Seq. No.: 6 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.013	0.013	0.0001	0.0003	0.0001	08:33:00	Yes

Element: Hg Seq. No.: 7 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.194	1.194	0.0123	0.0674	0.0123	08:33:49	Yes

Element: Hg Seq. No.: 8 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.025	0.025	0.0003	0.0010	0.0003	08:35:06	Yes

Element: Hg Seq. No.: 1 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.089	1.089	0.0112	0.0667	0.0112	07:52:36	No

Element: Hg Seq. No.: 2 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.018	0.018	0.0002	0.0019	0.0002	07:53:53	No

Element: Hg Seq. No.: 3 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.059	1.059	0.0109	0.0619	0.0109	07:55:32	No

Element: Hg Seq. No.: 4 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.020	0.020	0.0002	0.0022	0.0002	07:56:48	No

Element: Hg Seq. No.: 1 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.197	1.197	0.0123	0.0744	0.0123	08:16:52	Yes
2	1.025	1.025	0.0106	0.0622	0.0106	08:17:33	Yes
3	0.888	0.888	0.0092	0.0508	0.0092	08:18:04	Yes
Mean:	1.037	1.037	0.0107				
SD :	0.1549	0.1549	0.0016				
%RSD:	14.9	14.9	14.9418				

Element: Hg Seq. No.: 2 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.030	0.030	0.0003	0.0035	0.0003	08:19:23	Yes
2	0.026	0.026	0.0003	0.0029	0.0003	08:19:54	Yes
3	0.029	0.029	0.0003	0.0031	0.0003	08:20:27	Yes
Mean:	0.028	0.028	0.0003				
SD :	0.0020	0.0020	0.0000				
%RSD:	7.0	7.0	6.9595				

Element: Hg Seq. No.: 3 AS Loc.: 7 Date: 06/18/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.873	0.873	0.0090	0.0467	0.0090	08:22:25	Yes
2	0.884	0.884	0.0091	0.0472	0.0091	08:22:58	Yes
3	0.829	0.829	0.0085	0.0425	0.0085	08:23:30	Yes
Mean:	0.862	0.862	0.0089				
SD :	0.0294	0.0294	0.0003				
%RSD:	3.4	3.4	3.4099				

Element: Hg Seq. No.: 4 AS Loc.: 8 Date: 06/18/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.019	0.019	0.0002	0.0005	0.0002	08:24:20	Yes
2	0.014	0.014	0.0001	0.0004	0.0001	08:24:51	Yes
3	0.013	0.013	0.0001	0.0004	0.0001	08:25:25	Yes
Mean:	0.015	0.015	0.0002				
SD :	0.0029	0.0029	0.0000				
%RSD:	19.3	19.3	19.3210				

DATA REVIEW CHECKLIST:

ANALYSIS: FIMS air walk Run II **Run Date:** 2010/6/22

WORKSHEET(s): 2183330, 2184419, 2184420, 2185591, 2185594

	Primary Review (Analyst):	ok	no	n/a
1	Sample analyses meet hold time criteria	[✓]	[ ]	[ ] 1
2	Analysis set-up meets method criteria	[✓]	[ ]	[ ] 2
3	Tuning and correct calibration used - criteria meets method criteria	[✓]	[ ]	[ ] 3
4	SQC/Control Charts updated, analysis in statistical/method control	[✓]	[ ]	[ ] 4
5	Internal area counts checked (if applicable)	[ ]	[ ]	[✓] 5
6	LCS, SRM are within acceptance criteria	[✓]	[ ]	[ ] 6
7	Surrogate Recovery (s) is within acceptance criteria	[ ]	[ ]	[✓] 7
8	Method Blank meets acceptance criteria	[✓]	[ ]	[ ] 8
9	Matrix Spike recovery (s) meets acceptance criteria	[✓]	[ ]	[ ] 9
10	Duplicate precision meets acceptance criteria	[✓]	[ ]	[ ] 10
11	QC is documented on the run logs	[✓]	[ ]	[ ] 11
12	Runs checked for carryover	[✓]	[ ]	[ ] 12
13	Prep log / worksheet(s) are present, signed / dated by a prep / instrument analysts	[✓]	[ ]	[ ] 13
14	Initial weights, splits, impringer volumes (where applicable) are documented	[✓]	[ ]	[ ] 14
15	Standards and reagents traceable to Certificates of Analysis	[✓]	[ ]	[ ] 15
16	Samples above calibration range diluted and reanalyzed	[✓]	[ ]	[ ] 16
17	Dilution factors have been checked and entered	[✓]	[ ]	[ ] 17
18	Analytical observations/anomalies documented in LIMS	[✓]	[ ]	[ ] 18
19	Random calculation checked and in correct units	[✓]	[ ]	[ ] 19
20	If corrective actions were applied they are documented, initialed & dated	[✓]	[ ]	[ ] 20
21	Manual integration --before & after data with a reason included, initialed & dated	[✓]	[ ]	[ ] 21
22	Transferred data is validated in LIMS for correctness	[✓]	[ ]	[ ] 22
23	Data package assembled (where required)	[✓]	[ ]	[ ] 23

Reviewed By: F. Sabet Date: 2010/6/22

Comments:

	Secondary Supervisor/Peer Data Review:	ok	no	n/a
1	Primary Review complete and correct	[✓]	[ ]	[ ] 1
2	Repeats documented and referenced	[✓]	[ ]	[ ] 2
3	Method and sample deviations noted, anomalies described (if applicable)	[ ]	[ ]	[✓] 3
4	Data and QC validated in LIMS	[✓]	[ ]	[ ] 4
5	Random calculation checked	[✓]	[ ]	[ ] 5
6	Benchsheet (s) signed and dated	[✓]	[ ]	[ ] 6
7	Data Package checked for completeness (if required)	[✓]	[ ]	[ ] 7

Reviewed By: [signature] Date: 20/06/23

Comments:

S_{pex}

$$y = mx + b.$$

$$\therefore \quad 0.0441 = 0.01537x + \cancel{0}$$

$$\therefore \quad x = \frac{0.0441}{0.01537}$$

$$= 2.8692257.$$

$$\therefore \quad 2.869 \doteq 2.870$$

$$\therefore \quad 2.87 = 2.87 \quad \text{Ans.}$$

Sample Information File C:\AAUSER\SAMPINFO\100622F1.SIF

Description : FIMS1s/m 1471 stock B6035082 INT. # 179 (Working std. 100622)
Batch ID : EXL2
Volume Units :
Weight Units :
Analyst : FS
Sample Volume : 0.00

AS Loc	Sample ID	Sample Weight	Sample Units	User Dilution	Remarks
7	CCV				
8	CCB				
15	BL0622-2183330-1B				
16	BL0622S				
17	BL0622DS				
18	GC8423-01				
19	8423 D				
20	8423 S				
21	8423 DS				
22	MB-1B				
23	8420				
24	8424				
25	8425				
26	BL0622-2184419-3B				
27	BL0622S				
28	BL0622DS				
29	GE1286-06				
30	1286 D				
31	1286 S				
32	1286 DS				
33	MB-3B				
34	1285				
35	1287				
36	MB-3B-2184420-3B				
37	GF2610-06				
38	2611				
39	2611 D				
40	2611 S				
41	2611 DS				
42	2612				
43	2613				
44	BL0622-2185591-3C				
45	BL0622S				
46	BL0622DS				
47	GE1287-07				
48	1287 D				
49	1287 S				
50	1287 DS				
51	MB-3C				
52	1285				
53	1286 10X			10.0000	
54	MB-3C-2185594-3C				
55	GF2610-07				
56	2611				
57	2611 D				
58	2611 S				
59	2611 DS				
60	2612				
61	2613				

Worksheet Number: 2183330

Mercury 1B In Filter + Rinse (M29) - Stack Sampling Train
(ug)

Parameter Name	Units	REAG BL	DL	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE
Mercury (Hg)	ug	-0.0006	0.015	100.4		100.7		98

Parameter Name	DL	SPIKEDup1	DL	BLANK	DL	B073337 GC8420	DL	B073337 GC8423
Mercury (Hg)		99.3		-0.0003	0.015	-0.0006	0.015	0.0132

Parameter Name	DL	B073337 GC8423Dup1	DL	B073337 GC8424	DL	B073337 GC8425	DL	RDL
Mercury (Hg)	0.015	0.0129	0.015	0.0141	0.015	0.0129	0.015	0.02

Parameter Name	MDL	IDL
Mercury (Hg)	0.02	0.02

M29 Mercury	HGFR-TR (1B)
Worksheet #	2183330
Date Analyzed	2010/06/22

Sample #	Raw Conc. ug/L	Dilution x	Final Vol ml	Result T ug	RDL ug/L	RDL ug	%
BL0622-1B	-0.001	1	300	**-0.0003**	0.05	**0.0150**	
BL0622S	0.980	1	300	**0.2940**	0.05	**0.0150**	**98.0**
BL0622DS	0.993	1	300	**0.2979**	0.05	**0.0150**	**99.3**
GC8423-01	0.044	1	300	**0.0132**	0.05	**0.0150**	
GC8423-01 D	0.043	1	300	**0.0129**	0.05	**0.0150**	
GC8423-01 S	1.047	1	300	**0.3141**	0.05	**0.0150**	**100.4**
GC8423-01 DS	1.050	1	300	**0.3150**	0.05	**0.0150**	**100.7**
MB-1B	-0.002	1	300	**-0.0006**	0.05	**0.0150**	
GC8420-01	-0.002	1	300	**-0.0006**	0.05	**0.0150**	
GC8424-01	0.047	1	300	**0.0141**	0.05	**0.0150**	
GC8425-01	0.043	1	300	**0.0129**	0.05	**0.0150**	

Assignment Date: Friday ; June 18, 2010
Assigned to: PREMPAL BHATTI
Test Code: HGFR-TR Instrument Id:
Test Description: Mercury from the FH Filter + Acetone Rinses by CVAA. Typically used for Method 29-1**B**.

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	REAG BL												2010/06/18
	MTRX SPK	0	MHG% GC8423-01										2010/06/18
	MTRX SPK	1	MHG% GC8423-01										2010/06/22
	SPIKE	0	MHG%										2010/06/18
	SPIKE	1	MHG%										2010/06/22
	BLANK						300						2010/06/18
B073337	GC8420-01R		BLANK-COND 2-M*						1	2010/07/02	2010/06/23 23:00		2010/06/18
B073337	GC8423-01R	0	RUN 1-COND 2-M*						1	2010/07/01	2010/06/23 23:00		2010/06/18
B073337	GC8423-01R	1	RUN 1-COND 2-M*						1	2010/07/01	2010/06/23 23:00		2010/06/22
B073337	GC8424-01R		RUN 2-COND 2-M*						1	2010/07/01	2010/06/23 23:00		2010/06/18
B073337	GC8425-01R		RUN 3-COND 2-M*						1	2010/07/02	2010/06/23 23:00		2010/06/18

Remarks:

Samples extracted by: MIRA BRUJIC 2010-06-22
Instrumentation performed by: F. Sabet Date: 2010/6/22
Calculations performed by: F. Sabet Date: 2010/6/22
Validated by: Date: 2010 06 23

B073305, B073337, B073604 ICPMSFR-TR, ICPFH-TR, HGFR-TR

EPA METHOD 29 PREPARATION LOG: (non-combined front half)

DG29HF / DG29HFB

BRL SOP-00102

Front Half Standard Digestion

- ✓ 0.1 N HNO3 Probe wash reduced
- ✓ Acetone Wash redissolved with 6ml HNO3
- ✓ HF and HNO3 (if no acetone wash) added
- ✓ Filter and washes combined in bomb
- ✓ Bombs sealed, weighed and digested
- ✓ Bombs cooled and weighed
- ✓ Sample transferred to 300 ml HDPE bottle
- ✓ Samples bulked to 300 ml with RODI and mixed
- ✓ MARK "HF" ON LIDS IN RED

Front Half Bulk Digestion

- N/A 0.1 N HNO3 Probe wash reduced
- Acetone Wash redissolved with 6ml HNO3
- HF and HNO3 (if no acetone wash) added
- Filter and washes combined in digestion bottle
- Bottles sealed and sonicated
- Samples bulked to intermediate volume with RODI and mixed
- Sample aliquot transferred to bomb weighed and digested
- Samples transferred to 300 ml HDPE bottle and bulked to F.V with RODI and mixed
- MARK "HF" ON LIDS IN RED

	Bomb #	Sample I.D.	B.Code	Bulk Interm Vol	Bulk Aliquot Vol	Final Vol.	Bomb Pre Wt.	Bomb Post Wt.	Dilution Factor	Comment
1	B	BL 0617				300	239	239	300X	
2	1	BL 0617 M	-				240	240		1500 ul of ICPMS HQCA & HQCB
3	2	BL 0617 DM	-				239	239		1500 ul of ICPMS HQCA & HQCB
4	3	BL 0617 S	-				233	233		600 ul of ICP QCA & QCB
5	4	BL 0617 DS	-				238	238		600 ul of ICP QCA & QCB
6	13	GC8218-01R	-				245	245		
7	P1	8219	-				242	242		
8	15	8220	-				242	242		
9	T	8221	-				241	241		
10	11	GC8420-01R	-				238	238		
11	R	8423	-				240	240		
12	F	8424	-				240	240		
13	8	8425	-				238	238		
14	16	7165	-				241	241		Blank Filter
15	14	PB ~~7184~~ 7181	-				238	238		Audit Filter
16	18	GC9463-01R	-				235	235		
17	L	9464	-				237	237		
18	5	9465	-				233	233		
19	6	9466	-				239	238		
20	7	9513	-				236	236		
21			-							
22			-							
23										N/A
24			-							PB 10/06/17
25			-							

Notes:

Acids used are of a grade suitable for metals analyses

RODI water is Reverse Osmosis Deionized Water

*******	HYDROFLUORIC ACID - USE EXTREME CAUTION WEAR GLOVES, EYE PROTECTION AND LAB COAT	*******

Supplier/Lot Information	Supplier	Lot/Expiry Date	
PSC/ICPMS-HQC Solution A	High Purity	1001832	11-01-21
PSC/ICPMS-HQC Solution B	High Purity	1001833	11-01-21
PSC/ICP/QCA	High Purity	928008	10-10-15
PSC/ICP/QCB	High Purity	928701	10-10-15
HF	Fisher	5108120	10-12-07
HNO_3	Fisher	1110030	13-02-27

Prepared By: PB Date: 10/06/17 Checked By: PB

Procedure/Methodology:

Acid Probe Rinse: (should be labelled FH on the sample container)

1 Place bottles in the oven, cover with ribbed watchglass and reduce to approximately 20 ml., do not boil

Container #1 FILTER:

1 The filter and filtercatch can be digest as a whole up to 1g FILTERWT. The acid volumes are based on a 0.5g FILTERWT and can be increase proportionally to the FILTERWT. FILTERWT over 1g are digested using the bulk method. (see below)

2 Spike the appropriate blank digestion bomb as per the comment section above

3 If particulates are required add 6ml of HNO3 to the acetone particulate vial to dissolve metals and heat gently or sonicate if needed
If no particulates are required add 6mL HNO3 to the evaporated front half nitric rinse container.

4 Add the filter to the designated bomb and add 4ml of HF

5 If the filter is not completely dissolved add 2 mls HF until complete dissolution is achieved.
(Note: Teflon and Nylon backed filters will not completely dissolve, do not add additional acid in these cases.)

6 Add the reduced probe rinse and dissolved particulates to the designated bomb and seal

7 Weigh the bombs, record in "First Pre Wt" column

8 Microwave the samples in the Mars 5 CEM u-wave using method : 600W FILTER-PFA
Step 1: 100% at 600W for 12 min; Step 2:Cool down at 0% for 10 min

9 Cool and record "Second Post Wt", if difference is > 10% between pre and post weight make an note of potential loss of sample.

10 Transfer quantitatively to 300 ml. HDPE bottles.

11 Dilute to 300 ml final volume and mix.

12 **Mark lids of bottles and falcon tubes with "HF" in red permanent marker**

***Note:** The final volume is determined by weight assuming 1g = 1ml. Samples are bulked to final volume on a top loading balance.

Container #1 FILTER BULK DIGEST:

1 The filter and filtercatch are transferred to an appropriate sized bottle, 500 ml or 1000 ml Nalgene bottle.
The final volume will be dependant on the FILTERWT.

2 Add the digestion acids proportionately to the weight of filter and catch based on 4 ml HF and 6 ml HNO3 for 0.5g FILTERWT.(see example below)

3 If particulates are required add 6ml of HNO3 to the acetone particulate vial to dissolve metals and heat gently or sonicate if needed
Add remaining nitric acid to the evaporated front half nitric rinse container

4 If no particulates are required add nitric acid proportionately to the weight of filter and catch to the front half nitric rinse container.

5 Add 4 ml HF per 0.5g FILTERWT to the designated bottle

6 Add the reduced probe rinse and dissolved particulates to the designated bottle and seal

7 Mix the contents of the bottle and sonicate for 1 hour in a Branson 3510 ultrasonic bath.

8 The samples are bulked to a intermediate volume with RODI using a precalibrated bottle as a volume guide

9 Mix the contents of the bottle and remove a predetermined aliquot, 50 ml or less of intermediate digest sample, to a designated bomb and seal

10 Weigh the bombs, record in "First Pre Wt" column

11 Microwave the samples in the Mars 5 CEM u-wave using method : 600W FILTER-PFA
Step 1: 100% at 600W for 12 min; Step 2:Cool down at 0% for 10 min

12 Cool and record "Second Post Wt", if difference is > 10% between pre and post weight make an note of potential loss of sample.

13 Transfer quantitatively to 300 ml. HDPE bottles.

14 Dilute to final volume, determined by intial FILTERWT and aliquot removed from intermediate digest and mix. (see example below)

15 **Mark lids of bottles and falcon tubes with "HF" in red permanent marker**

Example of Bulk Digest Acid and Volume requirements:

Volume of HF required = (FILTERWT g / 0.5 g) X 4 ml HF *Example:*(3 g / 0.5 g)= 6, (6 X 4 ml HF) = 24 ml HF

Volume of HNO3 required = (FILTERWT g / 0.5 g) X 6 ml HNO3 *Example:* (3 g / 0.5 g)= 6, (6 X 6 ml HNO3) = 36 ml HNO3

Intermediate Digest Volume = (FILTERWT g / 0.5g) X 300 ml) = Final Volume of Bulk Digest.
Example: (3 g / 0.5 g)= 6, 6 X 300 ml = 1800 ml F.V.

Choose an intermedate volume that is divides into the F.V. 2 to 10 times.
Example: 1800 ml / 6 = 300ml

Choose an aliquot volume that is 50 ml or less that when multiplied by the dividing number above will equal 300 ml or less
Example: 50 ml X 6 = 300ml

Final Dilution Factor = Final Volume of the Bulk Digest = (FILTERWT g / 0.5g) X 300 ml) = Final Volume of Bulk Digest = Dilution factor
Example: (3 g / 0.5 g)= 6, 6 X 300 ml = 1800 ml F.V. = 1800 X dilution

EPA 7470 WATER PREPARATION LOG - MERCURY

DG7470HG, DG29

Calibration Solutions: SOP-00104

#	I.D.	**Conc.	Spike	***Conc. Entered
1	Blank/Dummy	0 ppb	None	0.0
2	Standard 1	0 ppb	None	0.0
3	Standard 2	1.67	pm liquid working cal std	2.5*
4	Standard 3	3.33	pm liquid working cal std	5.0
5	Standard 4	5.0	pm liquid working cal std	7.5
6	Standard 5	6.67	pm liquid working cal std	10.0
7	Standard 6	8.33	pm liquid working cal std	12.5

* Standard 2 is diluted x50, i.e. 400uL of the 2.5ppb to 20mL of the dilution water, giving a Standard 2 of 0.05 ppb for calibration

Check List

- ✓ Digest Code/labels
- ✓ Samples poured out
- ✓ Samples spiked
- ✓ Acids added
- ✓ Reagents added
- ✓ Bath at 95°C ± 2° C
- ✓ Samples digested
- ✓ Samples cooled - Hydroxylamine HCl added
- ✓ Samples bulked capped then shaken
- ✓ Rack order checked

HGCP +TR

	#	Sample I.D.	B.Code	Init.Vol.	F. Vol.	Dil	Comment
	11	ICV (Init. Calib. Verif.)	1M 112	20 ml	30 ml	1 X	1.5 ppb = 600 ul of 0.05 ppm Liquid Working Reference QC Std.
	12	LLCW (low level check)	"	"	"	"	0.25 ppb = 50 ul of 0.1 ppm Liquid Working Cal Std.
	13	External Ref.	"	"	"	"	3.0 ppb = 600 ul of 0.1ppm Intermediate Spex Reference Std.
	14	Organic Ref. (DCS)	"	"	"	"	2.0 ppb = 400 ul of Intermediate Organic Reference Std.
	15	BL 06272	"	"	"	"	(Processed Blank)
	16	BL S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Liquid Working Cal Std.
	17	BL DS	"	"	"	"	(Duplicate Blank Spike)
1	18	6C8413	"	"	"	"	
1	19	D	"	"	"	"	(Duplicate sample)
1	20	S	"	"	"	"	1 ppb = 200 ul. of 0.1 ppm Liquid Working Cal Std.
1	21	DS	"	"	"	"	(Duplicate Spiked sample)
2	22	6C8410	"	"	"	"	+RB
3	23	414	"	"	"	"	
4	24	415	"	"	"	"	
5	25		"	"	"	"	
6	26		"	"	"	"	
7	27		"	"	"	"	
8	28		"	"	"	"	
9	29		"	"	"	"	
10	30		"	"	"	"	
	31	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
	32	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
11	33		"	"	"	"	
12	34		"	"	"	"	
13	35		"	"	"	"	2010-06-22
14	36		"	"	"	"	
15	37		"	"	"	"	MB
16	38		"	"	"	"	
17	39		"	"	"	"	
18	40		"	"	"	"	
19	41		"	"	"	"	
20	42		"	"	"	"	
	43	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.
	44	CCV (Cont. Calib. Verif.)	"	20 ml	30 ml	1 X	1.0 ppb = 400 ul of 0.05 ppm Liquid Working Reference QC Std.

Comments:** concentration based on 30 ml final volume, *** concentration based on 20 ml final volume

Refer to the BRL SOP-00104 for Applicable Test Codes

Procedure/Methodology:

Note:Calibration Standards, ICVs, CCVs, CCBs and LCS are prepared the same as the samples but are not digested.

1 Prepare 25 ppm Intermediate Calibration Standard (if required) by pipetting 625 ul., of 1000 ppm stock plus 0.5 ml conc. HNO3 to 25 ml final volume
2 Prepare 0.1 ppm Liquid Working Calibration Standard daily: pipet 400 ul., of 25 ppm interm plus 2.0 ml of conc. HNO3 to 100 ml final volume
3 Prepare a 0.05 ppm Liquid Working Reference QC Standard daily: pipet 50 ul of Stock Reference Standard (100ppm Hg) plus 2.0 ml of conc. HNO3 to 100 ml final volume
4 Using the LIMS Screen enter the required samples into a worksheet
5 Label the falcon tubes appropriately
6 Include one External Reference Material sample per daily run
7 Incude one Organic Mercury Control Standard per daily run
8 Transfer a 20 ml. aliquot of well mixed sample into the designated falcon tube. For Method 29 2B (HNO3/H2O2 impinger) transfer a 2 ml aliquot.
9 Spike the tubes as indicated in the comment sector of the digestion sheet
10 Add 0.5 ml. of conc. Nitric Acid (HNO_3), and 1 ml. of conc. Sulphuric acid, (H_2SO_4), to each tube
11 Add 3 ml. Of 5% $KMnO_4$, **purple colour must remain for the duration of digest.**
12 For Method 29 2B (HNO3/H2O2 impinger) add 9 ml of 5% KMNO4.
Add 1.5 ml. of 5% potassium persulphate, ($K_2S_2O_8$)
13 Mix samples, cap loosely and place in a water bath @ 95°C ± 2° C for 2 hours
14 Remove tubes and allow to cool to room temperature, samples may be cooled by placeing in a cool water bath.
15 Add 1.0 ml. 20% Hydroxylamine Hydrochloride to each tube
16 Dilute each sample to a final volume of 30 ml.
17 Recap tubes and shake until $KMnO_4$ is destroyed and sample becomes colourless

Supplier/Lot Information	Supplier	Lot	Expiry Date
Stock Calibration Standard	AccuTrace	B6035082	2011/04/30
Intermediate Cal Standard	Internal	No130 B6035082	2010/07/21
Stock Reference Standard	Delta	928008	2010/10/15
External Reference Material	Fisher	109 L4-120HG	2011/07/04
Organic Mercury Control Standard	Delta	No97	2010/07/21
5% potassium permanganate	Internal	BottA E11602	2010/08/03
5% potassium persulphate	Internal	BottA B2630	2010/08/03
20% hydroxylamine hydrochloride	Internal	Bott.A92979	2010/08/03
HNO_3	Fisher	1110030	2013/02/29
H_2SO_4	Fisher	3108112	2012/05/31
Bath Temp: 121 C	Time ON: 10:14	Time OFF: 12:30	

Prepared By: MB Date: 2010-06-22 Checked by: MB

Method Name: 7470hg-w
Method Description: 7470HG-W
Element: Hg

Date: 06/22/2010
Technique:FI-MHS
Calibration Type:
Hg, Zero Intercept: Linear
Wavelength: 253.7 nm
Sample Info Name: 100622F1.SIF Results Data Set Name: 100622F1

Element: Hg Seq. No.: 1 AS Loc.: 1 Date: 06/22/2010
Sample ID: Calib Blank

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0002	0.0013	0.0002	02:37:21	Yes
2			0.0001	-0.0003	0.0001	02:37:53	Yes
3			0.0002	0.0019	0.0002	02:38:27	Yes
Mean:			0.0002				
SD :			0.0001				
%RSD:			47.5587				

Auto-zero performed.

Element: Hg Seq. No.: 2 AS Loc.: 2 Date: 06/22/2010
Sample ID: STD1

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0007	0.0052	0.0009	02:39:16	Yes
2			0.0008	0.0057	0.0010	02:39:48	Yes
3			0.0008	0.0056	0.0009	02:40:23	Yes
Mean:			0.0008				
SD :			0.0000				
%RSD:			3.1123				

[Hg] Standard number 1 applied. [0.050]
Correlation Coefficient: 1.00000 Slope: 0.01509

Element: Hg Seq. No.: 3 AS Loc.: 3 Date: 06/22/2010
Sample ID: STD2

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.0786	0.4722	0.0788	02:41:10	Yes
2			0.0794	0.4674	0.0796	02:41:45	Yes
3			0.0767	0.4576	0.0769	02:42:17	Yes
Mean:			0.0783				
SD :			0.0014				
%RSD:			1.7827				

[Hg] Standard number 2 applied. [5.000]
Correlation Coefficient: 1.00000 Slope: 0.01565

Element: Hg Seq. No.: 4 AS Loc.: 4 Date: 06/22/2010
Sample ID: STD3

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1153	0.6837	0.1155	02:43:31	Yes
2			0.1138	0.6767	0.1140	02:44:05	Yes

3	0.1164	0.6843	0.1166	02:44:37	Yes
Mean:	0.1152				
SD :	0.0013				
%RSD:	1.1184				

[Hg] Standard number 3 applied. [7.500]
Correlation Coefficient: 0.99989 Slope: 0.01545

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Element: Hg Seq. No.: 5 AS Loc.: 5 Date: 06/22/2010
Sample ID: STD4

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1535	0.9146	0.1537	02:45:53	Yes
2			0.1561	0.9231	0.1563	02:46:26	Yes
3			0.1528	0.9139	0.1530	02:46:58	Yes
Mean:			0.1541				
SD :			0.0017				
%RSD:			1.1186				

[Hg] Standard number 4 applied. [10.00]
Correlation Coefficient: 0.99994 Slope: 0.01543

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Element: Hg Seq. No.: 6 AS Loc.: 6 Date: 06/22/2010
Sample ID: STD5

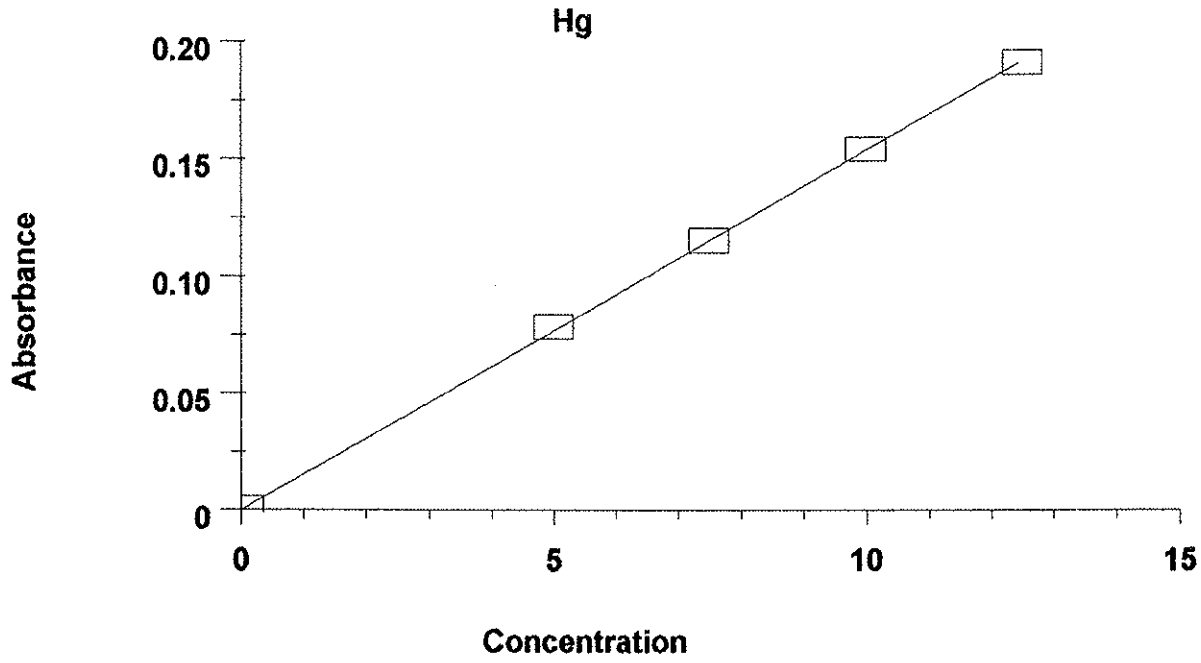
Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1			0.1949	1.1585	0.1951	02:48:16	Yes
2			0.1934	1.1476	0.1936	02:48:47	Yes
3			0.1851	1.1142	0.1852	02:49:22	Yes
Mean:			0.1911				
SD :			0.0053				
%RSD:			2.7803				

[Hg] Standard number 5 applied. [12.50]
Correlation Coefficient: 0.99993 Slope: 0.01537

Calibration data for Hg

Standard ID	Mean Signal (Pk Height)	Entered Concentration (µg/L)	Calculated Concentration (µg/L)	Standard Deviation	%RSD
Calib Blank	0.0002	---	----	----	----
STD1	0.0008	0.050	0.049	0.0000	3.1
STD2	0.0783	5.000	5.093	0.0014	1.8
STD3	0.1152	7.500	7.495	0.0013	1.1
STD4	0.1541	10.000	10.03	0.0017	1.1
STD5	0.1911	12.500	12.44	0.0053	2.8

Correlation Coefficient: **0.99993** Slope: **0.01537** ----



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Element: Hg Seq. No.: 7 AS Loc.: 9 Date: 06/22/2010
Sample ID: ICV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.521	1.521	0.0234	0.1387	0.0236	02:50:41	Yes
2	1.509	1.509	0.0232	0.1368	0.0234	02:51:12	Yes
3	1.526	1.526	0.0235	0.1368	0.0236	02:51:46	Yes
Mean:	1.519	1.519	0.0233				
SD :	0.0087	0.0087	0.0001				
%RSD:	0.6	0.6	0.5732				

101.27

QC value within specified limits.

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Element: Hg Seq. No.: 8 AS Loc.: 10 Date: 06/22/2010
Sample ID: ICB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.005	-0.005	-0.0001	-0.0006	0.0001	02:52:58	Yes
2	-0.005	-0.005	-0.0001	0.0001	0.0001	02:53:29	Yes
3	-0.009	-0.009	-0.0001	-0.0005	0.0000	02:54:03	Yes
Mean:	-0.006	-0.006	-0.0001				
SD :	0.0022	0.0022	0.0000				
%RSD:	35.4	35.4	35.3677				

QC value within specified limits.

==========

Element: Hg Seq. No.: 9 AS Loc.: 11 Date: 06/22/2010
Sample ID: SPEX HG-STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.855	2.855	0.0439	0.2623	0.0441	02:54:51	Yes
2	2.878	2.878	0.0442	0.2631	0.0444	02:55:26	Yes

3	2.876	2.876	0.0442	0.2619	0.0444	02:55:58	Yes
Mean:	2.870	2.870	0.0441				
SD :	0.0126	0.0126	0.0002				
%RSD:	0.4	0.4	0.4375				

QC value within specified limits. 95.7%

==========

Element: Hg Seq. No.: 10 AS Loc.: 12 Date: 06/22/2010
Sample ID: LLC

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.263	0.263	0.0040	0.0244	0.0042	02:57:11	Yes
2	0.267	0.267	0.0041	0.0243	0.0043	02:57:44	Yes
3	0.253	0.253	0.0039	0.0229	0.0041	02:58:16	Yes
Mean:	0.261	0.261	0.0040				
SD :	0.0072	0.0072	0.0001				
%RSD:	2.8	2.8	2.7673				

QC value within specified limits.

==========

Element: Hg Seq. No.: 11 AS Loc.: 13 Date: 06/22/2010
Sample ID: DIL. CHECK

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.005	-0.005	-0.0001	0.0000	0.0001	02:59:06	Yes
2	-0.007	-0.007	-0.0001	-0.0003	0.0001	02:59:39	Yes
3	-0.003	-0.003	-0.0001	0.0004	0.0001	03:00:11	Yes
Mean:	-0.005	-0.005	-0.0001				
SD :	0.0017	0.0017	0.0000				
%RSD:	34.4	34.4	34.4440				

QC value within specified limits.

==========

Element: Hg Seq. No.: 12 AS Loc.: 14 Date: 06/22/2010
Sample ID: ORGANIC STD

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.923	1.923	0.0295	0.1766	0.0297	03:01:01	Yes
2	1.922	1.922	0.0295	0.1761	0.0297	03:01:32	Yes
3	1.912	1.912	0.0294	0.1752	0.0296	03:02:07	Yes
Mean:	1.919	1.919	0.0295				
SD :	0.0057	0.0057	0.0001				
%RSD:	0.3	0.3	0.2991				

95.9%

QC value within specified limits.

==========

Element: Hg Seq. No.: 13 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.018	1.018	0.0156	0.0935	0.0158	03:03:22	Yes
2	0.975	0.975	0.0150	0.0885	0.0152	03:03:54	Yes
3	1.037	1.037	0.0159	0.0932	0.0161	03:04:28	Yes
Mean:	1.010	1.010	0.0155				
SD :	0.0316	0.0316	0.0005				
%RSD:	3.1	3.1	3.1239				

101.0%

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Element: Hg Seq. No.: 14 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.007	-0.007	-0.0001	-0.0006	0.0001	03:05:46	Yes
2	-0.005	-0.005	-0.0001	0.0001	0.0001	03:06:19	Yes
3	-0.008	-0.008	-0.0001	-0.0006	0.0001	03:06:51	Yes
Mean:	-0.007	-0.007	-0.0001				
SD :	0.0017	0.0017	0.0000				
%RSD:	25.2	25.2	25.1766				

Element: Hg Seq. No.: 15 AS Loc.: 15 Date: 06/22/2010
Sample ID: BL0622-2183330-1B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0001	0.0019	0.0003	03:07:43	Yes
2	-0.002	-0.002	0.0000	0.0005	0.0002	03:08:16	Yes
3	-0.004	-0.004	-0.0001	0.0000	0.0001	03:08:50	Yes
Mean:	-0.001	-0.001	0.0000				
SD :	0.0043	0.0043	0.0001				
%RSD:	837.8	837.8	837.8240				

Element: Hg Seq. No.: 16 AS Loc.: 16 Date: 06/22/2010
Sample ID: BL0622S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.965	0.965	0.0148	0.0893	0.0150	03:09:37	Yes
2	0.982	0.982	0.0151	0.0906	0.0153	03:10:11	Yes
3	0.993	0.993	0.0153	0.0915	0.0154	03:10:43	Yes
Mean:	0.980	0.980	0.0151				
SD :	0.0142	0.0142	0.0002				
%RSD:	1.4	1.4	1.4453				

98.0%

Element: Hg Seq. No.: 17 AS Loc.: 17 Date: 06/22/2010
Sample ID: BL0622DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.986	0.986	0.0152	0.0915	0.0153	03:11:32	Yes
2	0.996	0.996	0.0153	0.0919	0.0155	03:12:05	Yes
3	0.996	0.996	0.0153	0.0919	0.0155	03:12:37	Yes
Mean:	0.993	0.993	0.0153				
SD :	0.0055	0.0055	0.0001				
%RSD:	0.6	0.6	0.5580				

99.3%

Element: Hg Seq. No.: 18 AS Loc.: 18 Date: 06/22/2010
Sample ID: GC8423-01

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.045	0.045	0.0007	0.0050	0.0009	03:13:26	Yes
2	0.043	0.043	0.0007	0.0047	0.0008	03:13:58	Yes
3	0.044	0.044	0.0007	0.0051	0.0009	03:14:32	Yes
Mean:	0.044	0.044	0.0007				
SD :	0.0010	0.0010	0.0000				
%RSD:	2.2	2.2	2.1676				

Element: Hg Seq. No.: 19 AS Loc.: 19 Date: 06/22/2010

Sample ID: 8423 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.044	0.044	0.0007	0.0050	0.0009	03:15:21	Yes
2	0.044	0.044	0.0007	0.0049	0.0009	03:15:53	Yes
3	0.042	0.042	0.0006	0.0044	0.0008	03:16:25	Yes
Mean:	0.043	0.043	0.0007				
SD :	0.0011	0.0011	0.0000				
%RSD:	2.5	2.5	2.5404				

Element: Hg Seq. No.: 20 AS Loc.: 20 Date: 06/22/2010
Sample ID: 8423 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.037	1.037	0.0159	0.0965	0.0161	03:17:16	Yes
2	1.035	1.035	0.0159	0.0958	0.0161	03:17:49	Yes
3	1.069	1.069	0.0164	0.0981	0.0166	03:18:21	Yes
Mean:	1.047	1.047	0.0161				
SD :	0.0193	0.0193	0.0003				
%RSD:	1.8	1.8	1.8448				

100.4

Element: Hg Seq. No.: 21 AS Loc.: 21 Date: 06/22/2010
Sample ID: 8423 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.059	1.059	0.0163	0.0982	0.0165	03:19:39	Yes
2	1.041	1.041	0.0160	0.0967	0.0162	03:20:12	Yes
3	1.051	1.051	0.0161	0.0978	0.0163	03:20:44	Yes
Mean:	1.050	1.050	0.0161				
SD :	0.0091	0.0091	0.0001				
%RSD:	0.9	0.9	0.8697				

100.7

Element: Hg Seq. No.: 22 AS Loc.: 22 Date: 06/22/2010
Sample ID: MB-1B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.003	-0.003	0.0000	0.0002	0.0001	03:22:02	Yes
2	-0.001	-0.001	0.0000	0.0008	0.0002	03:22:35	Yes
3	-0.003	-0.003	-0.0001	0.0003	0.0001	03:23:05	Yes
Mean:	-0.002	-0.002	0.0000				
SD :	0.0013	0.0013	0.0000				
%RSD:	56.2	56.2	56.2406				

Element: Hg Seq. No.: 23 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.037	1.037	0.0159	0.0968	0.0161	03:23:58	Yes
2	1.027	1.027	0.0158	0.0955	0.0160	03:24:31	Yes
3	1.034	1.034	0.0159	0.0957	0.0161	03:25:03	Yes
Mean:	1.033	1.033	0.0159				
SD :	0.0049	0.0049	0.0001				
%RSD:	0.5	0.5	0.4735				

QC value within specified limits.

103.3

Element: Hg Seq. No.: 24 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.002	-0.002	0.0000	0.0009	0.0002	03:26:22	Yes
2	-0.007	-0.007	-0.0001	-0.0001	0.0001	03:26:55	Yes
3	-0.006	-0.006	-0.0001	0.0001	0.0001	03:27:27	Yes
Mean:	-0.005	-0.005	-0.0001				
SD :	0.0026	0.0026	0.0000				
%RSD:	52.1	52.1	52.1028				

QC value within specified limits.

Element: Hg Seq. No.: 25 AS Loc.: 23 Date: 06/22/2010
Sample ID: 8420

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.002	-0.002	0.0000	0.0006	0.0001	03:28:17	Yes
2	0.000	0.000	0.0000	0.0008	0.0002	03:28:49	Yes
3	-0.003	-0.003	0.0000	0.0003	0.0001	03:29:23	Yes
Mean:	-0.002	-0.002	0.0000				
SD :	0.0017	0.0017	0.0000				
%RSD:	105.0	105.0	105.0366				

Element: Hg Seq. No.: 26 AS Loc.: 24 Date: 06/22/2010
Sample ID: 8424

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.045	0.045	0.0007	0.0048	0.0009	03:30:15	Yes
2	0.047	0.047	0.0007	0.0051	0.0009	03:30:47	Yes
3	0.048	0.048	0.0007	0.0054	0.0009	03:31:21	Yes
Mean:	0.047	0.047	0.0007				
SD :	0.0014	0.0014	0.0000				
%RSD:	3.0	3.0	3.0344				

Element: Hg Seq. No.: 27 AS Loc.: 25 Date: 06/22/2010
Sample ID: 8425

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.041	0.041	0.0006	0.0047	0.0008	03:32:08	Yes
2	0.043	0.043	0.0007	0.0054	0.0008	03:32:42	Yes
3	0.044	0.044	0.0007	0.0052	0.0009	03:33:14	Yes
Mean:	0.043	0.043	0.0007				
SD :	0.0017	0.0017	0.0000				
%RSD:	3.9	3.9	3.9225				

Element: Hg Seq. No.: 28 AS Loc.: 26 Date: 06/22/2010
Sample ID: BL0622-2184419-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.005	-0.005	-0.0001	0.0000	0.0001	03:34:04	Yes
2	-0.004	-0.004	-0.0001	0.0002	0.0001	03:34:35	Yes
3	-0.001	-0.001	0.0000	0.0007	0.0002	03:35:10	Yes
Mean:	-0.003	-0.003	-0.0001				
SD :	0.0019	0.0019	0.0000				

%RSD: 56.7 56.7 56.6664

Element: Hg Seq. No.: 29 AS Loc.: 27 Date: 06/22/2010
Sample ID: BL0622S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.957	0.957	0.0147	0.0891	0.0149	03:35:59	Yes
2	0.980	0.980	0.0151	0.0901	0.0152	03:36:31	Yes
3	0.937	0.937	0.0144	0.0869	0.0146	03:37:05	Yes
Mean:	0.958	0.958	0.0147				
SD :	0.0219	0.0219	0.0003				
%RSD:	2.3	2.3	2.2896				

95.8

Element: Hg Seq. No.: 30 AS Loc.: 28 Date: 06/22/2010
Sample ID: BL0622DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.960	0.960	0.0148	0.0892	0.0149	03:37:54	Yes
2	0.973	0.973	0.0149	0.0900	0.0151	03:38:27	Yes
3	0.967	0.967	0.0149	0.0896	0.0150	03:38:59	Yes
Mean:	0.967	0.967	0.0149				
SD :	0.0063	0.0063	0.0001				
%RSD:	0.7	0.7	0.6520				

96.7

Element: Hg Seq. No.: 31 AS Loc.: 29 Date: 06/22/2010
Sample ID: GE1286-06

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.015	0.015	0.0002	0.0018	0.0004	03:39:48	Yes
2	0.017	0.017	0.0003	0.0024	0.0004	03:40:19	Yes
3	0.018	0.018	0.0003	0.0025	0.0005	03:40:54	Yes
Mean:	0.017	0.017	0.0003				
SD :	0.0011	0.0011	0.0000				
%RSD:	6.6	6.6	6.5629				

Element: Hg Seq. No.: 32 AS Loc.: 30 Date: 06/22/2010
Sample ID: 1286 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.017	0.017	0.0003	0.0026	0.0004	03:41:42	Yes
2	0.016	0.016	0.0003	0.0022	0.0004	03:42:14	Yes
3	0.018	0.018	0.0003	0.0026	0.0005	03:42:48	Yes
Mean:	0.017	0.017	0.0003				
SD :	0.0009	0.0009	0.0000				
%RSD:	5.5	5.5	5.5404				

Element: Hg Seq. No.: 33 AS Loc.: 31 Date: 06/22/2010
Sample ID: 1286 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.050	1.050	0.0161	0.0961	0.0163	03:43:36	Yes
2	1.047	1.047	0.0161	0.0964	0.0163	03:44:10	Yes
3	1.032	1.032	0.0159	0.0948	0.0160	03:44:42	Yes
Mean:	1.043	1.043	0.0160				

102.6

SD :	0.0098	0.0098	0.0002
%RSD:	0.9	0.9	0.9431

==========

Element: Hg Seq. No.: 34 AS Loc.: 32 Date: 06/22/2010
Sample ID: 1286 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.085	1.085	0.0167	0.1000	0.0169	03:45:57	Yes
2	1.065	1.065	0.0164	0.0973	0.0166	03:46:30	Yes
3	1.087	1.087	0.0167	0.0995	0.0169	03:47:01	Yes
Mean:	1.079	1.079	0.0166				
SD :	0.0121	0.0121	0.0002				
%RSD:	1.1	1.1	1.1256				

106.2 ✓

==========

Element: Hg Seq. No.: 35 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.014	1.014	0.0156	0.0930	0.0158	03:48:18	Yes
2	1.012	1.012	0.0156	0.0933	0.0157	03:48:51	Yes
3	1.004	1.004	0.0154	0.0919	0.0156	03:49:23	Yes
Mean:	1.010	1.010	0.0155				
SD :	0.0055	0.0055	0.0001				
%RSD:	0.5	0.5	0.5488				

101.0 ✓

QC value within specified limits.

==========

Element: Hg Seq. No.: 36 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.005	-0.005	-0.0001	-0.0002	0.0001	03:50:41	Yes
2	-0.003	-0.003	0.0000	0.0007	0.0001	03:51:13	Yes
3	-0.001	-0.001	0.0000	0.0011	0.0002	03:51:47	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0017	0.0017	0.0000				
%RSD:	58.0	58.0	58.0186				

✓

QC value within specified limits.

==========

Element: Hg Seq. No.: 37 AS Loc.: 33 Date: 06/22/2010
Sample ID: MB-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0007	0.0002	03:52:36	Yes
2	-0.001	-0.001	0.0000	0.0008	0.0002	03:53:10	Yes
3	-0.002	-0.002	0.0000	0.0008	0.0002	03:53:41	Yes
Mean:	-0.001	-0.001	0.0000				
SD :	0.0005	0.0005	0.0000				
%RSD:	44.6	44.6	44.6125				

✓

==========

Element: Hg Seq. No.: 38 AS Loc.: 34 Date: 06/22/2010
Sample ID: 1285

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0008	0.0002	03:54:31	Yes

2	0.001	0.001	0.0000	0.0011	0.0002	03:55:03	Yes
3	-0.004	-0.004	-0.0001	0.0004	0.0001	03:55:37	Yes
Mean:	-0.001	-0.001	0.0000				
SD :	0.0024	0.0024	0.0000				
%RSD:	220.6	220.6	220.6153				

Element: Hg Seq. No.: 39 AS Loc.: 35 Date: 06/22/2010
Sample ID: 1287

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.082	0.082	0.0013	0.0085	0.0014	03:56:26	Yes
2	0.084	0.084	0.0013	0.0084	0.0015	03:56:58	Yes
3	0.079	0.079	0.0012	0.0080	0.0014	03:57:32	Yes
Mean:	0.081	0.081	0.0013				
SD :	0.0025	0.0025	0.0000				
%RSD:	3.1	3.1	3.1079				

Element: Hg Seq. No.: 40 AS Loc.: 36 Date: 06/22/2010
Sample ID: MB-3B-2184420-3B

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.001	-0.001	0.0000	0.0008	0.0002	03:58:19	Yes
2	-0.002	-0.002	0.0000	0.0009	0.0002	03:58:53	Yes
3	-0.003	-0.003	-0.0001	0.0003	0.0001	03:59:24	Yes
Mean:	-0.002	-0.002	0.0000				
SD :	0.0010	0.0010	0.0000				
%RSD:	45.3	45.3	45.3468				

Element: Hg Seq. No.: 41 AS Loc.: 37 Date: 06/22/2010
Sample ID: GF2610-06

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.000	0.000	0.0000	0.0010	0.0002	04:00:14	Yes
2	0.000	0.000	0.0000	0.0008	0.0002	04:00:45	Yes
3	0.001	0.001	0.0000	0.0005	0.0002	04:01:20	Yes
Mean:	0.000	0.000	0.0000				
SD :	0.0004	0.0004	0.0000				
%RSD:	127.9	127.9	127.9416				

Element: Hg Seq. No.: 42 AS Loc.: 38 Date: 06/22/2010
Sample ID: 2611

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.074	0.074	0.0011	0.0080	0.0013	04:02:08	Yes
2	0.072	0.072	0.0011	0.0072	0.0013	04:02:40	Yes
3	0.076	0.076	0.0012	0.0081	0.0014	04:03:14	Yes
Mean:	0.074	0.074	0.0011				
SD :	0.0020	0.0020	0.0000				
%RSD:	2.7	2.7	2.6645				

Element: Hg Seq. No.: 43 AS Loc.: 39 Date: 06/22/2010
Sample ID: 2611 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored

1	0.087	0.087	0.0013	0.0092	0.0015	04:04:02	Yes
2	0.086	0.086	0.0013	0.0091	0.0015	04:04:36	Yes
3	0.086	0.086	0.0013	0.0092	0.0015	04:05:08	Yes
Mean:	0.087	0.087	0.0013				
SD :	0.0003	0.0003	0.0000				
%RSD:	0.4	0.4	0.3908		✓		

Element: Hg Seq. No.: 44 AS Loc.: 40 Date: 06/22/2010
Sample ID: 2611 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.128	1.128	0.0173	0.1053	0.0175	04:06:01	Yes
2	1.122	1.122	0.0172	0.1037	0.0174	04:06:33	Yes
3	1.117	1.117	0.0172	0.1040	0.0174	04:07:06	Yes
Mean:	1.122	1.122	0.0172				
SD :	0.0053	0.0053	0.0001				
%RSD:	0.5	0.5	0.4728				

104.2 ✓

Element: Hg Seq. No.: 45 AS Loc.: 41 Date: 06/22/2010
Sample ID: 2611 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.121	1.121	0.0172	0.1039	0.0174	04:08:18	Yes
2	1.098	1.098	0.0169	0.1026	0.0171	04:08:51	Yes
3	1.104	1.104	0.0170	0.1016	0.0172	04:09:23	Yes
Mean:	1.108	1.108	0.0170				
SD :	0.0116	0.0116	0.0002				
%RSD:	1.1	1.1	1.0516				

102.8 ✓

Element: Hg Seq. No.: 46 AS Loc.: 42 Date: 06/22/2010
Sample ID: 2612

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.078	0.078	0.0012	0.0074	0.0014	04:10:35	Yes
2	0.082	0.082	0.0013	0.0083	0.0014	04:11:08	Yes
3	0.078	0.078	0.0012	0.0073	0.0014	04:11:40	Yes
Mean:	0.079	0.079	0.0012				
SD :	0.0022	0.0022	0.0000				
%RSD:	2.7	2.7	2.7352		✓		

Element: Hg Seq. No.: 47 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.966	0.966	0.0148	0.0910	0.0150	04:12:33	Yes
2	1.020	1.020	0.0157	0.0944	0.0159	04:13:05	Yes
3	1.015	1.015	0.0156	0.0940	0.0158	04:13:39	Yes
Mean:	1.000	1.000	0.0154				
SD :	0.0300	0.0300	0.0005				
%RSD:	3.0	3.0	2.9960				

100.0 ✓

QC value within specified limits.

Element: Hg Seq. No.: 48 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.004	-0.004	-0.0001	0.0003	0.0001	04:14:57	Yes
2	-0.003	-0.003	0.0000	0.0005	0.0001	04:15:29	Yes
3	-0.005	-0.005	-0.0001	0.0003	0.0001	04:16:03	Yes
Mean:	-0.004	-0.004	-0.0001				
SD :	0.0011	0.0011	0.0000				
%RSD:	25.7	25.7	25.6553				

QC value within specified limits.

Element: Hg Seq. No.: 49 AS Loc.: 43 Date: 06/22/2010
Sample ID: 2613

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.751	1.751	0.0269	0.1613	0.0271	04:16:55	Yes
2	1.727	1.727	0.0265	0.1602	0.0267	04:17:27	Yes
3	1.722	1.722	0.0265	0.1597	0.0266	04:18:01	Yes
Mean:	1.733	1.733	0.0266				
SD :	0.0154	0.0154	0.0002				
%RSD:	0.9	0.9	0.8908				

Repeated on Page 18 for Confirmation. B.

Element: Hg Seq. No.: 50 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.008	1.008	0.0155	0.0906	0.0157	04:19:14	Yes
2	0.987	0.987	0.0152	0.0909	0.0154	04:19:46	Yes
3	1.023	1.023	0.0157	0.0931	0.0159	04:20:23	Yes
Mean:	1.006	1.006	0.0155				
SD :	0.0181	0.0181	0.0003				
%RSD:	1.8	1.8	1.7968				

100.6

QC value within specified limits.

Element: Hg Seq. No.: 51 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.002	-0.002	0.0000	0.0008	0.0002	04:21:40	Yes
2	-0.004	-0.004	-0.0001	0.0002	0.0001	04:22:11	Yes
3	-0.003	-0.003	-0.0001	0.0005	0.0001	04:22:46	Yes
Mean:	-0.003	-0.003	-0.0001				
SD :	0.0011	0.0011	0.0000				
%RSD:	33.7	33.7	33.7317				

QC value within specified limits.

Element: Hg Seq. No.: 52 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.024	1.024	0.0157	0.0939	0.0159	04:29:52	Yes
2	1.003	1.003	0.0154	0.0925	0.0156	04:30:23	Yes
3	0.993	0.993	0.0153	0.0921	0.0154	04:30:58	Yes
Mean:	1.007	1.007	0.0155				
SD :	0.0157	0.0157	0.0002				
%RSD:	1.6	1.6	1.5605				

100.7

Element: Hg Seq. No.: 53 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.003	-0.003	0.0000	0.0007	0.0001	04:32:16	Yes
2	-0.001	-0.001	0.0000	0.0010	0.0002	04:32:47	Yes
3	-0.004	-0.004	-0.0001	0.0005	0.0001	04:33:22	Yes
Mean:	-0.003	-0.003	0.0000				
SD :	0.0015	0.0015	0.0000				
%RSD:	56.7	56.7	56.7421				

Element: Hg Seq. No.: 54 AS Loc.: [illegible] Date: 06/22/2010
Sample ID: 2613

for Confirmation only.

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.692	1.692	0.0260	0.1576	0.0262	04:34:15	Yes
2	1.676	1.676	0.0258	0.1557	0.0259	04:34:46	Yes
3	1.607	1.607	0.0247	0.1468	0.0249	04:35:20	Yes
Mean:	1.658	1.658	0.0255				
SD :	0.0453	0.0453	0.0007				
%RSD:	2.7	2.7	2.7309				

(Plan [illegible])

A.

Element: Hg Seq. No.: 55 AS Loc.: 44 Date: 06/22/2010
Sample ID: BL0622-2185591-3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.004	-0.004	-0.0001	0.0003	0.0001	04:36:32	Yes
2	-0.002	-0.002	0.0000	0.0008	0.0002	04:37:04	Yes
3	-0.002	-0.002	0.0000	0.0008	0.0002	04:37:38	Yes
Mean:	-0.002	-0.002	0.0000				
SD :	0.0011	0.0011	0.0000				
%RSD:	47.7	47.7	47.6952				

Element: Hg Seq. No.: 56 AS Loc.: 45 Date: 06/22/2010
Sample ID: BL0622S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.971	0.971	0.0149	0.0911	0.0151	04:38:25	Yes
2	0.947	0.947	0.0146	0.0888	0.0147	04:38:59	Yes
3	0.947	0.947	0.0146	0.0885	0.0147	04:39:31	Yes
Mean:	0.955	0.955	0.0147				
SD :	0.0137	0.0137	0.0002				
%RSD:	1.4	1.4	1.4381				

95.5

Element: Hg Seq. No.: 57 AS Loc.: 46 Date: 06/22/2010
Sample ID: BL0622DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.957	0.957	0.0147	0.0892	0.0149	04:40:21	Yes
2	0.929	0.929	0.0143	0.0888	0.0145	04:40:53	Yes
3	0.919	0.919	0.0141	0.0876	0.0143	04:41:27	Yes
Mean:	0.935	0.935	0.0144				
SD :	0.0196	0.0196	0.0003				
%RSD:	2.1	2.1	2.1000				

93.5

Element: Hg Seq. No.: 58 AS Loc.: 47 Date: 06/22/2010
Sample ID: GE1287-07

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.654	4.654	0.0715	0.4494	0.0717	04:42:16	Yes
2	4.657	4.657	0.0716	0.4473	0.0717	04:42:49	Yes
3	4.681	4.681	0.0719	0.4507	0.0721	04:43:22	Yes
Mean:	4.664	4.664	0.0717				
SD :	0.0145	0.0145	0.0002				
%RSD:	0.3	0.3	0.3117				

Element: Hg Seq. No.: 59 AS Loc.: 48 Date: 06/22/2010
Sample ID: 1287 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.725	4.725	0.0726	0.4554	0.0728	04:44:35	Yes
2	4.692	4.692	0.0721	0.4501	0.0723	04:45:07	Yes
3	4.685	4.685	0.0720	0.4497	0.0722	04:45:42	Yes
Mean:	4.701	4.701	0.0722				
SD :	0.0215	0.0215	0.0003				
%RSD:	0.5	0.5	0.4580				

Element: Hg Seq. No.: 60 AS Loc.: 49 Date: 06/22/2010
Sample ID: 1287 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.722	5.722	0.0879	0.5520	0.0881	04:46:56	Yes
2	5.750	5.750	0.0884	0.5526	0.0885	04:47:28	Yes
3	5.714	5.714	0.0878	0.5483	0.0880	04:48:02	Yes
Mean:	5.729	5.729	0.0880				
SD :	0.0193	0.0193	0.0003				
%RSD:	0.3	0.3	0.3367				

104.7

Element: Hg Seq. No.: 61 AS Loc.: 50 Date: 06/22/2010
Sample ID: 1287 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.629	5.629	0.0865	0.5415	0.0867	04:49:17	Yes
2	5.638	5.638	0.0866	0.5403	0.0868	04:49:49	Yes
3	5.669	5.669	0.0871	0.5415	0.0873	04:50:22	Yes
Mean:	5.645	5.645	0.0867				
SD :	0.0212	0.0212	0.0003				
%RSD:	0.4	0.4	0.3761				

96.3

Element: Hg Seq. No.: 62 AS Loc.: 51 Date: 06/22/2010
Sample ID: MB-3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0001	0.0015	0.0002	04:51:38	Yes
2	0.001	0.001	0.0000	0.0012	0.0002	04:52:11	Yes
3	-0.002	-0.002	0.0000	0.0006	0.0002	04:52:44	Yes
Mean:	0.001	0.001	0.0000				
SD :	0.0029	0.0029	0.0000				
%RSD:	231.8	231.8	231.8388				

Element: Hg Seq. No.: 63 AS Loc.: 52 Date: 06/22/2010
Sample ID: 1285

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.002	0.002	0.0000	0.0011	0.0002	04:53:32	Yes
2	-0.002	-0.002	0.0000	0.0004	0.0002	04:54:04	Yes
3	-0.001	-0.001	0.0000	0.0008	0.0002	04:54:38	Yes
Mean:	0.000	0.000	0.0000				
SD :	0.0022	0.0022	0.0000				
%RSD:	2644	2644	2643.5560				

Element: Hg Seq. No.: 64 AS Loc.: 53 Date: 06/22/2010
Sample ID: 1286 10X

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.065	0.206	0.0032	0.0201	0.0034	04:55:25	Yes
2	2.086	0.209	0.0032	0.0206	0.0034	04:55:59	Yes
3	2.105	0.211	0.0032	0.0205	0.0034	04:56:32	Yes
Mean:	2.086	0.209	0.0032				
SD :	0.0202	0.0020	0.0000				
%RSD:	1.0	1.0	0.9680				

Element: Hg Seq. No.: 65 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.974	0.974	0.0150	0.0914	0.0151	04:57:22	Yes
2	0.984	0.984	0.0151	0.0916	0.0153	04:57:55	Yes
3	1.023	1.023	0.0157	0.0947	0.0159	04:58:28	Yes
Mean:	0.994	0.994	0.0153				
SD :	0.0261	0.0261	0.0004				
%RSD:	2.6	2.6	2.6314				

99.41

Element: Hg Seq. No.: 66 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.001	0.001	0.0000	0.0011	0.0002	04:59:17	Yes
2	0.001	0.001	0.0000	0.0015	0.0002	04:59:49	Yes
3	-0.005	-0.005	-0.0001	0.0001	0.0001	05:00:23	Yes
Mean:	-0.001	-0.001	0.0000				
SD :	0.0030	0.0030	0.0000				
%RSD:	287.5	287.5	287.5314				

Element: Hg Seq. No.: 67 AS Loc.: 54 Date: 06/22/2010
Sample ID: MB-3C-2185594-3C

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.002	0.002	0.0000	0.0015	0.0002	05:01:11	Yes
2	0.000	0.000	0.0000	0.0013	0.0002	05:01:45	Yes
3	-0.001	-0.001	0.0000	0.0010	0.0002	05:02:17	Yes
Mean:	0.000	0.000	0.0000				
SD :	0.0015	0.0015	0.0000				
%RSD:	322.6	322.6	322.6218				

Element: Hg Seq. No.: 68 AS Loc.: 55 Date: 06/22/2010
Sample ID: GF2610-07

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.039	0.039	0.0006	0.0051	0.0008	05:03:10	Yes
2	0.035	0.035	0.0005	0.0041	0.0007	05:03:44	Yes
3	0.039	0.039	0.0006	0.0046	0.0008	05:04:15	Yes
Mean:	0.038	0.038	0.0006				
SD :	0.0023	0.0023	0.0000				
%RSD:	6.0	6.0	5.9727				

Element: Hg Seq. No.: 69 AS Loc.: 56 Date: 06/22/2010
Sample ID: 2611

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.079	7.079	0.1088	0.6769	0.1090	05:05:04	Yes
2	7.089	7.089	0.1089	0.6738	0.1091	05:05:36	Yes
3	7.052	7.052	0.1084	0.6714	0.1085	05:06:10	Yes
Mean:	7.073	7.073	0.1087				
SD :	0.0193	0.0193	0.0003				
%RSD:	0.3	0.3	0.2727				

Element: Hg Seq. No.: 70 AS Loc.: 57 Date: 06/22/2010
Sample ID: 2611 D

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.095	7.095	0.1090	0.6767	0.1092	05:07:20	Yes
2	7.075	7.075	0.1087	0.6743	0.1089	05:07:52	Yes
3	7.025	7.025	0.1079	0.6701	0.1081	05:08:26	Yes
Mean:	7.065	7.065	0.1086				
SD :	0.0363	0.0363	0.0006				
%RSD:	0.5	0.5	0.5132				

Element: Hg Seq. No.: 71 AS Loc.: 58 Date: 06/22/2010
Sample ID: 2611 S

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	8.196	8.196	0.1259	0.7841	0.1261	05:09:36	Yes
2	8.189	8.189	0.1258	0.7791	0.1260	05:10:08	Yes
3	8.163	8.163	0.1254	0.7760	0.1256	05:10:42	Yes
Mean:	8.183	8.183	0.1257				
SD :	0.0171	0.0171	0.0003				
%RSD:	0.2	0.2	0.2087				

Element: Hg Seq. No.: 72 AS Loc.: 59 Date: 06/22/2010
Sample ID: 2611 DS

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	8.090	8.090	0.1243	0.7789	0.1245	05:11:53	Yes
2	8.134	8.134	0.1250	0.7762	0.1252	05:12:25	Yes
3	8.109	8.109	0.1246	0.7761	0.1248	05:13:00	Yes
Mean:	8.111	8.111	0.1246				
SD :	0.0220	0.0220	0.0003				
%RSD:	0.3	0.3	0.2707				

104.2

Element: Hg Seq. No.: 73 AS Loc.: 60 Date: 06/22/2010
Sample ID: 2612

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	6.706	6.706	0.1030	0.6414	0.1032	05:14:10	Yes
2	6.662	6.662	0.1024	0.6379	0.1026	05:14:42	Yes
3	6.745	6.745	0.1036	0.6428	0.1038	05:15:16	Yes
Mean:	6.704	6.704	0.1030				
SD :	0.0412	0.0412	0.0006				
%RSD:	0.6	0.6	0.6151				

Element: Hg Seq. No.: 74 AS Loc.: 61 Date: 06/22/2010
Sample ID: 2613

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.365	5.365	0.0824	0.5159	0.0826	05:16:28	Yes
2	5.426	5.426	0.0834	0.5183	0.0836	05:16:59	Yes
3	5.412	5.412	0.0832	0.5179	0.0833	05:17:34	Yes
Mean:	5.401	5.401	0.0830				
SD :	0.0320	0.0320	0.0005				
%RSD:	0.6	0.6	0.5924				

Element: Hg Seq. No.: 75 AS Loc.: 7 Date: 06/22/2010
Sample ID: CCV

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.991	0.991	0.0152	0.0925	0.0154	05:18:49	Yes
2	1.001	1.001	0.0154	0.0927	0.0156	05:19:22	Yes
3	1.027	1.027	0.0158	0.0942	0.0160	05:19:54	Yes
Mean:	1.006	1.006	0.0155				
SD :	0.0184	0.0184	0.0003				
%RSD:	1.8	1.8	1.8290				

100.6

Element: Hg Seq. No.: 76 AS Loc.: 8 Date: 06/22/2010
Sample ID: CCB

Repl #	SampleConc µg/L	StndConc µg/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.005	-0.005	-0.0001	0.0002	0.0001	05:21:12	Yes
2	-0.006	-0.006	-0.0001	0.0002	0.0001	05:21:46	Yes
3	-0.002	-0.002	0.0000	0.0008	0.0002	05:22:17	Yes
Mean:	-0.004	-0.004	-0.0001				
SD :	0.0021	0.0021	0.0000				
%RSD:	51.4	51.4	51.3973				

Driven by Service and Science

Method 29 – Determination of Metals Emissions from Stationary Sources

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Inorganic Analysis Action / Comment Form

* Please note any action or anomalies impacting this set of samples

Client ID: Alliance Source Test

Maxxam Job #: B073337

Maxxam Sample ID range(s): GC8420 – GC8423-25; GD7165 – GD7181; GD7184

Analytical Worksheet(s): 2181855 (BH); 2183342 (FH); 2181864 (Audit Amp.)

For additional comments, please staple additional pages(s)

Analysis: ICPMS

Analyst ID: NR

Actions:	*Impacted Sample ID's
Additional digestion needed	
Re-analysis needed (alternate technique)	
Re-analysis needed (contract technique)	
Bottle discrepancies	
Interferences observed	
Dilutions needed	GC8423-25
Reintegrations performed	
Internal calculations modified	All FH samples
Field / Trip blanks missing	
Other	GC8423

Explanation/comments:

Ge internal standard was substituted for Sc due to Silica interference on Sc (FH)

Post digestion duplicate and spike was done on sample GC8423

Extra 5x or 20x dilution was required for samples GC8423-25, due to the matrix.

EPA METHOD 29
Metals by ICP-MS

Level 3 Data Package

Calibration: 0 ug/L, 10 ug/L, 50 ug/L, 100 ug/L for As, Ba, Be, Cr, Cu, Pb, Ni, Se, V and Tl
0 ug/L, 2 ug/L, 10ug/L, 20 ug/L for Sb
0 ug/L, 5 ug/L, 25 ug/L, 50 ug/L for Cd, Ag, Mo and Sn
0 ug/L, 20 ug/L, 100 ug/L, 200 ug/L, 2000 ug/L for Al and Zn
Reporting Isotope (s): ^{9}Be, ^{52}Cr, ^{75}As, ^{114}Cd and ^{208}Pb

Internal Standard(s): ^{6}Li, ^{45}Sc, ^{72}Ge, ^{103}Rh, and ^{169}Tm
Method Detection Limit(s): as listed on the certificate of analysis and/or the validation record(s)

Testcode : ICPMSBH-TR, ICPMSFR-TR

Matrix: Filter and Impinger
Calculation: Final Result (ug) = Conc. (ug/L) x Final Volume (0.15 L or 0.3 L) x Dilution Factor (10), (50) or (200)

Procedural Legend

ICB	- Initial Calibration Blank	
ICV	- Initial Calibration Verification	Conc. - 10 ug/L for Sb Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 50 ug/L for all other metals
BL	- Process Blank	
M	- Process Spike	Conc. - 10 ug/L for Sb
P	- Post Spike	Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 50 ug/L for all other metals
D	- Duplicate Sample	
DM	- Duplicate Process Spike	Conc. - 10 ug/L for Sb
DP	- Duplicate Post Spike	Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 50 ug/L for all other metals
CCB	- Continuing Calibration Blank	
CCV	- Continuing Calibration Verification	Conc. - 10 ug/L for Sb Conc. - 25 ug/L for Cd, Ag, Mo and Sn Conc. - 100 ug/L for Al and Zn Conc. - 50 ug/L for all other metals

Comments for Worksheet # 2181855 - Printed: 2010-06-22 08:50 AM

Job Comments
None

Worksheet Comments
None

Sample Comments
None

Test Comments

Test ICPMSBH-TR, WS # 2181855
Extra 20x dilution was required for all samples except GC8420, due to the matrix (extremely high S levels)
Post digestion duplicate and spike was done on sample GC8423.

Parameter Comments
None

Worksheet Number: 2181855

Metals B.H. in H2O2/HNO3 Imp.(6020) - Stack Sampling Train
(ug)

Parameter Name	Units	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE	DL	SPIKEDup1
Aluminum (Al)	ug	N/A*******		N/A*******		N/A*******	5	N/A*******
Chromium (Cr)	ug	97		96		99.23800	0.15	99.92400
Cobalt (Co)	ug	N/A*******		N/A*******		N/A*******	0.05	N/A*******
Copper (Cu)	ug	N/A*******		N/A*******		N/A*******	2	N/A*******
Iron (Fe)	ug	N/A*******		N/A*******		N/A*******	15	N/A*******
Lead (Pb)	ug	99		100		104.21400	0.1	105.02400
Magnesium (Mg)	ug	N/A*******		N/A*******		N/A*******	3	N/A*******
Manganese (Mn)	ug	N/A*******		N/A*******		N/A*******	0.25	N/A*******
Antimony (Sb)	ug	N/A*******		N/A*******		N/A*******	0.2	N/A*******
Molybdenum (Mo)	ug	N/A*******		N/A*******		N/A*******	0.25	N/A*******
Nickel (Ni)	ug	N/A*******		N/A*******		N/A*******	0.25	N/A*******
Potassium (K)	ug	N/A*******		N/A*******		N/A*******	20	N/A*******
Selenium (Se)	ug	N/A*******		N/A*******		N/A*******	0.5	N/A*******
Silver (Ag)	ug	N/A*******		N/A*******		N/A*******	0.1	N/A*******
Sodium (Na)	ug	N/A*******		N/A*******		N/A*******	90	N/A*******
Strontium (Sr)	ug	N/A*******		N/A*******		N/A*******	0.15	N/A*******
Arsenic (As)	ug	96		97		97.49000	0.2	99.09800
Thallium (Tl)	ug	N/A*******		N/A*******		N/A*******	0.25	N/A*******
Tin (Sn)	ug	N/A*******		N/A*******		N/A*******	0.3	N/A*******
Titanium (Ti)	ug	N/A*******		N/A*******		N/A*******	0.25	N/A*******
Uranium (U)	ug	N/A*******		N/A*******		N/A*******	0.1	N/A*******
Vanadium (V)	ug	N/A*******		N/A*******		N/A*******	0.15	N/A*******
Zinc (Zn)	ug	N/A*******		N/A*******		N/A*******	1	N/A*******
Barium (Ba)	ug	N/A*******		N/A*******		N/A*******	1.5	N/A*******
Beryllium (Be)	ug	95		96		100.29800	0.05	101.40600
Rhenium (Re)	ug	N/A*******		N/A*******		N/A*******	0.25	N/A*******
Bismuth (Bi)	ug	N/A*******		N/A*******		N/A*******	0.05	N/A*******
Boron (B)	ug	N/A*******		N/A*******		N/A*******	5	N/A*******
Cadmium (Cd)	ug	95		96		98.08800	0.05	98.95200
Calcium (Ca)	ug	N/A*******		N/A*******		N/A*******	20	N/A*******

Approved By: N. Rapetka 2010.06.22

Validated By: [illegible] 2010-06-22

Worksheet Number: 2181855 Contd....

						B073337		B073337
Parameter Name	DL	BLANK	DL	BLANKDup1	DL	GC8420	DL	GC8423
Aluminum (Al)	5	N/A*******	5	N/A*******	5	N/A*******	5	N/A*******
Chromium (Cr)	0.15	0.03450	0.15	0.05250	0.15	0.16350	0.15	16.02000
Cobalt (Co)	0.05	N/A*******	0.05	N/A*******	0.05	N/A*******	0.05	N/A*******
Copper (Cu)	2	N/A*******	2	N/A*******	2	N/A*******	2	N/A*******
Iron (Fe)	15	N/A*******	15	N/A*******	15	N/A*******	15	N/A*******
Lead (Pb)	0.1	0.03000	0.1	0.01950	0.1	1.45800	0.1	4.95000
Magnesium (Mg)	3	N/A*******	3	N/A*******	3	N/A*******	3	N/A*******
Manganese (Mn)	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******
Antimony (Sb)	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******
Molybdenum (Mo)	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******
Nickel (Ni)	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******
Potassium (K)	20	N/A*******	20	N/A*******	20	N/A*******	20	N/A*******
Selenium (Se)	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******
Silver (Ag)	0.1	N/A*******	0.1	N/A*******	0.1	N/A*******	0.1	N/A*******
Sodium (Na)	90	N/A*******	90	N/A*******	90	N/A*******	90	N/A*******
Strontium (Sr)	0.15	N/A*******	0.15	N/A*******	0.15	N/A*******	0.15	N/A*******
Arsenic (As)	0.2	0	0.2	0	0.2	0	0.2	44.04000
Thallium (Tl)	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******
Tin (Sn)	0.3	N/A*******	0.3	N/A*******	0.3	N/A*******	0.3	N/A*******
Titanium (Ti)	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******
Uranium (U)	0.1	N/A*******	0.1	N/A*******	0.1	N/A*******	0.1	N/A*******
Vanadium (V)	0.15	N/A*******	0.15	N/A*******	0.15	N/A*******	0.15	N/A*******
Zinc (Zn)	1	N/A*******	1	N/A*******	1	N/A*******	1	N/A*******
Barium (Ba)	1.5	N/A*******	1.5	N/A*******	1.5	N/A*******	1.5	N/A*******
Beryllium (Be)	0.05	0	0.05	0	0.05	0	0.05	0
Rhenium (Re)	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******	0.25	N/A*******
Bismuth (Bi)	0.05	N/A*******	0.05	N/A*******	0.05	N/A*******	0.05	N/A*******
Boron (B)	5	N/A*******	5	N/A*******	5	N/A*******	5	N/A*******
Cadmium (Cd)	0.05	0	0.05	0	0.05	0.02250	0.05	0
Calcium (Ca)	20	N/A*******	20	N/A*******	20	N/A*******	20	N/A*******

Worksheet Number: 2181855 Contd....

		B073337		B073337		B073337		
Parameter Name	DL	GC8423Dup1	DL	GC8424	DL	GC8425	DL	RDL
Aluminum (Al)	100	N/A*******	100	N/A*******	100	N/A*******	100	5
Chromium (Cr)	3	16.50000	3	6.45000	3	94.71000	3	0.15
Cobalt (Co)	1	N/A*******	1	N/A*******	1	N/A*******	1	0.05
Copper (Cu)	40	N/A*******	40	N/A*******	40	N/A*******	40	2
Iron (Fe)	300	N/A*******	300	N/A*******	300	N/A*******	300	15
Lead (Pb)	2	4.89000	2	5.76000	2	6.00000	2	0.1
Magnesium (Mg)	60	N/A*******	60	N/A*******	60	N/A*******	60	3
Manganese (Mn)	5	N/A*******	5	N/A*******	5	N/A*******	5	0.25
Antimony (Sb)	4	N/A*******	4	N/A*******	4	N/A*******	4	0.2
Molybdenum (Mo)	5	N/A*******	5	N/A*******	5	N/A*******	5	0.25
Nickel (Ni)	5	N/A*******	5	N/A*******	5	N/A*******	5	0.25
Potassium (K)	400	N/A*******	400	N/A*******	400	N/A*******	400	20
Selenium (Se)	10	N/A*******	10	N/A*******	10	N/A*******	10	0.5
Silver (Ag)	2	N/A*******	2	N/A*******	2	N/A*******	2	0.1
Sodium (Na)	1800	N/A*******	1800	N/A*******	1800	N/A*******	1800	90
Strontium (Sr)	3	N/A*******	3	N/A*******	3	N/A*******	3	0.15
Arsenic (As)	4	43.23000	4	44.25000	4	31.47000	4	0.2
Thallium (Tl)	5	N/A*******	5	N/A*******	5	N/A*******	5	0.25
Tin (Sn)	6	N/A*******	6	N/A*******	6	N/A*******	6	0.3
Titanium (Ti)	5	N/A*******	5	N/A*******	5	N/A*******	5	0.25
Uranium (U)	2	N/A*******	2	N/A*******	2	N/A*******	2	0.1
Vanadium (V)	3	N/A*******	3	N/A*******	3	N/A*******	3	0.15
Zinc (Zn)	20	N/A*******	20	N/A*******	20	N/A*******	20	1
Barium (Ba)	30	N/A*******	30	N/A*******	30	N/A*******	30	1.5
Beryllium (Be)	1	0	1	0	1	0	1	0.05
Rhenium (Re)	5	N/A*******	5	N/A*******	5	N/A*******	5	0.25
Bismuth (Bi)	1	N/A*******	1	N/A*******	1	N/A*******	1	0.05
Boron (B)	100	N/A*******	100	N/A*******	100	N/A*******	100	5
Cadmium (Cd)	1	0.06000	1	0.03000	1	0.15000	1	0.05
Calcium (Ca)	400	N/A*******	400	N/A*******	400	N/A*******	400	20

Worksheet Number: 2181855 Contd....

Parameter Name	MDL	IDL
Aluminum (Al)	0	0.1
Chromium (Cr)	0	0.04
Cobalt (Co)	0	0.03
Copper (Cu)	0	1.6
Iron (Fe)	0	0.28
Lead (Pb)	0	0.06
Magnesium (Mg)	0	0.75
Manganese (Mn)	0	0.03
Antimony (Sb)	0	0.03
Molybdenum (Mo)	0	0.03
Nickel (Ni)	0	0.03
Potassium (K)	0	1.5
Selenium (Se)	0	0.04
Silver (Ag)	0	0.01
Sodium (Na)	0	60
Strontium (Sr)	0	0.03
Arsenic (As)	0	0.03
Thallium (Tl)	0	0.03
Tin (Sn)	0	0.02
Titanium (Ti)	0	0.05
Uranium (U)	0	0.04
Vanadium (V)	0	0.03
Zinc (Zn)	0	0.13
Barium (Ba)	0	0.02
Beryllium (Be)	0	0.03
Rhenium (Re)	0	0
Bismuth (Bi)	0	0.05
Boron (B)	0	0.15
Cadmium (Cd)	0	0.03
Calcium (Ca)	0	2.5

Worksheet Number: 2181864

Metals in Liquid by ICP/MS (6020) - LIQUID
(ug/mL)

		B073337				
Parameter Name	Units	GD7184	DL	RDL	MDL	IDL
Aluminum (Al)	ug/mL	N/A*******	0.2	0.2	0	0.01
Chromium (Cr)	ug/mL	0.26560	0.005	0.005	0	0.0005
Cobalt (Co)	ug/mL	N/A*******	0.002	0.002	0	0.00002
Copper (Cu)	ug/mL	N/A*******	0.01	0.01	0	0.00005
Iron (Fe)	ug/mL	N/A*******	0.6	0.6	0	0.03
Lead (Pb)	ug/mL	1.65980	0.005	0.005	0	0.00005
Magnesium (Mg)	ug/mL	N/A*******	0.1	0.1	0	0.001
Manganese (Mn)	ug/mL	N/A*******	0.01	0.01	0	0.0003
Antimony (Sb)	ug/mL	N/A*******	0.01	0.01	0	0.0001
Molybdenum (Mo)	ug/mL	N/A*******	0.01	0.01	0	0.0001
Nickel (Ni)	ug/mL	N/A*******	0.01	0.01	0	0.0001
Potassium (K)	ug/mL	N/A*******	0.8	0.8	0	0.1
Selenium (Se)	ug/mL	N/A*******	0.02	0.02	0	0.001
Silver (Ag)	ug/mL	N/A*******	0.005	0.005	0	0.0001
Sodium (Na)	ug/mL	N/A*******	0.6	0.6	0	0.02
Strontium (Sr)	ug/mL	N/A*******	0.006	0.006	0	0.00002
Arsenic (As)	ug/mL	0.29045	0.01	0.01	0	0.0005
Thallium (Tl)	ug/mL	N/A*******	0.01	0.01	0	0.00005
Tin (Sn)	ug/mL	N/A*******	0.01	0.01	0	0.0001
Titanium (Ti)	ug/mL	N/A*******	0.01	0.01	0	0.0005
Uranium (U)	ug/mL	N/A*******	0.01	0.01	0	0.00001
Vanadium (V)	ug/mL	N/A*******	0.01	0.01	0	0.0003
Zinc (Zn)	ug/mL	N/A*******	0.05	0.05	0	0.001
Barium (Ba)	ug/mL	N/A*******	0.06	0.06	0	0.0001
Beryllium (Be)	ug/mL	0.11530	0.002	0.002	0	0.0002
Rhenium (Re)	ug/mL	N/A*******	0.01	0.01	0	0
Bismuth (Bi)	ug/mL	N/A*******	0.002	0.002	0	0.00003
Boron (B)	ug/mL	N/A*******	0.2	0.2	0	0.01
Cadmium (Cd)	ug/mL	0.19875	0.002	0.002	0	0.0001
Calcium (Ca)	ug/mL	N/A*******	0.8	0.8	0	0.05

Approved By: N. Rayfuha 2010.06.22

Validated By: [illegible] 20100622

Audit Vial/Filter preparation Log Sheet

Maxxam Sample No.: GD7184-01

Vial/Filter ID: M29-4583-01A/AM-1628 AUDIT

Outlined dilution for Prep: N/A times — Not used in final calculation

Actual Dilution: N/A times — Not used in final calculation

Applied Dilution: 1 times — This will be 1 for vial or 300 for filters unless additional dilution was done

Volume Taken: 20 mL

Final Volume: 150 mL

Date: 10/06/11

Analyst's Initials: PB

Witnessed by: [signature]

Attach Audit Vial/Filter Preparation Log Sheet and audit sample paper work to the digestion prep sheet.

Dilution at Instrument: 50x

Date: 2010.06.17

Analyst Initials: NR

Unit Reported: Circle one

Total ug or (ug/mL)

Validation Calculation Check by Reviewer:

33.196 ug/L x 50

= 1.6598 ug/mL

Date: 2010-06-21

Reviewer's Initials: PM.

Assignment Date: Thursday ; June 17, 2010
Assigned to: PREMPAL BHATTI
Test Code: ICPMSBH-TR Instrument Id:
Test Description: Total Metals Analysis by ICP/MS on the BH Impingers and Rinses (Standard Train)

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	SPIKE	0	MMETB										2010/06/17
	SPIKE	1	MMETB										2010/06/17
	BLANK												2010/06/17
B073337	*GC8420-04R		BLANK-COND 2-M*						1	2010/07/04	2010/06/23 23:00		2010/06/17
B073337	*GC8423-04R		RUN 1-COND 2-M*						1	2010/07/03	2010/06/23 23:00		2010/06/17
B073337	*GC8424-04R		RUN 2-COND 2-M*						1	2010/07/03	2010/06/23 23:00		2010/06/17
B073337	*GC8425-04R		RUN 3-COND 2-M*						1	2010/07/04	2010/06/23 23:00		2010/06/17

Remarks:

Samples extracted by: PREMPAL BHATTI 10-06-17
Instrumentation performed by: N. Rajpha Date: 2010.06.17
Calculations performed by: N. Rajpha Date: 2010.06.21
Validated by: [signature] Date: 2010 06 22

Assignment Date: Thursday ; June 17, 2010
Assigned to: PREMPAL BHATTI
Test Code: ICPMSG-L Instrument Id:
Test Description: Total Metals Analysis by ICP/MS

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	SPIKE	0	MMETB										2010/06/17
	SPIKE	1	MMETB										2010/06/17
	BLANK												2010/06/17
B073337	*GD7184-01R		M29-4583-01A/A*						1	2010/06/24	2010/06/23 23:00		2010/06/17

Remarks:

Samples extracted by: PREMPAL BHATTI 10-06-17
Instrumentation performed by: N. Rajfeka Date: 2010.06.17
Calculations performed by: N. Rajfeka Date: 2010.06.21
Validated by: Date: 2010/06/22

B073305, B073337, B073604 ICPBH-TR, ICPMSBH-TR

EPA METHOD 29 PREPARATION LOG:(non-combined back half)

DG29I
BRL SOP-00102

Back Half Standard Digestion

- ✓ Impvols measured
- ✓ pH checked
- ✓ 50% Hg cut taken
- ✓ Samples reduced in volume

- ✓ 1:1 HNO3 added
- ✓ 3% H2O2 added
- ✓ Hot RODI added
- ✓ Bulked to 75 ml with RODI

	#	Sample I.D.	B.Code	Impvol	F. Vol.	Dil	Comments
	1	BL 0617		ml	150 ml	150X	
	2	BL 0617 M	"	"	"		750ul of ICPMS HQCA & HQCB
	3	BL 0617 DM	"	"	"		750ul of ICPMS HQCA & HQCB
	4	BL 0617 S	"	"	"		300ul of ICP QCA & QCB
	5	BL 0617 DS	"	"	"		300ul of ICP QCA & QCB
1	6	GC8218-03R	"	"	"		WS 2181853
2	7	8219	"	"	"		
3	8	8220	"	"	"		
4	9	8221	"	"	"		
5	10	GC8420-04R	"	"	75		WS2181855
6	11	8423	"	"	"		
7	12	8424	"	"	"		
8	13	8425	"	"	"		
9	14	GD7184-01R	"	"	150	1x	AUDIT WS 2181864
10	15	GC9463-04R	"	"	"	150x	WS 2181859
11	16	9464	"	"	"		
12	17	9465	"	"	"		
13	18	9466	"	"	"		
14	19	9513	"	"	"		
15	20		"	"	"	"	
16	21		"	"	"	"	N/A PB 10/06/17
17	22		"	"	"	"	
18	23			"	"	"	
19	24		"	"	"	"	
20	25		"	"	"	"	

Supplier/Lot Information	Supplier	Lot/Expiry Date	
PSC/ICP/QCA	High Purity	928008	10-10-15
PSC/ICP/QCB	High Purity	928701	10-10-15
PSC/ICPMS-HQC Solution A	High Purity	1001832	11-01-21
PSC/ICPMS-HQC Solution B	High Purity	1001833	11-01-21
50% HNO3	Fisher	111 00020	10-12-16
3% H_2O_2	Fisher	082301A	10-12-08

Prepared By: PB Date: 10/06/17 Checked By: PB

Maxxam Analytics, Inc.
BRL FCD-00045/2, DG29I
Page 1 of 2

User Name: nraykha
Computer Name: ELAN9000
Sample File: C:\elandata\Sample\0617NR01.sam
Report Date/Time: Thursday, June 17, 2010 16:40:55

Sample Batch

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Aliquot Vol.	Diluted Vol.
8	0617NR01	RINSE		Sample	1.000	1.000
8	0617NR01	RINSE		Sample	1.000	1.000
9	0617NR01	ICB		Sample	1.000	1.000
10	0617NR01	ICV		Sample	1.000	1.000
11	0617NR01	LLQC		Sample	1.000	1.000
3	0617NR01	CAL 2 CHK		Sample	1.000	1.000
12	0617NR01	SPEX		Sample	1.000	1.000
13	0617NR01	ICSA		Sample	1.000	1.000
14	0617NR01	ICSAB		Sample	1.000	1.000
8	0617NR01	RINSE		Sample	1.000	1.000
8	0617NR01	RINSE		Sample	1.000	1.000
15	0617NR01	CCV		Sample	1.000	1.000
16	0617NR01	CCB		Sample	1.000	1.000
17	0617NR01	BLANK X5	FX50 WS2178111 ✓	Sample	1.000	1.000
18	0617NR01	BLANKD X5	FX50 WS2178111	Sample	1.000	1.000
19	0617NR01	BL0614M X5	FX50 WS2178111	Sample	1.000	1.000
20	0617NR01	BL0614DM X5	FX50 WS2178111	Sample	1.000	1.000
21	0617NR01	GC6509 X10	FX50 WS2178111	Sample	1.000	1.000
22	0617NR01	GC6509D X10	FX50 WS2178111	Sample	1.000	1.000
23	0617NR01	GC6509P X10	FX50 WS2178111	Sample	1.000	1.000
24	0617NR01	GC6509DP X10	FX50 WS2178111	Sample	1.000	1.000
25	0617NR01	GC6510 X10	FX50 WS2178111	Sample	1.000	1.000
26	0617NR01	GC6511 X10	FX50 WS2178111	Sample	1.000	1.000
27	0617NR01	GC6511R X50	FX50 WS2178111	Sample	1.000	1.000
28	0617NR01	CCV		Sample	1.000	1.000
29	0617NR01	CCB	PNU	Sample	1.000	1.000
30	0617NR01	HFRINSE	S/1g to 1000ml WS2179719	Sample	1.000	1.000
31	0617NR01	BLANK	S/1g to 1000ml WS2179719	Sample	1.000	1.000
32	0617NR01	BL0616M	S/1g to 1000ml WS2179719	Sample	1.000	1.000
33	0617NR01	BL0616DM	S/1g to 1000ml WS2179719	Sample	1.000	1.000
34	0617NR01	GD8637 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
35	0617NR01	GD8637D X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
36	0617NR01	GD8637M X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
37	0617NR01	GD8637DM X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
38	0617NR01	GD8638 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
39	0617NR01	GD8639 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
40	0617NR01	GD8640 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
41	0617NR01	GD8641 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
42	0617NR01	GD8646 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
43	0617NR01	GD8655 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
44	0617NR01	GD8655R X125	S/1g to 1000ml WS2179719	Sample	1.000	1.000
45	0617NR01	RTC036 X5	S/1g to 1000ml WS2179719	Sample	1.000	1.000
46	0617NR01	CCV		Sample	1.000	1.000
47	0617NR01	CCB		Sample	1.000	1.000
48	0617NR01	BLANK X10	TX150 WS2181853/55/64/59	Sample	1.000	1.000
49	0617NR01	BLANKD X10	TX150 WS2181853/55/64/59	Sample	1.000	1.000
50	0617NR01	BL06117M X10	TX150 WS2181853/55/64/59	Sample	1.000	1.000

51	0617NR01	BL0617DM X10	TX150 WS2181853/55/64/59	Sample	1.000	1.000
52	0617NR01	GC8219-03 X100	TX150 WS2181853	Sample	1.000	1.000
53	0617NR01	GC8219-03D X100	TX150 WS2181853	Sample	1.000	1.000
54	0617NR01	GC8219-03P X100	TX150 WS2181853	Sample	1.000	1.000
55	0617NR01	GC8219-03DP X100	TX150 WS2181853	Sample	1.000	1.000
56	0617NR01	GC8218-03 X10	TX150 WS2181853	Sample	1.000	1.000
57	0617NR01	GC8220-03 X100	TX150 WS2181853	Sample	1.000	1.000
58	0617NR01	GC8221-03 X100	TX150 WS2181853	Sample	1.000	1.000
59	0617NR01	GC8221-03R X500	TX150 WS2181853	Sample	1.000	1.000
60	0617NR01	CCV		Sample	1.000	1.000
61	0617NR01	CCB		Sample	1.000	1.000
62	0617NR01	GC8420-03 X10	TX150 WS2181855	Sample	1.000	1.000
63	0617NR01	GC8423-04 X200	TX150 WS2181855	Sample	1.000	1.000
64	0617NR01	GC8423-04D X200	TX150 WS2181855	Sample	1.000	1.000
65	0617NR01	GC8423-04P X200	TX150 WS2181855	Sample	1.000	1.000
66	0617NR01	GC8423-04DP X200	TX150 WS2181855	Sample	1.000	1.000
67	0617NR01	GC8424-03 X200	TX150 WS2181855	Sample	1.000	1.000
68	0617NR01	GC8425-04 X200	TX150 WS2181855	Sample	1.000	1.000
69	0617NR01	GC8425-04R X1000	TX150 WS2181855	Sample	1.000	1.000
70	0617NR01	GD7184-01 X50	AMP WS2181864	Sample	1.000	1.000
71	0617NR01	GD7184-01R X250	AMP WS2181864	Sample	1.000	1.000
72	0617NR01	CCV		Sample	1.000	1.000
73	0617NR01	CCB		Sample	1.000	1.000
74	0617NR01	GC9463-04 X10	TX150 WS2181859	Sample	1.000	1.000
75	0617NR01	GC9464-04 X10		Sample	1.000	1.000
76	0617NR01	GC9465-04 X50		Sample	1.000	1.000
77	0617NR01	GC9465-04D X50		Sample	1.000	1.000
78	0617NR01	GC9465-04P X50		Sample	1.000	1.000
79	0617NR01	GC9465-04DP X50		Sample	1.000	1.000
80	0617NR01	GC9466-04 X50		Sample	1.000	1.000
81	0617NR01	GC9513-04 X50		Sample	1.000	1.000
82	0617NR01	GC9513-04R X250		Sample	1.000	1.000
83	0617NR01	CCV		Sample	1.000	1.000
84	0617NR01	CCB		Sample	1.000	1.000
85	0617NR01	ICSA		Sample	1.000	1.000
86	0617NR01	ICSAB		Sample	1.000	1.000

Sample ID: RINSE

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 10:34:04
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44		ug/L	79916	0			2.468
	Mg	26		ug/L	1996	0			4.953
	Cl	35		mg/L	78808	0			0.229
	Na	23		ug/L	25801	0			3.459
	K	39		ug/L	1655818	0			1.862
>	Sc	45		ug/L	430901	0			1.223
>	Li	6		ug/L	131751	0			0.730
	Li	7		ug/L	9124	0			0.926
	Be	9		ug/L	92	0			4.985
	B	10		ug/L	462	0			4.600
	B	11		ug/L	1933	0			4.647
	Al	27		ug/L	51999	0			42.264
	Ti	49		ug/L	12	0			86.839
	V	51		ug/L	5835	0			1.783
	Cr	53		ug/L	310	0			2.174
	Cr	52		ug/L	13047	0			1.792
	Fe	56		ug/L	5372935	0			1.546
	Fe	57		ug/L	18737	0			3.130
	Fe	54		ug/L	-24689	0			1.011
	Mn	55		ug/L	873	0			8.152
	Co	59		ug/L	225	0			2.720
	Ni	62		ug/L	221	0			8.005
	Ni	60		ug/L	250	0			20.829
	Cu	63		ug/L	533	0			4.114
	Cu	65		ug/L	419	0			7.797
>	Sc-1	45		ug/L	430901	0			1.223
	P	31		ug/L	-2968	0			6.749
	Zn	68		ug/L	1681	0			5.199
	Zn	66		ug/L	3514	0			4.811
	As	75		ug/L	155	0			9.435
	Se	77		ug/L	274	0			6.280
	Se	78		ug/L	21473	0			0.115
	Se	82		ug/L	451	0			3.353
	Br	79		mg/L	21384	0			1.531
>	Ge	72		ug/L	194113	0			0.279
>	Rh	103		ug/L	587868	0			0.631
	Sr	88		ug/L	3444	0			5.219
	Mo	97		ug/L	151	0			8.906
	Mo	98		ug/L	173	0			8.879
	Ag	107		ug/L	245	0			8.498
	Ag	109		ug/L	252	0			8.422
	Cd	111		ug/L	559	0			1.847
	Cd	114		ug/L	56	0			9.264
	Sn	118		ug/L	161	0			3.331
	Sn	120		ug/L	208	0			12.192
	Sb	121		ug/L	62	0			16.832
	Sb	123		ug/L	33	0			19.361
	Ba	135		ug/L	71	0			2.681
	Ba	137		ug/L	88	0			10.398
	Tl	203		ug/L	155	0			11.568
	Tl	205		ug/L	324	0			9.820
	Pb	208		ug/L	242	0			4.601
	Bi	209		ug/L	332	0			5.508
	U	238		ug/L	45	0			7.427
>	Tm	169		ug/L	738674	0			2.355
	Tb	159		ug/L	764249	0			0.211
	Kr	83		mg/L	461	0			5.498
	Y	89		ug/L	769861	0			0.677
	In	115		ug/L	625757	0			0.296
	Ho	165		mg/L	727673	0			3.124
	Ar2	76		mg/L	166352	0			0.143

Sample ID: RINSE

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 10:42:05
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44		ug/L	79594	0			1.409
	Mg	26		ug/L	1946	0			18.967
	Cl	35		mg/L	77275	0			1.712
	Na	23		ug/L	28001	0			8.122
	K	39		ug/L	1649709	0			0.357
>	Sc	45		ug/L	430846	0			0.421
>	Li	6		ug/L	132016	0			1.084
	Li	7		ug/L	9292	0			1.513
	Be	9		ug/L	88	0			6.869
	B	10		ug/L	489	0			9.530
	B	11		ug/L	1941	0			13.247
	Al	27		ug/L	39437	0			18.857
	Ti	49		ug/L	5	0			179.188
	V	51		ug/L	5877	0			1.450
	Cr	53		ug/L	301	0			2.532
	Cr	52		ug/L	13055	0			0.235
	Fe	56		ug/L	5372058	0			0.410
	Fe	57		ug/L	18769	0			0.538
	Fe	54		ug/L	-25187	0			2.566
	Mn	55		ug/L	876	0			5.982
	Co	59		ug/L	208	0			3.977
	Ni	62		ug/L	198	0			6.221
	Ni	60		ug/L	197	0			8.123
	Cu	63		ug/L	533	0			2.190
	Cu	65		ug/L	396	0			1.782
>	Sc-1	45		ug/L	430846	0			0.421
	P	31		ug/L	-3254	0			19.889
	Zn	68		ug/L	1466	0			4.993
	Zn	66		ug/L	3259	0			2.336
	As	75		ug/L	143	0			6.720
	Se	77		ug/L	295	0			5.214
	Se	78		ug/L	21244	0			0.447
	Se	82		ug/L	441	0			2.237
	Br	79		mg/L	20508	0			2.128
>	Ge	72		ug/L	196671	0			0.562
>	Rh	103		ug/L	592048	0			0.488
	Sr	88		ug/L	3381	0			25.436
	Mo	97		ug/L	159	0			13.182
	Mo	98		ug/L	154	0			16.260
	Ag	107		ug/L	243	0			6.700
	Ag	109		ug/L	216	0			6.561
	Cd	111		ug/L	555	0			4.228
	Cd	114		ug/L	50	0			14.009
	Sn	118		ug/L	166	0			2.833
	Sn	120		ug/L	248	0			16.319
	Sb	121		ug/L	61	0			16.971
	Sb	123		ug/L	34	0			30.761
	Ba	135		ug/L	73	0			14.741
	Ba	137		ug/L	91	0			21.709
	Tl	203		ug/L	154	0			2.857
	Tl	205		ug/L	422	0			43.959
	Pb	208		ug/L	256	0			12.965
	Bi	209		ug/L	302	0			8.275
	U	238		ug/L	39	0			32.979
>	Tm	169		ug/L	750070	0			1.372
	Tb	159		ug/L	770708	0			2.395
	Kr	83		mg/L	487	0			7.769
	Y	89		ug/L	773796	0			0.454
	In	115		ug/L	624665	0			0.708
	Ho	165		mg/L	739762	0			0.963
	Ar2	76		mg/L	167154	0			0.535

Sample ID: Blank #95

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 10:50:04
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44		ug/L	77736				
	Mg	26		ug/L	1539				
	Cl	35		mg/L	82326				
	Na	23		ug/L	18451				
	K	39		ug/L	1641825				
>	Sc	45		ug/L	436752				
>	Li	6		ug/L	131597				
	Li	7		ug/L	9235				
	Be	9		ug/L	85				
	B	10		ug/L	388				
	B	11		ug/L	1527				
	Al	27		ug/L	31398				
	Ti	49		ug/L	-23				
	V	51		ug/L	5814				
	Cr	53		ug/L	316				
	Cr	52		ug/L	13073				
	Fe	56		ug/L	5398652				
	Fe	57		ug/L	18823				
	Fe	54		ug/L	-29358				
	Mn	55		ug/L	895				
	Co	59		ug/L	219				
	Ni	62		ug/L	198				
	Ni	60		ug/L	177				
	Cu	63		ug/L	477				
	Cu	65		ug/L	407				
>	Sc-1	45		ug/L	436752				
	P	31		ug/L	-2051				
	Zn	68		ug/L	955				
	Zn	66		ug/L	2537				
	As	75		ug/L	148				
	Se	77		ug/L	287				
	Se	78		ug/L	21083				
	Se	82		ug/L	457				
	Br	79		mg/L	30600				
>	Ge	72		ug/L	194952				
>	Rh	103		ug/L	590206				
	Sr	88		ug/L	2600				
	Mo	97		ug/L	155				
	Mo	98		ug/L	137				
	Ag	107		ug/L	228				
	Ag	109		ug/L	213				
	Cd	111		ug/L	533				
	Cd	114		ug/L	61				
	Sn	118		ug/L	142				
	Sn	120		ug/L	203				
	Sb	121		ug/L	58				
	Sb	123		ug/L	30				
	Ba	135		ug/L	69				
	Ba	137		ug/L	93				
	Tl	203		ug/L	135				
	Tl	205		ug/L	311				
	Pb	208		ug/L	225				
	Bi	209		ug/L	323				
	U	238		ug/L	30				
>	Tm	169		ug/L	755304				
	Tb	159		ug/L	764824				
	Kr	83		mg/L	464				
	Y	89		ug/L	775852				
	In	115		ug/L	630854				
	Ho	165		mg/L	739682				
	Ar2	76		mg/L	165950				

Sample ID: Standard 1 #268

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 10:54:34

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44		ug/L	279008	77736			1.113
	Mg	26		ug/L	80298	1539			1.514
	Cl	35		mg/L	74475	82326			25.240
	Na	23		ug/L	4347985	18451			0.462
	K	39		ug/L	7476246	1641825			0.553
>	Sc	45		ug/L	430221	436752			0.588
>	Li	6		ug/L	131017	131597			0.573
	Li	7		ug/L	9151	9235			478.112
	Be	9	10.000	ug/L	10507	85	0.082	0.817	0.817
	B	10	10.000	ug/L	3373	388	0.156	1.561	1.561
	B	11	10.000	ug/L	15529	1527	0.157	1.574	1.574
	Al	27	20.000	ug/L	335271	31398	0.212	1.060	1.060
	Ti	49	10.000	ug/L	15933	-23	0.012	0.123	0.123
	V	51	10.000	ug/L	270736	5814	0.152	1.519	1.519
	Cr	53	10.000	ug/L	28041	316	0.181	1.806	1.806
	Cr	52	10.000	ug/L	247082	13073	0.120	1.198	1.198
	Fe	56	50.000	ug/L	6913007	5398652	0.694	1.388	1.388
	Fe	57	50.000	ug/L	54761	18823	0.373	0.745	0.745
	Fe	54	50.000	ug/L	65422	-29358	0.865	1.730	1.730
	Mn	55	10.000	ug/L	364192	895	0.080	0.797	0.797
	Co	59	10.000	ug/L	269077	219	0.098	0.976	0.976
	Ni	62	10.000	ug/L	8907	198	0.075	0.751	0.751
	Ni	60	10.000	ug/L	58125	177	0.040	0.402	0.402
	Cu	63	10.000	ug/L	137010	477	0.104	1.037	1.037
	Cu	65	10.000	ug/L	66531	407	0.060	0.601	0.601
>	Sc-1	45		ug/L	430221	436752			0.588
	P	31	20.000	ug/L	16549	-2051	0.427	2.135	2.135
	Zn	68	20.000	ug/L	61078	955	0.347	1.736	1.736
	Zn	66	20.000	ug/L	88663	2537	0.169	0.843	0.843
	As	75	10.000	ug/L	43847	148	0.070	0.705	0.705
	Se	77	10.000	ug/L	3637	287	0.364	3.636	3.636
	Se	78	10.000	ug/L	32024	21083	0.163	1.630	1.630
	Se	82	10.000	ug/L	4819	457	0.142	1.423	1.423
	Br	79		mg/L	11736	30600			6.087
>	Ge	72		ug/L	194697	194952			1.092
>	Rh	103		ug/L	588552	590206			1.631
	Sr	88	10.000	ug/L	480545	2600	0.124	1.242	1.242
	Mo	97	5.000	ug/L	22327	155	0.042	0.845	0.845
	Mo	98	5.000	ug/L	56648	137	0.037	0.732	0.732
	Ag	107	5.000	ug/L	76568	228	0.071	1.411	1.411
	Ag	109	5.000	ug/L	70923	213	0.015	0.294	0.294
	Cd	111	5.000	ug/L	21603	533	0.082	1.636	1.636
	Cd	114	5.000	ug/L	46694	61	0.069	1.373	1.373
	Sn	118	5.000	ug/L	54866	142	0.026	0.511	0.511
	Sn	120	5.000	ug/L	74360	203	0.068	1.353	1.353
	Sb	121	2.000	ug/L	25333	58	0.041	2.056	2.056
	Sb	123	2.000	ug/L	19174	30	0.037	1.865	1.865
	Ba	135	10.000	ug/L	31855	69	0.126	1.256	1.256
	Ba	137	10.000	ug/L	55307	93	0.213	2.127	2.127
	Tl	203	10.000	ug/L	128877	135	0.172	1.719	1.719
	Tl	205	10.000	ug/L	313596	311	0.245	2.452	2.452
	Pb	208	10.000	ug/L	415655	225	0.249	2.488	2.488
	Bi	209	10.000	ug/L	334490	323	0.159	1.590	1.590
	U	238	10.000	ug/L	395612	30	0.391	3.905	3.905
>	Tm	169		ug/L	739494	755304			1.551
	Tb	159		ug/L	758844	764824			158.565
	Kr	83		mg/L	449	464			98.647
	Y	89		ug/L	766454	775852			51.512
	In	115		ug/L	628320	630854			257.712
	Ho	165		mg/L	727312	739682			136.175
	Ar2	76		mg/L	170082	165950			5.042

Sample ID: Standard 2 #382

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:00:33
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1250.000	ug/L	1075430	77736	7.717	0.617	0.617
	Mg	26	250.000	ug/L	391495	1539	1.778	0.711	0.711
	Cl	35		mg/L	76051	82326			32.962
	Na	23	1250.000	ug/L	21256641	18451	5.341	0.427	0.427
	K	39	1250.000	ug/L	30051375	1641825	7.743	0.619	0.619
>	Sc	45		ug/L	433586	436752			1.243
>	Li	6		ug/L	131140	131597			0.588
	Li	7		ug/L	9136	9235			57.567
	Be	9	50.006	ug/L	52411	85	0.570	1.140	1.140
	B	10	49.967	ug/L	15084	388	1.044	2.089	2.089
	B	11	50.033	ug/L	72868	1527	0.451	0.902	0.902
	Al	27	100.039	ug/L	1580332	31398	1.476	1.475	1.475
	Ti	49	49.948	ug/L	78257	-23	1.414	2.832	2.832
	V	51	49.978	ug/L	1326176	5814	0.957	1.915	1.915
	Cr	53	49.968	ug/L	137739	316	0.332	0.665	0.665
	Cr	52	49.966	ug/L	1172759	13073	0.836	1.674	1.674
	Fe	56	249.193	ug/L	12771535	5398652	7.343	2.947	2.947
	Fe	57	249.720	ug/L	196015	18823	2.984	1.195	1.195
	Fe	54	249.756	ug/L	434363	-29358	4.940	1.978	1.978
	Mn	55	49.967	ug/L	1800953	895	0.300	0.600	0.600
	Co	59	49.971	ug/L	1334669	219	0.519	1.038	1.038
	Ni	62	49.962	ug/L	43239	198	1.046	2.093	2.093
	Ni	60	49.960	ug/L	286266	177	0.569	1.140	1.140
	Cu	63	49.932	ug/L	664814	477	0.793	1.589	1.589
	Cu	65	49.936	ug/L	322810	407	0.391	0.784	0.784
>	Sc-1	45		ug/L	433586	436752			1.243
	P	31	100.200	ug/L	96640	-2051	2.092	2.088	2.088
	Zn	68	99.672	ug/L	279687	955	1.694	1.700	1.700
	Zn	66	99.658	ug/L	400523	2537	1.544	1.550	1.550
	As	75	49.985	ug/L	218303	148	0.377	0.754	0.754
	Se	77	50.008	ug/L	17224	287	0.525	1.050	1.050
	Se	78	49.965	ug/L	75392	21083	0.484	0.968	0.968
	Se	82	50.002	ug/L	22440	457	0.474	0.947	0.947
	Br	79		mg/L	12374	30600			1.685
>	Ge	72		ug/L	195946	194952			0.842
>	Rh	103		ug/L	586663	590206			1.011
	Sr	88	50.010	ug/L	2396966	2600	1.349	2.697	2.697
	Mo	97	24.992	ug/L	109720	155	0.472	1.889	1.889
	Mo	98	24.993	ug/L	279884	137	0.212	0.849	0.849
	Ag	107	25.162	ug/L	457323	228	0.390	1.551	1.551
	Ag	109	25.170	ug/L	427559	213	0.160	0.637	0.637
	Cd	111	24.994	ug/L	104895	533	0.233	0.932	0.932
	Cd	114	25.003	ug/L	233110	61	0.340	1.359	1.359
	Sn	118	25.009	ug/L	275491	142	0.257	1.029	1.029
	Sn	120	25.023	ug/L	378710	203	0.261	1.044	1.044
	Sb	121	10.009	ug/L	128931	58	0.136	1.358	1.358
	Sb	123	10.005	ug/L	96759	30	0.061	0.613	0.613
	Ba	135	49.982	ug/L	157056	69	0.704	1.408	1.408
	Ba	137	49.980	ug/L	272508	93	0.934	1.868	1.868
	Tl	203	49.932	ug/L	625041	135	1.157	2.317	2.317
	Tl	205	49.920	ug/L	1512296	311	1.064	2.131	2.131
	Pb	208	49.943	ug/L	2028609	225	0.347	0.695	0.695
	Bi	209	50.016	ug/L	1694042	323	0.681	1.362	1.362
	U	238	49.981	ug/L	1968957	30	0.710	1.422	1.422
>	Tm	169		ug/L	743324	755304			0.568
	Tb	159		ug/L	764394	764824			2270.733
	Kr	83		mg/L	588	464			46.858
	Y	89		ug/L	778305	775852			186.660
	In	115		ug/L	630961	630854			2397.901
	Ho	165		mg/L	723086	739682			53.012
	Ar2	76		mg/L	188165	165950			2.157

Sample ID: Standard 3 #236

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:09:34

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	2499.928	ug/L	2076834	77736	27.902	1.116	1.116
	Mg	26	501.622	ug/L	795619	1539	7.078	1.411	1.411
	Cl	35		mg/L	75096	82326			12.072
	Na	23	2509.776	ug/L	43409422	18451	44.684	1.780	1.780
	K	39	2507.262	ug/L	59411518	1641825	14.077	0.561	0.561
>	Sc	45		ug/L	434338	436752			1.169
>	Li	6		ug/L	131513	131597			0.844
	Li	7		ug/L	9184	9235			606.751
	Be	9	100.370	ug/L	106932	85	1.172	1.168	1.168
	B	10	100.419	ug/L	30498	388	0.700	0.697	0.697
	B	11	99.649	ug/L	142146	1527	1.346	1.351	1.351
	Al	27	200.463	ug/L	3168822	31398	3.669	1.830	1.830
	Ti	49	100.128	ug/L	157974	-23	0.860	0.859	0.859
	V	51	100.246	ug/L	2684067	5814	2.220	2.215	2.215
	Cr	53	99.996	ug/L	275730	316	2.327	2.327	2.327
	Cr	52	100.044	ug/L	2342987	13073	2.465	2.464	2.464
	Fe	56	501.728	ug/L	20521595	5398652	5.966	1.189	1.189
	Fe	57	501.549	ug/L	379804	18823	5.173	1.031	1.031
	Fe	54	499.196	ug/L	893200	-29358	4.599	0.921	0.921
	Mn	55	100.238	ug/L	3651270	895	1.591	1.587	1.587
	Co	59	100.323	ug/L	2717750	219	0.814	0.811	0.811
	Ni	62	100.360	ug/L	88029	198	1.512	1.507	1.507
	Ni	60	100.451	ug/L	586525	177	1.962	1.953	1.953
	Cu	63	100.627	ug/L	1374753	477	1.565	1.555	1.555
	Cu	65	100.491	ug/L	662830	407	1.526	1.519	1.519
>	Sc-1	45		ug/L	434338	436752			1.169
	P	31	200.335	ug/L	196902	-2051	1.069	0.533	0.533
	Zn	68	201.069	ug/L	576685	955	2.136	1.062	1.062
	Zn	66	200.805	ug/L	819315	2537	2.493	1.241	1.241
	As	75	100.229	ug/L	442719	148	0.490	0.489	0.489
	Se	77	99.713	ug/L	33782	287	0.613	0.615	0.615
	Se	78	99.918	ug/L	129599	21083	1.312	1.313	1.313
	Se	82	100.437	ug/L	45494	457	0.583	0.581	0.581
	Br	79		mg/L	9574	30600			0.314
>	Ge	72		ug/L	196490	194952			0.497
>	Rh	103		ug/L	589254	590206			0.348
	Sr	88	100.337	ug/L	4891903	2600	0.977	0.974	0.974
	Mo	97	50.254	ug/L	225873	155	0.678	1.349	1.349
	Mo	98	50.213	ug/L	574086	137	0.105	0.208	0.208
	Ag	107	50.184	ug/L	929085	228	1.147	2.286	2.286
	Ag	109	50.277	ug/L	876346	213	0.382	0.760	0.760
	Cd	111	50.312	ug/L	216734	533	0.253	0.503	0.503
	Cd	114	50.047	ug/L	470345	61	0.223	0.446	0.446
	Sn	118	50.117	ug/L	559429	142	0.218	0.435	0.435
	Sn	120	50.117	ug/L	768521	203	0.280	0.559	0.559
	Sb	121	20.074	ug/L	263454	58	0.191	0.953	0.953
	Sb	123	20.094	ug/L	198767	30	0.228	1.137	1.137
	Ba	135	100.373	ug/L	321350	69	1.712	1.706	1.706
	Ba	137	100.503	ug/L	561216	93	0.354	0.352	0.352
	Tl	203	100.673	ug/L	1323483	135	1.446	1.436	1.436
	Tl	205	100.011	ug/L	3101475	311	1.716	1.716	1.716
	Pb	208	99.596	ug/L	4075492	225	3.076	3.088	3.088
	Bi	209	99.288	ug/L	3348866	323	1.907	1.921	1.921
	U	238	99.631	ug/L	3959871	30	2.861	2.872	2.872
>	Tm	169		ug/L	760634	755304			0.649
	Tb	159		ug/L	763242	764824			519.786
	Kr	83		mg/L	687	464			32.539
	Y	89		ug/L	780046	775852			108.235
	In	115		ug/L	633892	630854			131.101
	Ho	165		mg/L	741072	739682			526.877
	Ar2	76		mg/L	208087	165950			2.310

Sample ID: Standard 4 #222

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:19:35

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
⌈	Ca	44	9970.468	ug/L	7555967	77736	287.738	2.886	2.886
|	Mg	26	10000.499	ug/L	15664934	1539	243.682	2.437	2.437
|	Cl	35		mg/L	75789	82326			71.225
|	Na	23	10014.598	ug/L	171784376	18451	317.048	3.166	3.166
|	K	39	10005.166	ug/L	227561867	1641825	197.231	1.971	1.971
⌊>	Sc	45		ug/L	422966	436752			2.100
⌈>	Li	6		ug/L	123468	131597			0.548
|	Li	7		ug/L	8881	9235			47.970
|	Be	9	0.022	ug/L	101	85	0.015	70.644	70.644
|	B	10	1.149	ug/L	688	388	0.112	9.736	9.736
⌊	B	11	1.032	ug/L	2801	1527	0.231	22.404	22.404
⌈	Al	27	2000.444	ug/L	31063952	31398	45.364	2.268	2.268
|	Ti	49	0.059	ug/L	70	-23	0.013	21.295	21.295
|	V	51	0.033	ug/L	6478	5814	0.012	35.383	35.383
|	Cr	53	0.305	ug/L	1123	316	0.027	8.731	8.731
|	Cr	52	0.334	ug/L	20228	13073	0.027	8.085	8.085
|	Fe	56	4998.580	ug/L	148957924	5398652	137.036	2.742	2.742
|	Fe	57	4998.360	ug/L	3433186	18823	71.590	1.432	1.432
|	Fe	54	4997.894	ug/L	8672383	-29358	83.081	1.662	1.662
|	Mn	55	-0.275	ug/L	-8900	895	0.007	2.627	2.627
|	Co	59	0.044	ug/L	1368	219	0.002	5.394	5.394
|	Ni	62	0.199	ug/L	361	198	0.018	8.806	8.806
|	Ni	60	0.088	ug/L	673	177	0.013	14.705	14.705
|	Cu	63	0.301	ug/L	4463	477	0.005	1.576	1.576
|	Cu	65	0.177	ug/L	1532	407	0.013	7.224	7.224
|>	Sc-1	45		ug/L	422966	436752			2.100
⌊	P	31	2000.641	ug/L	1982660	-2051	42.253	2.112	2.112
⌈	Zn	68	1998.263	ug/L	5445939	955	32.409	1.622	1.622
|	Zn	66	1998.228	ug/L	7727741	2537	11.774	0.589	0.589
|	As	75	0.040	ug/L	333	148	0.003	7.930	7.930
|	Se	77	0.040	ug/L	308	287	0.010	24.555	24.555
|	Se	78	0.476	ug/L	22140	21083	0.386	80.955	80.955
|	Se	82	0.173	ug/L	547	457	0.056	32.391	32.391
|	Br	79		mg/L	9430	30600			0.780
⌊>	Ge	72		ug/L	199893	194952			1.093
⌈>	Rh	103		ug/L	579492	590206			0.333
|	Sr	88	0.012	ug/L	3110	2600	0.012	104.399	104.399
|	Mo	97	0.109	ug/L	634	155	0.026	23.702	23.702
|	Mo	98	0.107	ug/L	1335	137	0.021	20.121	20.121
|	Ag	107	0.034	ug/L	837	228	0.017	49.571	49.571
|	Ag	109	0.035	ug/L	801	213	0.010	30.069	30.069
|	Cd	111	0.028	ug/L	643	533	0.003	9.286	9.286
|	Cd	114	0.014	ug/L	187	61	0.001	6.252	6.252
|	Sn	118	0.108	ug/L	1323	142	0.030	27.670	27.670
|	Sn	120	0.107	ug/L	1814	203	0.033	30.329	30.329
|	Sb	121	0.206	ug/L	2711	58	0.099	48.214	48.214
|	Sb	123	0.206	ug/L	2032	30	0.096	46.604	46.604
|	Ba	135	0.047	ug/L	215	69	0.002	3.740	3.740
⌊	Ba	137	0.044	ug/L	331	93	0.001	2.705	2.705
⌈	Tl	203	0.026	ug/L	463	135	0.002	9.518	9.518
|	Tl	205	0.027	ug/L	1115	311	0.003	12.152	12.152
|	Pb	208	0.033	ug/L	1541	225	0.003	9.479	9.479
|	Bi	209	0.479	ug/L	15960	323	0.223	46.633	46.633
|	U	238	0.017	ug/L	695	30	0.001	7.998	7.998
⌊>	Tm	169		ug/L	738158	755304			0.733
	Tb	159		ug/L	762051	764824			147.354
	Kr	83		mg/L	499	464			18.196
	Y	89		ug/L	789927	775852			30.785
	In	115		ug/L	642332	630854			25.045
	Ho	165		mg/L	737250	739682			549.485
	Ar2	76		mg/L	171537	165950			18.068

Sample ID: Standard 5 #54

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:25:36

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	10.214	ug/L	85645	77736	1.669	16.345	16.345
	Mg	26	1.710	ug/L	4311	1539	0.458	26.780	26.780
	Cl	35	5.000	mg/L	423622	82326	0.106	2.122	2.122
	Na	23	1422.042	ug/L	25216257	18451	10.963	0.771	0.771
	K	39	5315.839	ug/L	125662788	1641825	65.444	1.231	1.231
>	Sc	45		ug/L	436763	436752			1.055
>	Li	6		ug/L	128237	131597			0.750
	Li	7		ug/L	9027	9235			658.268
	Be	9	0.011	ug/L	94	85	0.009	80.689	80.689
	B	10	0.296	ug/L	465	388	0.129	43.492	43.492
	B	11	0.282	ug/L	1875	1527	0.137	48.447	48.447
	Al	27	-0.293	ug/L	26707	31398	0.184	62.836	62.836
	Ti	49	0.013	ug/L	-2	-23	0.013	95.995	95.995
	V	51	0.006	ug/L	5973	5814	0.005	77.694	77.694
	Cr	53	-0.002	ug/L	311	316	0.019	1052.893	1052.893
	Cr	52	0.040	ug/L	14012	13073	0.016	40.119	40.119
	Fe	56	10.102	ug/L	5698276	5398652	2.857	28.281	28.281
	Fe	57	2.496	ug/L	20585	18823	0.201	8.048	8.048
	Fe	54	2.949	ug/L	-24055	-29358	0.092	3.110	3.110
	Mn	55	0.020	ug/L	1640	895	0.003	13.308	13.308
	Co	59	0.005	ug/L	360	219	0.001	18.731	18.731
	Ni	62	0.080	ug/L	269	198	0.023	28.830	28.830
	Ni	60	0.075	ug/L	617	177	0.003	4.033	4.033
	Cu	63	0.067	ug/L	1394	477	0.008	12.201	12.201
	Cu	65	0.034	ug/L	634	407	0.004	11.978	11.978
>	Sc-1	45		ug/L	436763	436752			1.055
	P	31	-0.016	ug/L	-2065	-2051	0.351	2238.761	2238.761
	Zn	68	1.692	ug/L	5596	955	0.203	11.969	11.969
	Zn	66	1.681	ug/L	9106	2537	0.176	10.476	10.476
	As	75	0.009	ug/L	190	148	0.005	60.400	60.400
	Se	77	-0.055	ug/L	276	287	0.055	99.957	99.957
	Se	78	0.486	ug/L	22179	21083	0.274	56.300	56.300
	Se	82	-2.458	ug/L	-654	457	0.255	10.392	10.392
	Br	79	5.000	mg/L	4294002	30600	0.029	0.577	0.577
>	Ge	72		ug/L	200131	194952			0.840
>	Rh	103		ug/L	605179	590206			0.690
	Sr	88	0.160	ug/L	10650	2600	0.007	4.639	4.639
	Mo	97	0.082	ug/L	535	155	0.005	5.732	5.732
	Mo	98	0.025	ug/L	429	137	0.002	7.929	7.929
	Ag	107	0.003	ug/L	287	228	0.002	70.285	70.285
	Ag	109	0.004	ug/L	290	213	0.003	74.325	74.325
	Cd	111	0.008	ug/L	582	533	0.007	91.503	91.503
	Cd	114	0.003	ug/L	91	61	0.001	38.853	38.853
	Sn	118	0.040	ug/L	607	142	0.004	11.143	11.143
	Sn	120	0.039	ug/L	819	203	0.004	10.373	10.373
	Sb	121	0.047	ug/L	698	58	0.004	9.056	9.056
	Sb	123	0.047	ug/L	514	30	0.005	11.346	11.346
	Ba	135	0.207	ug/L	753	69	0.002	0.809	0.809
	Ba	137	0.189	ug/L	1179	93	0.005	2.905	2.905
	Tl	203	0.004	ug/L	192	135	0.002	51.527	51.527
	Tl	205	0.004	ug/L	449	311	0.003	63.398	63.398
	Pb	208	0.011	ug/L	688	225	0.002	19.609	19.609
	Bi	209	0.099	ug/L	3696	323	0.019	18.764	18.764
	U	238	0.005	ug/L	221	30	0.001	18.519	18.519
>	Tm	169		ug/L	767686	755304			0.220
	Tb	159		ug/L	777199	764824			47.544
	Kr	83		mg/L	495	464			118.616
	Y	89		ug/L	795780	775852			25.279
	In	115		ug/L	650960	630854			28.100
	Ho	165		mg/L	767043	739682			59.300
	Ar2	70		mg/L	173528	165950			4.006

Sample ID: ICB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:33:35
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	5.922	ug/L	81076	77736	4.692	79.224	79.224
	Mg	26	0.490	ug/L	2288	1539	0.521	106.350	106.350
	Cl	35	-0.015	mg/L	80113	82326	0.003	20.688	20.688
	Na	23	0.932	ug/L	34418	18451	0.183	19.676	19.676
	K	39	4.977	ug/L	1731736	1641825	1.317	26.462	26.462
>	Sc	45		ug/L	430320	436752			1.596
>	Li	6		ug/L	129601	131597			0.671
	Li	7		ug/L	9075	9235			223.331
	Be	9	-0.002	ug/L	82	85	0.005	237.590	237.590
	B	10	0.744	ug/L	601	388	1.044	140.341	140.341
	B	11	5.204	ug/L	8723	1527	8.656	166.339	166.339
	Al	27	0.379	ug/L	36746	31398	1.062	279.906	279.906
	Ti	49	0.057	ug/L	66	-23	0.007	11.764	11.764
	V	51	0.011	ug/L	6016	5814	0.008	75.424	75.424
	Cr	53	0.012	ug/L	344	316	0.001	11.052	11.052
	Cr	52	0.034	ug/L	13661	13073	0.022	65.723	65.723
	Fe	56	7.539	ug/L	5538283	5398652	4.779	63.390	63.390
	Fe	57	1.065	ug/L	19278	18823	1.103	103.508	103.508
	Fe	54	2.836	ug/L	-23908	-29358	0.365	12.886	12.886
	Mn	55	0.003	ug/L	996	895	0.002	73.616	73.616
	Co	59	0.005	ug/L	355	219	0.002	44.414	44.414
	Ni	62	0.016	ug/L	209	198	0.009	52.761	52.761
	Ni	60	0.008	ug/L	223	177	0.004	44.796	44.796
	Cu	63	0.017	ug/L	699	477	0.003	16.311	16.311
	Cu	65	0.011	ug/L	471	407	0.001	8.015	8.015
>	Sc-1	45		ug/L	430320	436752			1.596
	P	31	-0.153	ug/L	-2167	-2051	0.782	512.202	512.202
	Zn	68	0.259	ug/L	1671	955	0.021	8.293	8.293
	Zn	66	0.277	ug/L	3644	2537	0.060	21.779	21.779
	As	75	0.009	ug/L	192	148	0.002	16.738	16.738
	Se	77	0.025	ug/L	300	287	0.034	134.813	134.813
	Se	78	0.813	ug/L	22339	21083	0.102	12.603	12.603
	Se	82	-0.006	ug/L	462	457	0.034	583.835	583.835
	Br	79	-0.001	mg/L	30487	30600	0.000	35.217	35.217
>	Ge	72		ug/L	198339	194952			0.795
>	Rh	103		ug/L	605446	590206			0.540
	Sr	88	0.005	ug/L	2906	2600	0.025	519.089	519.089
	Mo	97	0.016	ug/L	235	155	0.006	38.769	38.769
	Mo	98	0.017	ug/L	339	137	0.004	24.795	24.795
	Ag	107	0.012	ug/L	468	228	0.002	19.450	19.450
	Ag	109	0.013	ug/L	458	213	0.002	14.070	14.070
	Cd	111	0.012	ug/L	599	533	0.006	46.924	46.924
	Cd	114	0.001	ug/L	71	61	0.001	119.602	119.602
	Sn	118	0.024	ug/L	419	142	0.005	20.041	20.041
	Sn	120	0.024	ug/L	587	203	0.004	17.180	17.180
	Sb	121	0.016	ug/L	280	58	0.001	4.685	4.685
	Sb	123	0.019	ug/L	222	30	0.004	20.005	20.005
	Ba	135	0.009	ug/L	101	69	0.007	78.650	78.650
	Ba	137	0.003	ug/L	111	93	0.004	132.238	132.238
	Tl	203	0.007	ug/L	226	135	0.004	51.920	51.920
	Tl	205	0.007	ug/L	515	311	0.002	29.012	29.012
	Pb	208	0.010	ug/L	613	225	0.001	8.273	8.273
	Bi	209	0.030	ug/L	1328	323	0.005	15.337	15.337
	U	238	0.005	ug/L	235	30	0.002	33.838	33.838
>	Tm	169		ug/L	750901	755304			2.174
	Tb	159		ug/L	772794	764824			168.424
	Kr	83		mg/L	441	464			151.482
	Y	89		ug/L	801939	775852			14.454
	In	115		ug/L	648750	630854			57.125
	Ho	165		mg/L	742133	739682			238.358
	Ar2	76		mg/L	173160	165950			3.947

Sample ID: ICV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:38:36
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1275.034	ug/L	1058370	77736	8.656	0.679	0.679
	Mg	26	238.928	ug/L	385293	1539	5.025	2.103	2.103
	Cl	35	-0.067	mg/L	77181	82326	0.007	11.092	11.092
	Na	23	1204.923	ug/L	21214968	18451	30.731	2.550	2.550
	K	39	1201.980	ug/L	29471982	1641825	9.895	0.823	0.823
>	Sc	45		ug/L	433664	436752			1.186
>	Li	6		ug/L	130510	131597			0.825
	Li	7		ug/L	9039	9235			172.507
	Be	9	47.764	ug/L	50544	85	0.320	0.669	0.669
	B	10	49.196	ug/L	15023	388	0.427	0.869	0.869
	B	11	49.528	ug/L	70872	1527	1.113	2.248	2.248
	Al	27	100.188	ug/L	1624957	31398	2.030	2.027	2.027
	Ti	49	49.052	ug/L	77262	-23	0.498	1.014	1.014
	V	51	48.501	ug/L	1299611	5814	0.835	1.721	1.721
	Cr	53	49.038	ug/L	135187	316	0.230	0.468	0.468
	Cr	52	48.284	ug/L	1135774	13073	1.141	2.363	2.363
	Fe	56	256.804	ug/L	12932843	5398652	5.990	2.332	2.332
	Fe	57	254.067	ug/L	196669	18823	5.259	2.070	2.070
	Fe	54	255.340	ug/L	426746	-29358	2.453	0.961	0.961
	Mn	55	49.482	ug/L	1800269	895	0.235	0.476	0.476
	Co	59	49.214	ug/L	1331242	219	0.611	1.241	1.241
	Ni	62	49.442	ug/L	43400	198	0.672	1.360	1.360
	Ni	60	49.760	ug/L	290193	177	1.027	2.064	2.064
	Cu	63	50.177	ug/L	684733	477	0.336	0.669	0.669
	Cu	65	50.103	ug/L	330157	407	0.881	1.759	1.759
>	Sc-1	45		ug/L	433664	436752			1.186
	P	31	96.242	ug/L	95862	-2051	2.234	2.322	2.322
	Zn	68	101.653	ug/L	276703	955	1.213	1.193	1.193
	Zn	66	102.634	ug/L	397494	2537	2.017	1.965	1.965
	As	75	48.749	ug/L	218086	148	1.192	2.445	2.445
	Se	77	49.871	ug/L	17253	287	1.203	2.412	2.412
	Se	78	49.696	ug/L	76088	21083	0.887	1.784	1.784
	Se	82	48.865	ug/L	22645	457	1.718	3.517	3.517
	Br	79	-0.008	mg/L	24247	30600	0.000	5.224	5.224
>	Ge	72		ug/L	198996	194952			2.020
>	Rh	103		ug/L	595637	590206			0.490
	Sr	88	49.847	ug/L	2457971	2600	0.167	0.335	0.335
	Mo	97	24.179	ug/L	109931	155	0.038	0.159	0.159
	Mo	98	24.239	ug/L	280192	137	0.145	0.599	0.599
	Ag	107	24.360	ug/L	456028	228	0.316	1.296	1.296
	Ag	109	24.376	ug/L	429603	213	0.202	0.827	0.827
	Cd	111	24.508	ug/L	107002	533	0.361	1.474	1.474
	Cd	114	24.701	ug/L	234690	61	0.171	0.691	0.691
	Sn	118	24.551	ug/L	277092	142	0.050	0.203	0.203
	Sn	120	24.273	ug/L	376356	203	0.091	0.375	0.375
	Sb	121	9.624	ug/L	127710	58	0.080	0.829	0.829
	Sb	123	9.599	ug/L	95995	30	0.051	0.528	0.528
	Ba	135	49.388	ug/L	159870	69	0.427	0.864	0.864
	Ba	137	49.562	ug/L	279812	93	0.511	1.030	1.030
	Tl	203	46.948	ug/L	611079	135	0.809	1.724	1.724
	Tl	205	47.193	ug/L	1448842	311	0.915	1.939	1.939
	Pb	208	48.655	ug/L	1971394	225	0.723	1.486	1.486
	Bi	209	48.368	ug/L	1615416	323	1.393	2.880	2.880
	U	238	48.090	ug/L	1892329	30	0.633	1.315	1.315
>	Tm	169		ug/L	752992	755304			0.405
	Tb	159		ug/L	772045	764824			215.728
	Kr	83		mg/L	578	464			12.651
	Y	89		ug/L	796435	775852			24.949
	In	115		ug/L	648363	630854			51.107
	Ho	165		mg/L	753477	739682			91.284
	Ar2	76		mg/L	190873	165950			6.896

Sample ID: LLQC

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:46:38
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	27.999	ug/L	98691	77736	0.972	3.470	3.470
	Mg	26	4.634	ug/L	8968	1539	0.272	5.861	5.861
	Cl	35	-0.065	mg/L	77308	82326	0.011	17.385	17.385
	Na	23	17.602	ug/L	327839	18451	0.197	1.118	1.118
	K	39	21.600	ug/L	2129585	1641825	0.599	2.774	2.774
>	Sc	45		ug/L	433470	436752			0.387
>	Li	6		ug/L	131729	131597			0.077
	Li	7		ug/L	9231	9235			1345.831
	Be	9	0.077	ug/L	167	85	0.011	14.661	14.661
	B	10	3.966	ug/L	1580	388	3.093	77.967	77.967
	B	11	2.201	ug/L	4639	1527	0.119	5.420	5.420
	Al	27	2.318	ug/L	68045	31398	0.525	22.652	22.652
	Ti	49	0.242	ug/L	359	-23	0.016	6.460	6.460
	V	51	0.099	ug/L	8407	5814	0.005	4.738	4.738
	Cr	53	0.195	ug/L	851	316	0.013	6.416	6.416
	Cr	52	0.212	ug/L	17895	13073	0.006	2.995	2.995
	Fe	56	24.492	ug/L	6080054	5398652	0.765	3.125	3.125
	Fe	57	19.320	ug/L	32211	18823	0.230	1.188	1.188
	Fe	54	20.590	ug/L	7606	-29358	0.412	2.003	2.003
	Mn	55	0.198	ug/L	8073	895	0.002	1.211	1.211
	Co	59	0.047	ug/L	1482	219	0.002	5.286	5.286
	Ni	62	0.214	ug/L	383	198	0.017	7.819	7.819
	Ni	60	0.202	ug/L	1354	177	0.002	0.934	0.934
	Cu	63	0.204	ug/L	3253	477	0.005	2.395	2.395
	Cu	65	0.203	ug/L	1740	407	0.008	3.750	3.750
>	Sc-1	45		ug/L	433470	436752			0.387
	P	31	53.518	ug/L	52389	-2051	0.238	0.444	0.444
	Zn	68	3.176	ug/L	9514	955	0.059	1.858	1.858
	Zn	66	3.154	ug/L	14612	2537	0.054	1.698	1.698
	As	75	0.289	ug/L	1431	148	0.011	3.794	3.794
	Se	77	0.953	ug/L	612	287	0.073	7.686	7.686
	Se	78	1.638	ug/L	23125	21083	0.709	43.280	43.280
	Se	82	0.998	ug/L	912	457	0.080	8.053	8.053
	Br	79	-0.008	mg/L	24264	30600	0.001	11.076	11.076
>	Ge	72		ug/L	197416	194952			1.924
>	Rh	103		ug/L	606476	590206			0.297
	Sr	88	0.035	ug/L	4420	2600	0.011	32.782	32.782
	Mo	97	0.211	ug/L	1135	155	0.025	11.697	11.697
	Mo	98	0.218	ug/L	2702	137	0.019	8.801	8.801
	Ag	107	0.114	ug/L	2410	228	0.010	8.811	8.811
	Ag	109	0.113	ug/L	2253	213	0.007	6.149	6.149
	Cd	111	0.042	ug/L	735	533	0.006	13.225	13.225
	Cd	114	0.040	ug/L	448	61	0.001	2.972	2.972
	Sn	118	0.155	ug/L	1929	142	0.026	16.512	16.512
	Sn	120	0.154	ug/L	2638	203	0.027	17.614	17.614
	Sb	121	0.110	ug/L	1547	58	0.036	32.673	32.673
	Sb	123	0.113	ug/L	1179	30	0.030	26.921	26.921
	Ba	135	0.104	ug/L	414	69	0.008	7.653	7.653
	Ba	137	0.096	ug/L	647	93	0.003	3.575	3.575
	Tl	203	0.046	ug/L	745	135	0.010	20.726	20.726
	Tl	205	0.048	ug/L	1793	311	0.008	16.433	16.433
	Pb	208	0.102	ug/L	4399	225	0.005	4.559	4.559
	Bi	209	0.400	ug/L	13804	323	0.186	46.398	46.398
	U	238	0.025	ug/L	1027	30	0.005	18.743	18.743
>	Tm	169		ug/L	760746	755304			1.584
	Tb	159		ug/L	769601	764824			316.018
	Kr	83		mg/L	452	464			284.311
	Y	89		ug/L	798636	775852			21.656
	In	115		ug/L	646606	630854			39.274
	Ho	165		mg/L	753312	739682			93.237
	Ar2	76		mg/L	172513	165950			6.702

Sample ID: CAL 2 CHK

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:51:39
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
⌈	Ca	44	1295.927	ug/L	1069375	77736	21.500	1.659	1.659
|	Mg	26	247.253	ug/L	396801	1539	2.114	0.855	0.855
|	Cl	35	-0.093	mg/L	75056	82326	0.022	23.241	23.241
|	Na	23	1211.993	ug/L	21239907	18451	11.590	0.956	0.956
|	K	39	1204.554	ug/L	29387074	1641825	30.821	2.559	2.559
⌊>	Sc	45		ug/L	431595	436752			0.730
⌈>	Li	6		ug/L	128398	131597			0.660
|	Li	7		ug/L	8921	9235			106.659
|	Be	9	49.248	ug/L	51269	85	0.160	0.325	0.325
|	B	10	50.748	ug/L	15236	388	1.483	2.922	2.922
⌊	B	11	49.769	ug/L	70056	1527	0.520	1.044	1.044
⌈	Al	27	98.909	ug/L	1597044	31398	1.102	1.114	1.114
|	Ti	49	49.871	ug/L	78177	-23	0.591	1.184	1.184
|	V	51	49.000	ug/L	1306721	5814	1.442	2.942	2.942
|	Cr	53	49.807	ug/L	136652	316	0.114	0.229	0.229
|	Cr	52	49.640	ug/L	1161878	13073	0.911	1.836	1.836
|	Fe	56	258.186	ug/L	12913254	5398652	4.517	1.750	1.750
|	Fe	57	255.009	ug/L	196409	18823	2.609	1.023	1.023
|	Fe	54	257.390	ug/L	428312	-29358	2.263	0.879	0.879
|	Mn	55	49.992	ug/L	1810171	895	0.372	0.744	0.744
|	Co	59	49.140	ug/L	1322858	219	1.092	2.222	2.222
|	Ni	62	49.050	ug/L	42851	198	1.609	3.281	3.281
|	Ni	60	49.312	ug/L	286226	177	0.570	1.155	1.155
|	Cu	63	49.098	ug/L	666794	477	1.045	2.129	2.129
|	Cu	65	48.740	ug/L	319684	407	0.526	1.080	1.080
|>	Sc-1	45		ug/L	431595	436752			0.730
⌊	P	31	97.399	ug/L	96589	-2051	1.659	1.703	1.703
⌈	Zn	68	103.252	ug/L	277938	955	0.163	0.158	0.158
|	Zn	66	102.744	ug/L	393505	2537	2.550	2.482	2.482
|	As	75	49.603	ug/L	219484	148	0.182	0.367	0.367
|	Se	77	49.782	ug/L	17033	287	1.392	2.796	2.796
|	Se	78	50.000	ug/L	75572	21083	0.850	1.700	1.700
|	Se	82	48.805	ug/L	22374	457	0.456	0.935	0.935
|	Br	79	-0.015	mg/L	18200	30600	0.001	6.102	6.102
⌊>	Ge	72		ug/L	196766	194952			0.951
⌈>	Rh	103		ug/L	590177	590206			0.437
|	Sr	88	50.142	ug/L	2449820	2600	0.165	0.330	0.330
|	Mo	97	24.801	ug/L	111720	155	0.266	1.074	1.074
|	Mo	98	24.864	ug/L	284790	137	0.281	1.130	1.130
|	Ag	107	24.798	ug/L	459954	228	0.187	0.755	0.755
|	Ag	109	24.666	ug/L	430709	213	0.283	1.148	1.148
|	Cd	111	24.431	ug/L	105687	533	0.042	0.174	0.174
|	Cd	114	24.713	ug/L	232655	61	0.024	0.099	0.099
|	Sn	118	24.794	ug/L	277260	142	0.185	0.744	0.744
|	Sn	120	24.472	ug/L	375969	203	0.051	0.210	0.210
|	Sb	121	9.888	ug/L	129996	58	0.128	1.295	1.295
|	Sb	123	9.930	ug/L	98392	30	0.208	2.096	2.096
|	Ba	135	49.848	ug/L	159878	69	0.445	0.894	0.894
⌊	Ba	137	49.801	ug/L	278572	93	0.565	1.134	1.134
⌈	Tl	203	48.062	ug/L	615548	135	0.704	1.464	1.464
|	Tl	205	48.917	ug/L	1477269	311	1.248	2.551	2.551
|	Pb	208	50.155	ug/L	1998730	225	1.552	3.094	3.094
|	Bi	209	49.391	ug/L	1622626	323	1.776	3.595	3.595
|	U	238	48.959	ug/L	1895225	30	1.300	2.656	2.656
⌊>	Tm	169		ug/L	740809	755304			1.172
	Tb	159		ug/L	761672	764824			219.361
	Kr	83		mg/L	540	464			82.843
	Y	89		ug/L	779573	775852			117.437
	In	115		ug/L	640703	630854			35.029
	Ho	165		mg/L	733109	739682			342.992
	Ar2	76		mg/L	191099	165950			4.081

Sample ID: SPEX

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 11:59:40
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	406.928	ug/L	396868	77736	6.043	1.485	1.485
	Mg	26	386.710	ug/L	633208	1539	2.718	0.703	0.703
	Cl	35	-0.120	mg/L	74841	82326	0.034	28.261	28.261
	Na	23	393.191	ug/L	7051230	18451	7.105	1.807	1.807
	K	39	383.651	ug/L	10693297	1641825	2.424	0.632	0.632
>	Sc	45		ug/L	440962	436752			1.493
>	Li	6		ug/L	131470	131597			0.588
	Li	7		ug/L	9240	9235			1998.246
	Be	9	19.051	ug/L	20359	85	0.299	1.569	1.569
	B	10	0.430	ug/L	517	388	0.186	43.321	43.321
	B	11	0.392	ug/L	2078	1527	0.124	31.596	31.596
	Al	27	19.629	ug/L	349205	31398	0.300	1.526	1.526
	Ti	49	19.895	ug/L	31848	-23	0.203	1.022	1.022
	V	51	19.602	ug/L	537598	5814	0.237	1.208	1.208
	Cr	53	19.918	ug/L	56012	316	0.569	2.856	2.856
	Cr	52	19.762	ug/L	480473	13073	0.372	1.880	1.880
	Fe	56	398.635	ug/L	17403329	5398652	6.385	1.602	1.602
	Fe	57	404.412	ug/L	307086	18823	6.114	1.512	1.512
	Fe	54	404.620	ug/L	704730	-29358	9.768	2.414	2.414
	Mn	55	19.599	ug/L	725542	895	0.244	1.247	1.247
	Co	59	19.674	ug/L	541263	219	0.224	1.140	1.140
	Ni	62	19.461	ug/L	17492	198	0.179	0.921	0.921
	Ni	60	19.628	ug/L	116497	177	0.342	1.744	1.744
	Cu	63	19.563	ug/L	271690	477	0.525	2.682	2.682
	Cu	65	19.834	ug/L	133141	407	0.326	1.642	1.642
>	Sc-1	45		ug/L	440962	436752			1.493
	P	31	-1.390	ug/L	-3499	-2051	1.418	102.034	102.034
	Zn	68	20.821	ug/L	57507	955	0.171	0.819	0.819
	Zn	66	20.482	ug/L	81483	2537	0.396	1.933	1.933
	As	75	19.401	ug/L	86985	148	0.205	1.059	1.059
	Se	77	19.543	ug/L	6946	287	0.301	1.542	1.542
	Se	78	20.115	ug/L	43644	21083	0.464	2.305	2.305
	Se	82	19.375	ug/L	9271	457	0.476	2.457	2.457
	Br	79	-0.016	mg/L	17984	30600	0.000	1.959	1.959
>	Ge	72		ug/L	199156	194952			1.149
>	Rh	103		ug/L	594957	590206			1.417
	Sr	88	20.156	ug/L	994238	2600	0.195	0.969	0.969
	Mo	97	39.769	ug/L	180491	155	0.345	0.866	0.866
	Mo	98	40.410	ug/L	466475	137	0.244	0.603	0.603
	Ag	107	19.930	ug/L	372655	228	0.242	1.213	1.213
	Ag	109	19.943	ug/L	351004	213	0.668	3.350	3.350
	Cd	111	19.637	ug/L	85717	533	0.551	2.806	2.806
	Cd	114	19.735	ug/L	187268	61	0.434	2.199	2.199
	Sn	118	20.347	ug/L	229373	142	0.310	1.521	1.521
	Sn	120	19.886	ug/L	307948	203	0.440	2.215	2.215
	Sb	121	19.996	ug/L	264910	58	0.488	2.442	2.442
	Sb	123	20.153	ug/L	201241	30	0.461	2.287	2.287
	Ba	135	20.328	ug/L	65749	69	0.697	3.430	3.430
	Ba	137	20.039	ug/L	113036	93	0.426	2.124	2.124
	Tl	203	19.556	ug/L	256404	135	0.457	2.336	2.336
	Tl	205	19.546	ug/L	604454	311	0.105	0.539	0.539
	Pb	208	19.666	ug/L	802494	225	0.096	0.488	0.488
	Bi	209	0.301	ug/L	10393	323	0.192	63.858	63.858
	U	238	20.158	ug/L	798723	30	0.171	0.849	0.849
>	Tm	169		ug/L	758257	755304			1.267
	Tb	159		ug/L	771521	764824			41.275
	Kr	83		mg/L	497	464			94.122
	Y	89		ug/L	796852	775852			29.348
	In	115		ug/L	648734	630854			34.192
	Ho	165		mg/L	747360	739682			117.150
	Ar2	76		mg/L	180539	165950			2.905

Sample ID: ICSA

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 12:05:42
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	24480.231	ug/L	17552007	77736	83.292	0.340	0.340
	Mg	26	24492.118	ug/L	36502036	1539	570.317	2.329	2.329
	Cl	35	194.509	mg/L	12305486	82326	5.118	2.631	2.631
	Na	23	23940.049	ug/L	390824911	18451	111.245	0.465	0.465
	K	39	S	ug/L	S	1641825	S	S	S
>	Sc	45		ug/L	402398	436752			1.531
>	Li	6		ug/L	120653	131597			1.845
	Li	7		ug/L	8648	9235			74.916
	Be	9	0.016	ug/L	93	85	0.003	19.464	19.464
	B	10	0.334	ug/L	447	388	0.177	52.851	52.851
	B	11	0.216	ug/L	1678	1527	0.087	40.542	40.542
	Al	27	25007.915	ug/L	369123824	31398	587.019	2.347	2.347
	Ti	49	511.856	ug/L	748283	-23	5.156	1.007	1.007
	V	51	0.057	ug/L	6769	5814	0.021	35.861	35.861
	Cr	53	-0.395	ug/L	-721	316	0.231	58.449	58.449
	Cr	52	0.316	ug/L	18872	13073	0.007	2.054	2.054
	Fe	56	25370.145	ug/L	699189947	5398652	288.589	1.138	1.138
	Fe	57	25288.457	ug/L	16455243	18823	393.598	1.556	1.556
	Fe	54	25692.571	ug/L	42528933	-29358	470.031	1.829	1.829
	Mn	55	0.322	ug/L	11686	895	0.027	8.393	8.393
	Co	59	0.393	ug/L	10075	219	0.002	0.423	0.423
	Ni	62	-0.067	ug/L	127	198	0.174	260.359	260.359
	Ni	60	0.339	ug/L	1994	177	0.042	12.517	12.517
	Cu	63	0.361	ug/L	5000	477	0.040	11.145	11.145
	Cu	65	-0.039	ug/L	135	407	0.025	62.706	62.706
>	Sc-1	45		ug/L	402398	436752			1.531
	P	31	24344.371	ug/L	22975576	-2051	496.792	2.041	2.041
	Zn	68	0.566	ug/L	2516	955	0.048	8.458	8.458
	Zn	66	0.216	ug/L	3429	2537	0.063	29.100	29.100
	As	75	-0.109	ug/L	-339	148	0.029	26.740	26.740
	Se	77	-0.776	ug/L	29	287	0.181	23.276	23.276
	Se	78	0.787	ug/L	22427	21083	0.320	40.664	40.664
	Se	82	0.192	ug/L	555	457	0.038	19.946	19.946
	Br	79	-0.002	mg/L	29562	30600	0.001	30.131	30.131
>	Ge	72		ug/L	199381	194952			0.863
>	Rh	103		ug/L	559380	590206			0.572
	Sr	88	0.236	ug/L	13400	2600	0.012	5.060	5.060
	Mo	97	520.936	ug/L	2221183	155	6.127	1.176	1.176
	Mo	98	518.817	ug/L	5629654	137	3.175	0.612	0.612
	Ag	107	0.072	ug/L	1484	228	0.016	22.794	22.794
	Ag	109	0.075	ug/L	1444	213	0.015	20.309	20.309
	Cd	111	0.110	ug/L	954	533	0.019	17.476	17.476
	Cd	114	0.572	ug/L	5156	61	0.009	1.653	1.653
	Sn	118	0.037	ug/L	528	142	0.007	18.868	18.868
	Sn	120	0.035	ug/L	695	203	0.012	34.076	34.076
	Sb	121	0.050	ug/L	679	58	0.003	5.821	5.821
	Sb	123	0.048	ug/L	475	30	0.006	12.128	12.128
	Ba	135	0.136	ug/L	479	69	0.002	1.478	1.478
	Ba	137	0.133	ug/L	795	93	0.004	2.659	2.659
	Tl	203	0.014	ug/L	296	135	0.001	7.080	7.080
	Tl	205	0.010	ug/L	583	311	0.003	26.263	26.263
	Pb	208	0.127	ug/L	5041	225	0.004	2.809	2.809
	Bi	209	0.059	ug/L	2166	323	0.010	16.326	16.326
	U	238	0.005	ug/L	196	30	0.002	36.597	36.597
>	Tm	169		ug/L	709128	755304			1.156
	Tb	159		ug/L	733201	764824			30.787
	Kr	83		mg/L	628	464			14.986
	Y	89		ug/L	763108	775852			15.069
	In	115		ug/L	622225	630854			56.923
	Ho	165		mg/L	699979	739682			11.551
	Ar2	76		mg/L	169498	165950			9.302

Sample ID: ICSAB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 12:13:42
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	24476.067	ug/L	17784584	77736	196.522	0.803	0.803
	Mg	26	24097.548	ug/L	36396843	1539	393.063	1.631	1.631
	Cl	35	194.904	mg/L	12495387	82326	5.169	2.652	2.652
	Na	23	23555.209	ug/L	389676108	18451	163.870	0.696	0.696
	K	39	S	ug/L	S	1641825	S	S	S
>	Sc	45		ug/L	407761	436752			1.189
>	Li	6		ug/L	119983	131597			0.334
	Li	7		ug/L	8684	9235			38.886
	Be	9	0.024	ug/L	100	85	0.020	83.182	83.182
	B	10	1.363	ug/L	726	388	1.289	94.640	94.640
	B	11	0.609	ug/L	2176	1527	0.086	14.178	14.178
	Al	27	24959.099	ug/L	373371474	31398	341.477	1.368	1.368
	Ti	49	507.010	ug/L	751042	-23	5.923	1.168	1.168
	V	51	10.013	ug/L	256583	5814	0.233	2.331	2.331
	Cr	53	9.843	ug/L	25744	316	0.272	2.760	2.760
	Cr	52	10.187	ug/L	234931	13073	0.232	2.282	2.282
	Fe	56	24946.211	ug/L	696718134	5398652	493.768	1.979	1.979
	Fe	57	25126.247	ug/L	16568483	18823	604.081	2.404	2.404
	Fe	54	25231.160	ug/L	42324844	-29358	322.923	1.280	1.280
	Mn	55	10.148	ug/L	347837	895	0.202	1.989	1.989
	Co	59	10.087	ug/L	256659	219	0.426	4.219	4.219
	Ni	62	9.576	ug/L	8053	198	0.134	1.402	1.402
	Ni	60	9.722	ug/L	53443	177	0.201	2.069	2.069
	Cu	63	9.627	ug/L	123888	477	0.146	1.515	1.515
	Cu	65	9.209	ug/L	57371	407	0.209	2.274	2.274
>	Sc-1	45		ug/L	407761	436752			1.189
	P	31	23989.647	ug/L	22946067	-2051	165.277	0.689	0.689
	Zn	68	9.850	ug/L	27718	955	0.263	2.672	2.672
	Zn	66	9.439	ug/L	38946	2537	0.132	1.404	1.404
	As	75	9.512	ug/L	42721	148	0.055	0.579	0.579
	Se	77	9.266	ug/L	3448	287	0.235	2.531	2.531
	Se	78	10.560	ug/L	33143	21083	0.192	1.816	1.816
	Se	82	9.571	ug/L	4816	457	0.090	0.939	0.939
	Br	79	0.000	mg/L	31541	30600	0.001	266.147	266.147
>	Ge	72		ug/L	199155	194952			0.760
>	Rh	103		ug/L	561661	590206			0.910
	Sr	88	0.249	ug/L	14022	2600	0.008	3.407	3.407
	Mo	97	509.342	ug/L	2180543	155	6.218	1.221	1.221
	Mo	98	515.335	ug/L	5614846	137	4.279	0.830	0.830
	Ag	107	9.481	ug/L	167499	228	0.109	1.145	1.145
	Ag	109	9.455	ug/L	157249	213	0.042	0.449	0.449
	Cd	111	5.088	ug/L	21348	533	0.110	2.152	2.152
	Cd	114	5.608	ug/L	50286	61	0.119	2.127	2.127
	Sn	118	0.024	ug/L	396	142	0.002	7.126	7.126
	Sn	120	0.020	ug/L	486	203	0.001	5.561	5.561
	Sb	121	0.058	ug/L	781	58	0.005	7.941	7.941
	Sb	123	0.057	ug/L	568	30	0.004	6.466	6.466
	Ba	135	0.128	ug/L	455	69	0.004	2.752	2.752
	Ba	137	0.117	ug/L	711	93	0.003	2.146	2.146
	Tl	203	0.015	ug/L	307	135	0.001	4.442	4.442
	Tl	205	0.013	ug/L	658	311	0.002	13.989	13.989
	Pb	208	0.038	ug/L	1625	225	0.001	3.202	3.202
	Bi	209	0.043	ug/L	1643	323	0.006	14.408	14.408
	U	238	0.004	ug/L	169	30	0.001	34.857	34.857
>	Tm	169		ug/L	698488	755304			1.043
	Tb	159		ug/L	724902	764824			11.423
	Kr	83		mg/L	577	464			8.340
	Y	89		ug/L	763680	775852			37.132
	In	115		ug/L	629744	630854			564.078
	Ho	165		mg/L	703228	739682			29.599
	Ar2	76		mg/L	174721	165950			5.301

Sample ID: RINSE

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 12:21:41

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	9.287	ug/L	84893	77736	1.805	19.439	19.439
	Mg	26	2.226	ug/L	5140	1539	0.849	38.141	38.141
	Cl	35	1.362	mg/L	175270	82326	0.220	16.171	16.171
	Na	23	2.724	ug/L	66698	18451	1.010	37.073	37.073
	K	39	7.715	ug/L	1820926	1641825	1.910	24.756	24.756
>	Sc	45		ug/L	436588	436752			0.993
>	Li	6		ug/L	124685	131597			1.469
	Li	7		ug/L	8684	9235			151.777
	Be	9	-0.003	ug/L	77	85	0.009	265.169	265.169
	B	10	0.313	ug/L	457	388	0.122	38.910	38.910
	B	11	0.333	ug/L	1893	1527	0.094	28.143	28.143
	Al	27	2.749	ug/L	75412	31398	0.885	32.199	32.199
	Ti	49	0.119	ug/L	167	-23	0.086	72.376	72.376
	V	51	0.009	ug/L	6064	5814	0.006	63.562	63.562
	Cr	53	0.165	ug/L	773	316	0.027	16.328	16.328
	Cr	52	0.040	ug/L	13997	13073	0.009	22.693	22.693
	Fe	56	13.258	ug/L	5789570	5398652	3.562	26.870	26.870
	Fe	57	11.847	ug/L	27173	18823	0.877	7.402	7.402
	Fe	54	6.079	ug/L	-18418	-29358	0.990	16.287	16.287
	Mn	55	0.002	ug/L	965	895	0.002	91.181	91.181
	Co	59	0.003	ug/L	293	219	0.001	40.012	40.012
	Ni	62	0.033	ug/L	227	198	0.005	15.868	15.868
	Ni	60	0.006	ug/L	215	177	0.004	69.433	69.433
	Cu	63	0.027	ug/L	854	477	0.002	7.007	7.007
	Cu	65	0.010	ug/L	472	407	0.007	73.511	73.511
>	Sc-1	45		ug/L	436588	436752			0.993
	P	31	1.173	ug/L	-847	-2051	0.592	50.484	50.484
	Zn	68	0.112	ug/L	1283	955	0.029	26.289	26.289
	Zn	66	0.123	ug/L	3073	2537	0.003	2.703	2.703
	As	75	0.014	ug/L	214	148	0.006	43.626	43.626
	Se	77	0.052	ug/L	312	287	0.091	173.499	173.499
	Se	78	1.443	ug/L	23187	21083	0.219	15.179	15.179
	Se	82	0.060	ug/L	495	457	0.039	65.693	65.693
	Br	79	-0.014	mg/L	19390	30600	0.000	2.429	2.429
>	Ge	72		ug/L	199718	194952			1.473
>	Rh	103		ug/L	617722	590206			1.592
	Sr	88	0.015	ug/L	3483	2600	0.007	44.533	44.533
	Mo	97	0.381	ug/L	1961	155	0.147	38.438	38.438
	Mo	98	0.389	ug/L	4809	137	0.140	36.107	36.107
	Ag	107	0.080	ug/L	1802	228	0.047	58.490	58.490
	Ag	109	0.077	ug/L	1640	213	0.044	57.029	57.029
	Cd	111	0.012	ug/L	613	533	0.006	50.356	50.356
	Cd	114	0.002	ug/L	83	61	0.002	79.493	79.493
	Sn	118	0.013	ug/L	305	142	0.002	11.694	11.694
	Sn	120	0.012	ug/L	407	203	0.000	1.078	1.078
	Sb	121	0.006	ug/L	149	58	0.002	37.392	37.392
	Sb	123	0.007	ug/L	106	30	0.001	13.953	13.953
	Ba	135	0.004	ug/L	86	69	0.007	169.681	169.681
	Ba	137	0.002	ug/L	107	93	0.002	142.795	142.795
	Tl	203	0.002	ug/L	170	135	0.001	24.845	24.845
	Tl	205	0.001	ug/L	357	311	0.002	150.074	150.074
	Pb	208	0.002	ug/L	311	225	0.000	3.591	3.591
	Bi	209	0.010	ug/L	656	323	0.000	4.946	4.946
	U	238	0.001	ug/L	73	30	0.001	55.835	55.835
>	Tm	169		ug/L	769940	755304			2.753
	Tb	159		ug/L	791851	764824			26.094
	Kr	83		mg/L	442	464			173.443
	Y	89		ug/L	824967	775852			13.459
	In	115		ug/L	672514	630854			13.162
	Ho	165		mg/L	750503	739682			91.944
	Ar2	76		mg/L	178174	165950			7.752

Sample ID: RINSE

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 12:27:42
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	13.129	ug/L	88820	77736	1.857	14.144	14.144
	Mg	26	4.466	ug/L	8854	1539	0.495	11.093	11.093
	Cl	35	0.702	mg/L	131647	82326	0.075	10.746	10.746
	Na	23	3.572	ug/L	82593	18451	0.554	15.519	15.519
	K	39	6.526	ug/L	1812641	1641825	1.286	19.707	19.707
>	Sc	45		ug/L	441331	436752			1.432
>	Li	6		ug/L	127163	131597			0.838
	Li	7		ug/L	8761	9235			98.731
	Be	9	0.002	ug/L	84	85	0.008	506.094	506.094
	B	10	0.389	ug/L	488	388	0.036	9.180	9.180
	B	11	1.034	ug/L	2879	1527	0.918	88.825	88.825
	Al	27	5.662	ug/L	123393	31398	0.589	10.399	10.399
	Ti	49	0.112	ug/L	157	-23	0.022	19.827	19.827
	V	51	0.007	ug/L	6062	5814	0.010	141.437	141.437
	Cr	53	0.091	ug/L	574	316	0.007	7.246	7.246
	Cr	52	0.032	ug/L	13958	13073	0.023	70.937	70.937
	Fe	56	13.037	ug/L	5845301	5398652	5.377	41.242	41.242
	Fe	57	11.222	ug/L	27022	18823	0.857	7.633	7.633
	Fe	54	8.016	ug/L	-15096	-29358	0.802	10.011	10.011
	Mn	55	0.002	ug/L	967	895	0.001	59.876	59.876
	Co	59	0.003	ug/L	309	219	0.001	24.702	24.702
	Ni	62	0.034	ug/L	230	198	0.004	10.831	10.831
	Ni	60	0.011	ug/L	243	177	0.002	15.802	15.802
	Cu	63	0.027	ug/L	854	477	0.000	0.545	0.545
	Cu	65	0.007	ug/L	461	407	0.001	14.801	14.801
>	Sc-1	45		ug/L	441331	436752			1.432
	P	31	2.579	ug/L	597	-2051	0.276	10.710	10.710
	Zn	68	0.125	ug/L	1345	955	0.010	8.130	8.130
	Zn	66	0.143	ug/L	3215	2537	0.036	24.948	24.948
	As	75	0.011	ug/L	203	148	0.003	23.738	23.738
	Se	77	0.016	ug/L	305	287	0.063	395.872	395.872
	Se	78	1.142	ug/L	23302	21083	0.275	24.059	24.059
	Se	82	-0.031	ug/L	462	457	0.011	34.445	34.445
	Br	79	-0.015	mg/L	18535	30600	0.000	2.880	2.880
>	Ge	72		ug/L	203632	194952			1.367
>	Rh	103		ug/L	620963	590206			0.912
	Sr	88	0.029	ug/L	4248	2600	0.004	14.971	14.971
	Mo	97	0.248	ug/L	1338	155	0.045	18.286	18.286
	Mo	98	0.259	ug/L	3265	137	0.044	17.053	17.053
	Ag	107	0.025	ug/L	730	228	0.008	32.392	32.392
	Ag	109	0.025	ug/L	677	213	0.004	16.605	16.605
	Cd	111	0.009	ug/L	601	533	0.005	58.419	58.419
	Cd	114	0.002	ug/L	81	61	0.000	19.714	19.714
	Sn	118	0.017	ug/L	347	142	0.002	9.212	9.212
	Sn	120	0.016	ug/L	473	203	0.001	4.413	4.413
	Sb	121	0.007	ug/L	159	58	0.001	19.393	19.393
	Sb	123	0.007	ug/L	102	30	0.001	16.065	16.065
	Ba	135	0.006	ug/L	93	69	0.003	42.520	42.520
	Ba	137	0.003	ug/L	115	93	0.002	77.813	77.813
	Tl	203	0.004	ug/L	183	135	0.001	18.794	18.794
	Tl	205	0.000	ug/L	316	311	0.001	861.603	861.603
	Pb	208	0.003	ug/L	358	225	0.001	21.541	21.541
	Bi	209	0.011	ug/L	678	323	0.002	18.188	18.188
	U	238	0.002	ug/L	117	30	0.000	8.801	8.801
>	Tm	169		ug/L	758773	755304			0.409
	Tb	159		ug/L	785791	764824			49.329
	Kr	83		mg/L	467	464			562.932
	Y	89		ug/L	825865	775852			7.296
	In	115		ug/L	677949	630854			9.649
	Ho	165		mg/L	746367	739682			154.447
	Ar2	76		mg/L	178584	165950			9.805

Sample ID: CCV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 12:33:42

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1273.869	ug/L	1062027	77736	5.615	0.441	0.441
	Mg	26	244.888	ug/L	396565	1539	4.961	2.026	2.026
	Cl	35	0.599	mg/L	122908	82326	0.042	6.977	6.977
	Na	23	1194.005	ug/L	21113574	18451	9.849	0.825	0.825
	K	39	1193.646	ug/L	29401288	1641825	19.543	1.637	1.637
>	Sc	45		ug/L	435515	436752			0.733
>	Li	6		ug/L	126157	131597			0.778
	Li	7		ug/L	8668	9235			16.246
	Be	9	47.496	ug/L	48580	85	0.814	1.715	1.715
	B	10	47.490	ug/L	14031	388	0.491	1.033	1.033
	B	11	49.405	ug/L	68337	1527	0.393	0.795	0.795
	Al	27	104.208	ug/L	1696077	31398	2.967	2.847	2.847
	Ti	49	48.560	ug/L	76814	-23	0.159	0.328	0.328
	V	51	48.683	ug/L	1310204	5814	0.242	0.497	0.497
	Cr	53	48.291	ug/L	133702	316	0.598	1.238	1.238
	Cr	52	48.243	ug/L	1139826	13073	0.402	0.833	0.833
	Fe	56	255.191	ug/L	12940618	5398652	7.236	2.836	2.836
	Fe	57	254.557	ug/L	197863	18823	5.520	2.169	2.169
	Fe	54	257.078	ug/L	431617	-29358	4.436	1.725	1.725
	Mn	55	49.381	ug/L	1804247	895	0.759	1.538	1.538
	Co	59	48.480	ug/L	1317062	219	0.338	0.697	0.697
	Ni	62	48.717	ug/L	42954	198	0.488	1.002	1.002
	Ni	60	47.922	ug/L	280703	177	0.581	1.213	1.213
	Cu	63	49.419	ug/L	677350	477	0.942	1.906	1.906
	Cu	65	48.965	ug/L	324095	407	0.662	1.352	1.352
>	Sc-1	45		ug/L	435515	436752			0.733
	P	31	96.482	ug/L	96524	-2051	2.313	2.398	2.398
	Zn	68	100.092	ug/L	276342	955	1.637	1.636	1.636
	Zn	66	96.970	ug/L	381075	2537	1.965	2.027	2.027
	As	75	48.055	ug/L	218068	148	0.753	1.567	1.567
	Se	77	49.911	ug/L	17513	287	1.045	2.093	2.093
	Se	78	50.576	ug/L	78143	21083	1.458	2.884	2.884
	Se	82	48.548	ug/L	22830	457	0.470	0.968	0.968
	Br	79	-0.023	mg/L	12147	30600	0.000	1.496	1.496
>	Ge	72		ug/L	201817	194952			1.520
>	Rh	103		ug/L	613525	590206			1.485
	Sr	88	49.193	ug/L	2498166	2600	0.984	2.001	2.001
	Mo	97	24.284	ug/L	113709	155	0.468	1.926	1.926
	Mo	98	24.283	ug/L	289136	137	0.258	1.064	1.064
	Ag	107	24.153	ug/L	465684	228	0.210	0.868	0.868
	Ag	109	24.102	ug/L	437486	213	0.228	0.944	0.944
	Cd	111	24.283	ug/L	109191	533	0.268	1.103	1.103
	Cd	114	24.425	ug/L	238988	61	0.467	1.911	1.911
	Sn	118	24.448	ug/L	284165	142	0.488	1.996	1.996
	Sn	120	23.916	ug/L	381905	203	0.379	1.585	1.585
	Sb	121	9.480	ug/L	129558	58	0.124	1.306	1.306
	Sb	123	9.527	ug/L	98130	30	0.132	1.384	1.384
	Ba	135	49.280	ug/L	164276	69	1.116	2.265	2.265
	Ba	137	49.358	ug/L	286951	93	1.291	2.616	2.616
	Tl	203	45.372	ug/L	596614	135	0.910	2.005	2.005
	Tl	205	45.531	ug/L	1412024	311	1.932	4.244	4.244
	Pb	208	45.861	ug/L	1877212	225	1.184	2.581	2.581
	Bi	209	45.771	ug/L	1544197	323	1.308	2.857	2.857
	U	238	44.887	ug/L	1784253	30	1.029	2.293	2.293
>	Tm	169		ug/L	760720	755304			0.570
	Tb	159		ug/L	785638	764824			17.977
	Kr	83		mg/L	597	464			21.754
	Y	89		ug/L	820973	775852			23.341
	In	115		ug/L	672477	630854			15.846
	Ho	165		mg/L	747943	739682			145.914
	Ar2	76		mg/L	198777	165950			2.689

Sample ID: CCB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 12:56:39
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	6.269	ug/L	85546	77736	1.096	17.482	17.482
	Mg	26	-0.301	ug/L	1091	1539	0.130	43.092	43.092
	Cl	35	0.159	mg/L	96486	82326	0.031	19.830	19.830
	Na	23	0.655	ug/L	31131	18451	0.044	6.658	6.658
	K	39	2.473	ug/L	1760201	1641825	1.203	48.655	48.655
>	Sc	45		ug/L	452409	436752			1.605
>	Li	6		ug/L	129937	131597			1.057
	Li	7		ug/L	8982	9235			86.560
	Be	9	-0.008	ug/L	75	85	0.018	218.417	218.417
	B	10	0.202	ug/L	443	388	0.049	24.170	24.170
	B	11	0.184	ug/L	1764	1527	0.086	46.946	46.946
	Al	27	-0.047	ug/L	31766	31398	0.327	693.908	693.908
	Ti	49	0.010	ug/L	-8	-23	0.022	224.419	224.419
	V	51	0.007	ug/L	6211	5814	0.003	47.893	47.893
	Cr	53	0.014	ug/L	368	316	0.002	11.855	11.855
	Cr	52	0.028	ug/L	14207	13073	0.011	39.384	39.384
	Fe	56	5.642	ug/L	5765570	5398652	0.687	12.182	12.182
	Fe	57	1.706	ug/L	20741	18823	0.447	26.180	26.180
	Fe	54	3.635	ug/L	-23627	-29358	0.763	21.002	21.002
	Mn	55	-0.002	ug/L	843	895	0.001	63.832	63.832
	Co	59	-0.001	ug/L	211	219	0.000	32.689	32.689
	Ni	62	0.028	ug/L	231	198	0.018	62.836	62.836
	Ni	60	0.004	ug/L	206	177	0.001	16.835	16.835
	Cu	63	0.016	ug/L	722	477	0.002	9.726	9.726
	Cu	65	0.008	ug/L	475	407	0.004	46.966	46.966
>	Sc-1	45		ug/L	452409	436752			1.605
	P	31	-0.486	ug/L	-2650	-2051	1.192	245.419	245.419
	Zn	68	0.106	ug/L	1304	955	0.033	31.004	31.004
	Zn	66	0.117	ug/L	3141	2537	0.005	4.645	4.645
	As	75	0.002	ug/L	163	148	0.001	82.451	82.451
	Se	77	-0.008	ug/L	300	287	0.048	618.923	618.923
	Se	78	0.746	ug/L	23069	21083	0.037	4.972	4.972
	Se	82	-0.027	ug/L	469	457	0.007	24.881	24.881
	Br	79	-0.010	mg/L	23125	30600	0.000	2.400	2.400
>	Ge	72		ug/L	205487	194952			0.126
>	Rh	103		ug/L	629516	590206			0.280
	Sr	88	-0.013	ug/L	2071	2600	0.008	56.083	56.083
	Mo	97	0.015	ug/L	236	155	0.005	33.066	33.066
	Mo	98	0.014	ug/L	317	137	0.004	25.543	25.543
	Ag	107	0.001	ug/L	254	228	0.001	107.321	107.321
	Ag	109	0.001	ug/L	239	213	0.001	106.132	106.132
	Cd	111	0.007	ug/L	603	533	0.005	67.221	67.221
	Cd	114	-0.001	ug/L	57	61	0.001	119.315	119.315
	Sn	118	0.009	ug/L	261	142	0.001	6.953	6.953
	Sn	120	0.008	ug/L	341	203	0.001	16.443	16.443
	Sb	121	0.005	ug/L	135	58	0.002	36.106	36.106
	Sb	123	0.005	ug/L	89	30	0.001	19.518	19.518
	Ba	135	0.008	ug/L	101	69	0.006	78.876	78.876
	Ba	137	0.003	ug/L	115	93	0.002	70.466	70.466
	Tl	203	-0.000	ug/L	137	135	0.000	672.053	672.053
	Tl	205	-0.002	ug/L	249	311	0.001	32.597	32.597
	Pb	208	0.001	ug/L	263	225	0.000	61.809	61.809
	Bi	209	0.000	ug/L	344	323	0.001	184.889	184.889
	U	238	0.000	ug/L	37	30	0.000	302.976	302.976
>	Tm	169		ug/L	771788	755304			1.018
	Tb	159		ug/L	794288	764824			41.328
	Kr	83		mg/L	495	464			91.382
	Y	89		ug/L	846500	775852			3.804
	In	115		ug/L	681258	630854			1.634
	Ho	165		mg/L	764731	739682			69.305
	Ar2	76		mg/L	179815	165950			8.930

Sample ID: CCV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 16:18:02
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1224.820	ug/L	1010863	77736	7.558	0.617	0.617
	Mg	26	232.286	ug/L	371394	1539	2.511	1.081	1.081
	Cl	35	-0.077	mg/L	75876	82326	0.019	25.329	25.329
	Na	23	1181.155	ug/L	20616448	18451	5.066	0.429	0.429
	K	39	1177.911	ug/L	28661056	1641825	12.584	1.068	1.068
>	Sc	45		ug/L	429872	436752			0.215
>	Li	6		ug/L	135221	131597			0.816
	Li	7		ug/L	9510	9235			893.751
	Be	9	48.767	ug/L	53464	85	0.576	1.182	1.182
	B	10	55.811	ug/L	17602	388	1.738	3.113	3.113
	B	11	56.813	ug/L	83992	1527	0.889	1.565	1.565
	Al	27	93.531	ug/L	1505950	31398	0.310	0.331	0.331
	Ti	49	47.471	ug/L	74119	-23	0.229	0.482	0.482
	V	51	47.800	ug/L	1269864	5814	0.610	1.276	1.276
	Cr	53	47.997	ug/L	131170	316	0.102	0.213	0.213
	Cr	52	48.177	ug/L	1123574	13073	0.182	0.377	0.377
	Fe	56	231.301	ug/L	12075531	5398652	1.072	0.464	0.464
	Fe	57	242.497	ug/L	186941	18823	0.921	0.380	0.380
	Fe	54	247.568	ug/L	409227	-29358	3.211	1.297	1.297
	Mn	55	48.558	ug/L	1751242	895	0.436	0.898	0.898
	Co	59	47.799	ug/L	1281726	219	0.463	0.969	0.969
	Ni	62	46.901	ug/L	40822	198	0.695	1.482	1.482
	Ni	60	47.963	ug/L	277297	177	0.706	1.472	1.472
	Cu	63	47.795	ug/L	646580	477	0.191	0.399	0.399
	Cu	65	47.373	ug/L	309500	407	0.091	0.192	0.192
>	Sc-1	45		ug/L	429872	436752			0.215
	P	31	93.213	ug/L	91986	-2051	0.517	0.555	0.555
	Zn	68	102.071	ug/L	263725	955	0.351	0.344	0.344
	Zn	66	101.885	ug/L	374591	2537	1.194	1.171	1.171
	As	75	47.866	ug/L	203288	148	0.325	0.678	0.678
	Se	77	47.249	ug/L	15531	287	0.853	1.806	1.806
	Se	78	47.121	ug/L	69536	21083	0.713	1.513	1.513
	Se	82	47.311	ug/L	20832	457	0.534	1.128	1.128
	Br	79	-0.026	mg/L	8595	30600	0.000	1.740	1.740
>	Ge	72		ug/L	188861	194952			0.878
>	Rh	103		ug/L	565976	590206			0.417
	Sr	88	47.379	ug/L	2220002	2600	0.242	0.512	0.512
	Mo	97	23.698	ug/L	102381	155	0.155	0.655	0.655
	Mo	98	23.875	ug/L	262249	137	0.092	0.386	0.386
	Ag	107	23.917	ug/L	425428	228	0.344	1.439	1.439
	Ag	109	23.926	ug/L	400677	213	0.124	0.516	0.516
	Cd	111	24.095	ug/L	99963	533	0.222	0.920	0.920
	Cd	114	24.056	ug/L	217175	61	0.287	1.191	1.191
	Sn	118	23.672	ug/L	253877	142	0.112	0.472	0.472
	Sn	120	23.660	ug/L	348591	203	0.205	0.867	0.867
	Sb	121	9.331	ug/L	117648	58	0.030	0.322	0.322
	Sb	123	9.344	ug/L	88797	30	0.079	0.849	0.849
	Ba	135	47.980	ug/L	147577	69	0.828	1.726	1.726
	Ba	137	48.457	ug/L	259936	93	0.822	1.696	1.696
	Tl	203	48.074	ug/L	640086	135	1.021	2.125	2.125
	Tl	205	49.200	ug/L	1544911	311	1.676	3.406	3.406
	Pb	208	50.448	ug/L	2090727	225	1.078	2.137	2.137
	Bi	209	49.804	ug/L	1701617	323	0.277	0.557	0.557
	U	238	48.535	ug/L	1953605	30	0.920	1.896	1.896
>	Tm	169		ug/L	770375	755304			1.371
	Tb	159		ug/L	765687	764824			2291.176
	Kr	83		mg/L	505	464			20.475
	Y	89		ug/L	752696	775852			16.146
	In	115		ug/L	612582	630854			4.822
	Ho	165		mg/L	741874	739682			482.568
	Ar2	76		mg/L	175792	165950			13.201

Sample ID: CCB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 16:26:06
Method File: C:\elandata\Method\6020scan7cp.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	3.214	ug/L	79665	77736	0.957	29.781	29.781
	Mg	26	-0.155	ug/L	1279	1539	0.047	30.561	30.561
	Cl	35	-0.072	mg/L	76875	82326	0.024	33.838	33.838
	Na	23	0.152	ug/L	20989	18451	0.227	149.782	149.782
	K	39	3.082	ug/L	1701707	1641825	0.229	7.447	7.447
>	Sc	45		ug/L	433690	436752			0.265
>	Li	6		ug/L	135090	131597			0.632
	Li	7		ug/L	9442	9235			296.696
	Be	9	0.006	ug/L	93	85	0.007	127.745	127.745
	B	10	3.424	ug/L	1453	388	0.243	7.103	7.103
	B	11	3.531	ug/L	6687	1527	0.246	6.960	6.960
	Al	27	-1.477	ug/L	7680	31398	0.115	7.764	7.764
	Ti	49	0.002	ug/L	-19	-23	0.008	330.366	330.366
	V	51	-0.006	ug/L	5614	5814	0.003	44.216	44.216
	Cr	53	-0.007	ug/L	294	316	0.001	13.984	13.984
	Cr	52	-0.021	ug/L	12487	13073	0.004	17.621	17.621
	Fe	56	-8.353	ug/L	5114489	5398652	2.169	25.969	25.969
	Fe	57	-1.518	ug/L	17627	18823	0.524	34.498	34.498
	Fe	54	0.694	ug/L	-27913	-29358	0.209	30.131	30.131
	Mn	55	0.028	ug/L	1913	895	0.001	2.524	2.524
	Co	59	0.003	ug/L	289	219	0.001	23.586	23.586
	Ni	62	0.019	ug/L	213	198	0.026	137.884	137.884
	Ni	60	0.004	ug/L	200	177	0.007	159.282	159.282
	Cu	63	0.004	ug/L	525	477	0.002	55.298	55.298
	Cu	65	0.012	ug/L	482	407	0.003	28.038	28.038
>	Sc-I	45		ug/L	433690	436752			0.265
	P	31	-0.398	ug/L	-2443	-2051	0.461	115.619	115.619
	Zn	68	0.082	ug/L	1136	955	0.018	22.321	22.321
	Zn	66	0.099	ug/L	2819	2537	0.024	24.215	24.215
	As	75	0.000	ug/L	143	148	0.001	1104.299	1104.299
	Se	77	-0.046	ug/L	263	287	0.043	92.665	92.665
	Se	78	-0.446	ug/L	19960	21083	0.220	49.258	49.258
	Se	82	-0.109	ug/L	395	457	0.072	66.058	66.058
	Br	79	-0.014	mg/L	18397	30600	0.001	4.564	4.564
>	Ge	72		ug/L	188867	194952			0.165
>	Rh	103		ug/L	569663	590206			0.611
	Sr	88	-0.044	ug/L	444	2600	0.002	4.369	4.369
	Mo	97	0.006	ug/L	174	155	0.005	97.905	97.905
	Mo	98	0.006	ug/L	203	137	0.001	22.307	22.307
	Ag	107	0.003	ug/L	270	228	0.001	24.429	24.429
	Ag	109	0.003	ug/L	257	213	0.002	70.238	70.238
	Cd	111	-0.003	ug/L	501	533	0.004	122.192	122.192
	Cd	114	-0.000	ug/L	54	61	0.000	30.394	30.394
	Sn	118	0.021	ug/L	363	142	0.005	21.777	21.777
	Sn	120	0.018	ug/L	466	203	0.001	2.831	2.831
	Sb	121	0.018	ug/L	289	58	0.002	11.537	11.537
	Sb	123	0.019	ug/L	213	30	0.002	12.962	12.962
	Ba	135	0.007	ug/L	90	69	0.004	49.710	49.710
	Ba	137	0.007	ug/L	127	93	0.002	28.093	28.093
	Tl	203	0.003	ug/L	168	135	0.002	64.971	64.971
	Tl	205	0.001	ug/L	330	311	0.000	43.940	43.940
	Pb	208	0.002	ug/L	311	225	0.001	25.350	25.350
	Bi	209	0.014	ug/L	781	323	0.003	23.644	23.644
	U	238	0.002	ug/L	114	30	0.001	35.062	35.062
>	Tm	169		ug/L	742310	755304			0.615
	Tb	159		ug/L	759097	764824			80.014
	Kr	83		mg/L	385	464			43.245
	Y	89		ug/L	757351	775852			28.943
	In	115		ug/L	607873	630854			7.654
	Ho	165		mg/L	748093	739682			267.233
	Ar2	76		mg/L	158841	165950			6.005

Sample ID: BLANK X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 16:31:18
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description: TX150 WS2181853/55/64/59

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	8.652	ug/L		84382	77736	2.332	26.950	26.950
	Mg	26	0.229	ug/L		1908	1539	0.029	12.588	12.588
	Cl	35	2.857	mg/L		277156	82326	0.031	1.089	1.089
	Na	23	2.510	ug/L		62890	18451	0.146	5.835	5.835
	K	39	2.525	ug/L		1699680	1641825	0.365	14.464	14.464
>	Sc	45		ug/L		436496	436752			0.867
>	Li	6		ug/L		135454	131597			1.009
	Li	7		ug/L		9460	9235			292.543
	Be	9	-0.011	ug/L	0	76	85	0.003	27.612	27.612
	B	10	43.469	ug/L		13820	388	1.858	4.275	4.275
	B	11	44.881	ug/L		66800	1527	0.193	0.430	0.430
	Al	27	-0.693	ug/L		20279	31398	0.041	5.905	5.905
	Ti	49	0.063	ug/L		77	-23	0.011	16.783	16.783
	V	51	-0.008	ug/L		5588	5814	0.003	39.524	39.524
	Cr	53	0.018	ug/L		367	316	0.009	46.873	46.873
	Cr	52	0.023	ug/L		13609	13073	0.007	29.439	29.439
	Fe	56	-7.637	ug/L		5168456	5398652	1.963	25.701	25.701
	Fe	57	-0.932	ug/L		18153	18823	0.231	24.774	24.774
	Fe	54	-5.143	ug/L		-38576	-29358	0.593	11.531	11.531
	Mn	55	0.053	ug/L	0.0795	2816	895	0.007	12.568	12.568
	Co	59	0.001	ug/L		254	219	0.000	31.168	31.168
	Ni	62	0.065	ug/L		255	198	0.025	39.194	39.194
	Ni	60	0.068	ug/L		579	177	0.002	2.243	2.243
	Cu	63	0.026	ug/L		833	477	0.000	1.717	1.717
	Cu	65	0.035	ug/L		640	407	0.004	10.926	10.926
>	Sc-1	45		ug/L		436496	436752			0.867
	P	31	-0.529	ug/L		-2596	-2051	0.701	132.502	132.502
	Zn	68	0.260	ug/L		1591	955	0.015	5.768	5.768
	Zn	66	0.269	ug/L		3431	2537	0.022	8.202	8.202
	As	75	-0.004	ug/L		126	148	0.004	107.315	107.315
	Se	77	-0.057	ug/L		259	287	0.080	140.293	140.293
	Se	78	-0.517	ug/L		19835	21083	0.129	25.008	25.008
	Se	82	-0.119	ug/L		390	457	0.027	22.788	22.788
	Br	79	-0.015	mg/L		17305	30600	0.000	2.453	2.453
>	Ge	72		ug/L		188382	194952			0.588
>	Rh	103		ug/L		574946	590206			0.657
	Sr	88	-0.034	ug/L		892	2600	0.001	2.631	2.631
	Mo	97	0.004	ug/L		170	155	0.006	140.510	140.510
	Mo	98	0.006	ug/L		205	137	0.001	17.981	17.981
	Ag	107	0.001	ug/L		249	228	0.000	12.806	12.806
	Ag	109	-0.001	ug/L		194	213	0.001	142.937	142.937
	Cd	111	0.001	ug/L		526	533	0.006	403.677	403.677
	Cd	114	-0.001	ug/L	0	52	61	0.001	152.745	152.745
	Sn	118	0.178	ug/L		2079	142	0.003	1.730	1.730
	Sn	120	0.177	ug/L		2845	203	0.003	1.811	1.811
	Sb	121	0.010	ug/L		180	58	0.002	17.512	17.512
	Sb	123	0.011	ug/L		138	30	0.002	15.546	15.546
	Ba	135	0.016	ug/L		117	69	0.010	60.983	60.983
	Ba	137	0.015	ug/L		171	93	0.002	11.427	11.427
	Tl	203	0.003	ug/L		175	135	0.001	32.423	32.423
	Tl	205	0.002	ug/L		379	311	0.001	73.883	73.883
	Pb	208	0.020	ug/L	0.030	1075	225	0.001	6.701	6.701
	Bi	209	0.018	ug/L		969	323	0.003	14.126	14.126
	U	238	0.001	ug/L		52	30	0.000	66.352	66.352
>	Tm	169		ug/L		777656	755304			0.034
	Tb	159		ug/L		763741	764824			812.860
	Kr	83		mg/L		399	464			63.651
	Y	89		ug/L		760351	775852			40.069
	In	115		ug/L		622173	630854			71.080
	Ho	165		mg/L		758450	739682			80.483
	Ar2	78		mg/L		158672	165950			20.527

Sample ID: BLANKD X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 16:36:24
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description: TX150 WS2181853/55/64/59

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	5.539	ug/L	82310	77736	0.961	17.342	17.342
	Mg	26	-0.015	ug/L	1519	1539	0.061	394.438	394.438
	Cl	35	2.906	mg/L	281661	82326	0.019	0.658	0.658
	Na	23	2.293	ug/L	59271	18451	0.051	2.209	2.209
	K	39	1.924	ug/L	1692455	1641825	0.742	38.597	38.597
>	Sc	45		ug/L	438267	436752			0.865
>	Li	6		ug/L	135715	131597			0.599
	Li	7		ug/L	9441	9235			108.699
	Be	9	-0.002	ug/L	85	85	0.005	228.997	228.997
	B	10	43.831	ug/L	13962	388	0.297	0.677	0.677
	B	11	44.791	ug/L	66794	1527	0.771	1.720	1.720
	Al	27	-0.783	ug/L	18914	31398	0.024	3.046	3.046
	Ti	49	0.066	ug/L	82	-23	0.009	13.605	13.605
	V	51	-0.006	ug/L	5670	5814	0.011	176.152	176.152
	Cr	53	0.018	ug/L 0.027	367	316	0.009	52.068	52.068
	Cr	52	0.035	ug/L 0.0525	13953	13073	0.022	63.297	63.297
	Fe	56	-7.461	ug/L	5194837	5398652	1.364	18.279	18.279
	Fe	57	-1.371	ug/L	17917	18823	0.348	25.414	25.414
	Fe	54	-5.064	ug/L	-38594	-29358	0.233	4.592	4.592
	Mn	55	0.044	ug/L	2506	895	0.001	3.410	3.410
	Co	59	0.001	ug/L	242	219	0.001	110.043	110.043
	Ni	62	0.077	ug/L	267	198	0.031	40.406	40.406
	Ni	60	0.075	ug/L 0.1125	622	177	0.008	10.046	10.046
	Cu	63	0.025	ug/L	821	477	0.002	6.529	6.529
	Cu	65	0.032	ug/L	621	407	0.007	22.148	22.148
>	Sc-1	45		ug/L	438267	436752			0.865
	P	31	-0.734	ug/L	-2812	-2051	0.330	44.996	44.996
	Zn	68	0.198	ug/L	1433	955	0.002	0.861	0.861
	Zn	66	0.214	ug/L	3232	2537	0.033	15.542	15.542
	As	75	-0.007	ug/L	112	148	0.004	50.550	50.550
	Se	77	-0.127	ug/L	237	287	0.052	41.217	41.217
	Se	78	-0.553	ug/L	19814	21083	0.262	47.357	47.357
	Se	82	-0.059	ug/L	416	457	0.015	25.331	25.331
	Br	79	-0.015	mg/L	17244	30600	0.000	0.926	0.926
>	Ge	72		ug/L	188533	194952			0.047
>	Rh	103		ug/L	571264	590206			0.826
	Sr	88	-0.035	ug/L	883	2600	0.001	1.991	1.991
	Mo	97	0.001	ug/L	153	155	0.003	400.695	400.695
	Mo	98	0.006	ug/L	195	137	0.001	10.210	10.210
	Ag	107	-0.000	ug/L	213	228	0.002	445.686	445.686
	Ag	109	-0.002	ug/L	175	213	0.001	51.461	51.461
	Cd	111	-0.002	ug/L	508	533	0.006	275.224	275.224
	Cd	114	-0.001	ug/L 0	47	61	0.001	71.744	71.744
	Sn	118	0.179	ug/L	2069	142	0.005	2.773	2.773
	Sn	120	0.180	ug/L	2875	203	0.005	2.743	2.743
	Sb	121	0.006	ug/L	132	58	0.001	16.758	16.758
	Sb	123	0.007	ug/L	92	30	0.000	4.112	4.112
	Ba	135	0.013	ug/L	106	69	0.002	15.780	15.780
	Ba	137	0.011	ug/L	148	93	0.002	14.148	14.148
	Tl	203	-0.001	ug/L	125	135	0.001	145.148	145.148
	Tl	205	-0.000	ug/L	313	311	0.001	1519.780	1519.780
	Pb	208	0.013	ug/L	769	225	0.000	2.928	2.928
	Bi	209	0.011	ug/L	685	323	0.000	4.643	4.643
	U	238	0.000	ug/L	37	30	0.000	157.239	157.239
>	Tm	169		ug/L	765026	755304			0.902
	Tb	159		ug/L	769320	764824			113.007
	Kr	83		mg/L	403	464			37.924
	Y	89		ug/L	759127	775852			27.840
	In	115		ug/L	613682	630854			62.574
	Ho	165		mg/L	755014	739682			209.287
	Ar2	76		mg/L	158317	165950			6.126

Sample ID: BL06117M X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 16:41:27
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description: TX150 WS2181853/55/64/59

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1276.657	ug/L		1062470	77736	8.886	0.696	0.696
	Mg	26	241.349	ug/L		390235	1539	3.184	1.319	1.319
	Cl	35	1.801	mg/L		204317	82326	0.005	0.266	0.266
	Na	23	1211.523	ug/L		21388880	18451	5.148	0.425	0.425
	K	39	1213.393	ug/L		29812361	1641825	17.626	1.453	1.453
>	Sc	45		ug/L		434819	436752			1.021
>	Li	6		ug/L		135074	131597			0.515
	Li	7		ug/L		9467	9235			1701.588
	Be	9	50.138	ug/L		54906	85	0.592	1.182	1.182
	B	10	91.395	ug/L		28543	388	0.972	1.063	1.063
	B	11	94.330	ug/L		138273	1527	0.652	0.691	0.691
	Al	27	97.067	ug/L		1579541	31398	1.258	1.296	1.296
	Ti	49	49.187	ug/L		77678	-23	0.474	0.965	0.965
	V	51	49.469	ug/L		1329089	5814	0.334	0.676	0.676
	Cr	53	49.474	ug/L		136756	316	0.360	0.728	0.728
	Cr	52	49.642	ug/L	99.238 %	1170650	13073	0.094	0.188	0.188
	Fe	56	238.539	ug/L		12429085	5398652	3.390	1.421	1.421
	Fe	57	251.356	ug/L		195307	18823	2.413	0.960	0.960
	Fe	54	250.274	ug/L		418731	-29358	4.617	1.845	1.845
	Mn	55	49.893	ug/L		1820104	895	0.148	0.297	0.297
	Co	59	49.486	ug/L		1342080	219	1.247	2.519	2.519
	Ni	62	48.441	ug/L		42638	198	0.818	1.688	1.688
	Ni	60	49.733	ug/L		290803	177	1.004	2.018	2.018
	Cu	63	48.378	ug/L		661932	477	0.711	1.469	1.469
	Cu	65	48.716	ug/L		321889	407	0.905	1.857	1.857
>	Sc-1	45		ug/L		434819	436752			1.021
	P	31	93.552	ug/L		93383	-2051	1.356	1.449	1.449
	Zn	68	101.464	ug/L		264491	955	2.423	2.388	2.388
	Zn	66	101.250	ug/L		375647	2537	1.385	1.368	1.368
	As	75	48.741	ug/L	97.49 %	208880	148	0.443	0.908	0.908
	Se	77	47.799	ug/L		15852	287	0.646	1.351	1.351
	Se	78	47.314	ug/L		70368	21083	0.921	1.947	1.947
	Se	82	47.662	ug/L		21172	457	0.722	1.514	1.514
	Br	79	-0.016	mg/L		16675	30600	0.000	2.741	2.741
>	Ge	72		ug/L		190587	194952			1.710
>	Rh	103		ug/L		571570	590206			0.615
	Sr	88	49.185	ug/L		2327285	2600	0.799	1.624	1.624
	Mo	97	24.724	ug/L		107853	155	0.528	2.134	2.134
	Mo	98	24.835	ug/L		275472	137	0.338	1.362	1.362
	Ag	107	11.508	ug/L		206825	228	0.198	1.723	1.723
	Ag	109	11.504	ug/L		194664	213	0.080	0.697	0.697
	Cd	111	24.425	ug/L		102324	533	0.231	0.944	0.944
	Cd	114	24.521	ug/L		223569	61	0.127	0.517	0.517
	Sn	118	25.000	ug/L		270749	142	0.268	1.073	1.073
	Sn	120	24.735	ug/L		368000	203	0.392	1.584	1.584
	Sb	121	10.004	ug/L		127373	58	0.094	0.935	0.935
	Sb	123	10.027	ug/L		96224	30	0.028	0.279	0.279
	Ba	135	48.920	ug/L		151956	69	0.584	1.195	1.195
	Ba	137	49.893	ug/L		270291	93	0.637	1.277	1.277
	Tl	203	49.958	ug/L		662262	135	1.240	2.482	2.482
	Tl	205	50.140	ug/L		1567370	311	1.119	2.232	2.232
	Pb	208	52.127	ug/L	104.2 %	2149990	225	2.300	4.412	4.412
	Bi	209	51.766	ug/L		1760460	323	0.758	1.464	1.464
	U	238	50.429	ug/L		2020744	30	0.972	1.928	1.928
>	Tm	169		ug/L		766813	755304			1.187
	Tb	159		ug/L		767341	764824			364.318
	Kr	83		mg/L		480	464			348.434
	Y	89		ug/L		762894	775852			40.041
	In	115		ug/L		625074	630854			57.735
	Ho	165		mg/L		749499	739682			89.953
	Ar2	76		mg/L		177544	165950			5.796

Sample ID: BL0617DM X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 16:49:29

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description: TX150 WS2181853/55/64/59

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	1295.307	ug/L	1084507	77736	11.079	0.855	0.855
Mg	26	241.948	ug/L	394002	1539	2.124	0.878	0.878
Cl	35	3.130	mg/L	296759	82326	0.055	1.771	1.771
Na	23	1225.817	ug/L	21793144	18451	17.934	1.463	1.463
K	39	1231.033	ug/L	30434395	1641825	25.543	2.075	2.075
Sc	45		ug/L	437894	436752			1.073
Li	6		ug/L	133051	131597			0.672
Li	7		ug/L	9445	9235			88.227
Be	9	50.692	ug/L 101.406%	54682	85	0.222	0.438	0.438
B	10	95.707	ug/L	29425	388	1.139	1.190	1.190
B	11	98.540	ug/L	142217	1527	2.787	2.828	2.828
Al	27	96.565	ug/L	1582794	31398	0.874	0.905	0.905
Ti	49	49.873	ug/L	79320	-23	0.225	0.452	0.452
V	51	49.889	ug/L	1349837	5814	0.216	0.433	0.433
Cr	53	49.821	ug/L	138677	316	0.360	0.724	0.724
Cr	52	49.985	ug/L	1186932	13073	0.371	0.743	0.743
Fe	56	241.642	ug/L	12608577	5398652	3.440	1.424	1.424
Fe	57	253.838	ug/L	198443	18823	2.571	1.013	1.013
Fe	54	253.068	ug/L	426749	-29358	3.079	1.217	1.217
Mn	55	50.406	ug/L	1851598	895	0.785	1.557	1.557
Co	59	49.501	ug/L	1352053	219	0.597	1.205	1.205
Ni	62	48.949	ug/L	43389	198	0.503	1.027	1.027
Ni	60	49.635	ug/L 99.134%	292310	177	0.467	0.940	0.940
Cu	63	49.559	ug/L	682904	477	0.412	0.832	0.832
Cu	65	49.463	ug/L	329154	407	0.885	1.789	1.789
Sc-1	45		ug/L	437894	436752			1.073
P	31	93.049	ug/L	93529	-2051	0.701	0.753	0.753
Zn	68	103.877	ug/L	272205	955	1.170	1.126	1.126
Zn	66	102.825	ug/L	383427	2537	1.271	1.236	1.236
As	75	49.545	ug/L	213421	148	0.450	0.908	0.908
Se	77	48.367	ug/L	16121	287	0.398	0.824	0.824
Se	78	47.869	ug/L	71322	21083	0.574	1.198	1.198
Se	82	47.647	ug/L	21276	457	0.342	0.718	0.718
Br	79	-0.017	mg/L	16311	30600	0.000	1.772	1.772
Ge	72		ug/L	191564	194952			1.084
Rh	103		ug/L	582584	590206			1.133
Sr	88	49.146	ug/L	2370126	2600	0.499	1.015	1.015
Mo	97	24.904	ug/L	110739	155	0.541	2.171	2.171
Mo	98	24.856	ug/L	281023	137	0.223	0.898	0.898
Ag	107	8.428	ug/L	154460	228	0.080	0.949	0.949
Ag	109	8.362	ug/L	144254	213	0.186	2.229	2.229
Cd	111	24.393	ug/L	104157	533	0.280	1.148	1.148
Cd	114	24.737	ug/L	229889	61	0.247	1.000	1.000
Sn	118	24.952	ug/L	275427	142	0.197	0.791	0.791
Sn	120	24.935	ug/L	378146	203	0.170	0.683	0.683
Sb	121	9.990	ug/L	129636	58	0.182	1.825	1.825
Sb	123	9.987	ug/L	97686	30	0.072	0.716	0.716
Ba	135	49.316	ug/L	156133	69	0.449	0.911	0.911
Ba	137	49.831	ug/L	275120	93	0.902	1.810	1.810
Tl	203	51.165	ug/L	678426	135	1.606	3.138	3.138
Tl	205	51.653	ug/L	1615794	311	0.909	1.759	1.759
Pb	208	52.532	ug/L 105.006%	2168263	225	0.545	1.038	1.038
Bi	209	52.954	ug/L	1801172	323	1.826	3.447	3.447
U	238	50.950	ug/L	2042407	30	0.559	1.097	1.097
Tm	169		ug/L	767143	755304			1.167
Tb	159		ug/L	768265	764824			149.241
Kr	83		mg/L	484	464			127.672
Y	89		ug/L	761934	775852			35.704
In	115		ug/L	627664	630854			126.171
Ho	165		mg/L	751543	739682			39.535
Ar2	76		mg/L	179380	165950			8.272

Sample ID: CCV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 17:46:06
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1234.611	ug/L	1012090	77736	12.271	0.994	0.994
	Mg	26	233.663	ug/L	371307	1539	0.880	0.377	0.377
	Cl	35	-0.146	mg/L	70785	82326	0.031	21.545	21.545
	Na	23	1172.616	ug/L	20342455	18451	5.024	0.428	0.428
	K	39	1163.063	ug/L	28147495	1641825	14.259	1.226	1.226
>	Sc	45		ug/L	427245	436752			0.278
>	Li	6		ug/L	135290	131597			0.519
	Li	7		ug/L	9555	9235			213.853
	Be	9	48.418	ug/L	53110	85	0.656	1.355	1.355
	B	10	48.806	ug/L	15452	388	1.386	2.841	2.841
	B	11	49.296	ug/L	73123	1527	1.106	2.244	2.244
	Al	27	93.115	ug/L	1490192	31398	0.944	1.014	1.014
	Ti	49	47.541	ug/L	73774	-23	0.445	0.936	0.936
	V	51	48.430	ug/L	1278672	5814	0.515	1.064	1.064
	Cr	53	48.283	ug/L	131141	316	0.744	1.540	1.540
	Cr	52	48.208	ug/L	1117384	13073	0.425	0.882	0.882
	Fe	56	231.803	ug/L	12016384	5398652	0.860	0.371	0.371
	Fe	57	245.473	ug/L	187855	18823	1.422	0.579	0.579
	Fe	54	247.051	ug/L	405829	-29358	3.935	1.593	1.593
	Mn	55	48.775	ug/L	1748336	895	0.214	0.440	0.440
	Co	59	48.080	ug/L	1281434	219	0.441	0.918	0.918
	Ni	62	47.112	ug/L	40755	198	0.140	0.296	0.296
	Ni	60	47.956	ug/L	275569	177	0.164	0.343	0.343
	Cu	63	47.479	ug/L	638373	477	0.150	0.315	0.315
	Cu	65	47.153	ug/L	306187	407	0.046	0.098	0.098
>	Sc-1	45		ug/L	427245	436752			0.278
	P	31	92.067	ug/L	90274	-2051	0.887	0.964	0.964
	Zn	68	102.509	ug/L	263787	955	1.855	1.809	1.809
	Zn	66	101.514	ug/L	371764	2537	1.769	1.743	1.743
	As	75	48.179	ug/L	203820	148	0.439	0.910	0.910
	Se	77	47.796	ug/L	15647	287	0.706	1.476	1.476
	Se	78	47.309	ug/L	69449	21083	1.755	3.709	3.709
	Se	82	47.193	ug/L	20694	457	1.480	3.135	3.135
	Br	79	-0.026	mg/L	8378	30600	0.001	2.135	2.135
>	Ge	72		ug/L	188134	194952			1.612
>	Rh	103		ug/L	563200	590206			0.580
	Sr	88	47.452	ug/L	2212521	2600	0.168	0.354	0.354
	Mo	97	23.797	ug/L	102303	155	0.252	1.058	1.058
	Mo	98	23.997	ug/L	262287	137	0.222	0.924	0.924
	Ag	107	24.088	ug/L	426378	228	0.203	0.841	0.841
	Ag	109	24.316	ug/L	405205	213	0.137	0.565	0.565
	Cd	111	24.200	ug/L	99906	533	0.069	0.283	0.283
	Cd	114	24.253	ug/L	217874	61	0.392	1.615	1.615
	Sn	118	24.072	ug/L	256882	142	0.262	1.087	1.087
	Sn	120	23.745	ug/L	348113	203	0.198	0.836	0.836
	Sb	121	9.473	ug/L	118845	58	0.176	1.855	1.855
	Sb	123	9.407	ug/L	88943	30	0.200	2.122	2.122
	Ba	135	47.982	ug/L	146851	69	1.367	2.850	2.850
	Ba	137	48.038	ug/L	256442	93	0.316	0.657	0.657
	Tl	203	47.498	ug/L	609805	135	1.039	2.188	2.188
	Tl	205	49.614	ug/L	1502045	311	1.593	3.211	3.211
	Pb	208	49.156	ug/L	1963916	225	1.488	3.028	3.028
	Bi	209	49.470	ug/L	1629197	323	1.002	2.026	2.026
	U	238	47.762	ug/L	1853183	30	1.922	4.023	4.023
>	Tm	169		ug/L	742638	755304			0.769
	Tb	159		ug/L	741326	764824			43.726
	Kr	83		mg/L	515	464			53.593
	Y	89		ug/L	746430	775852			13.916
	In	115		ug/L	615150	630854			10.796
	Ho	165		mg/L	728690	739682			63.346
	Ar2	76		mg/L	177637	165950			7.384

Sample ID: CCB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 17:54:08
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	5.092	ug/L	79664	77736	1.638	32.170	32.170
	Mg	26	-0.514	ug/L	690	1539	0.048	9.351	9.351
	Cl	35	-0.102	mg/L	73523	82326	0.012	12.018	12.018
	Na	23	0.021	ug/L	18360	18451	0.054	257.569	257.569
	K	39	3.115	ug/L	1672187	1641825	0.241	7.721	7.721
>	Sc	45		ug/L	425977	436752			0.485
>	Li	6		ug/L	135568	131597			0.854
	Li	7		ug/L	9412	9235			154.889
	Be	9	-0.012	ug/L	74	85	0.006	50.544	50.544
	B	10	0.341	ug/L	505	388	0.064	18.925	18.925
	B	11	0.418	ug/L	2181	1527	0.102	24.425	24.425
	Al	27	-1.503	ug/L	7138	31398	0.074	4.900	4.900
	Ti	49	0.045	ug/L	48	-23	0.009	20.417	20.417
	V	51	-0.003	ug/L	5579	5814	0.001	38.902	38.902
	Cr	53	-0.009	ug/L	284	316	0.004	48.491	48.491
	Cr	52	-0.014	ug/L	12432	13073	0.011	75.649	75.649
	Fe	56	-8.732	ug/L	5012305	5398652	2.455	28.113	28.113
	Fe	57	-1.237	ug/L	17506	18823	0.441	35.626	35.626
	Fe	54	0.984	ug/L	-26905	-29358	0.547	55.612	55.612
	Mn	55	0.006	ug/L	1103	895	0.002	31.087	31.087
	Co	59	0.002	ug/L	271	219	0.001	29.798	29.798
	Ni	62	0.015	ug/L	206	198	0.015	102.538	102.538
	Ni	60	0.005	ug/L	200	177	0.001	14.813	14.813
	Cu	63	-0.003	ug/L	425	477	0.002	80.079	80.079
	Cu	65	0.009	ug/L	456	407	0.001	16.225	16.225
>	Sc-1	45		ug/L	425977	436752			0.485
	P	31	-0.354	ug/L	-2353	-2051	0.336	94.828	94.828
	Zn	68	0.047	ug/L	1038	955	0.034	72.815	72.815
	Zn	66	0.033	ug/L	2562	2537	0.014	41.576	41.576
	As	75	0.002	ug/L	150	148	0.002	133.609	133.609
	Se	77	-0.123	ug/L	237	287	0.015	12.283	12.283
	Se	78	0.074	ug/L	20367	21083	0.378	510.094	510.094
	Se	82	-0.062	ug/L	413	457	0.041	66.738	66.738
	Br	79	-0.017	mg/L	15802	30600	0.000	1.353	1.353
>	Ge	72		ug/L	187642	194952			1.016
>	Rh	103		ug/L	570001	590206			0.374
	Sr	88	-0.045	ug/L	394	2600	0.001	3.276	3.276
	Mo	97	0.010	ug/L	193	155	0.005	49.051	49.051
	Mo	98	0.009	ug/L	229	137	0.001	6.475	6.475
	Ag	107	0.004	ug/L	287	228	0.001	33.713	33.713
	Ag	109	0.005	ug/L	286	213	0.002	41.445	41.445
	Cd	111	-0.008	ug/L	483	533	0.009	117.664	117.664
	Cd	114	-0.001	ug/L	51	61	0.001	80.547	80.547
	Sn	118	0.023	ug/L	391	142	0.003	12.058	12.058
	Sn	120	0.025	ug/L	561	203	0.003	11.314	11.314
	Sb	121	0.019	ug/L	303	58	0.001	5.369	5.369
	Sb	123	0.020	ug/L	224	30	0.002	8.108	8.108
	Ba	135	-0.000	ug/L	67	69	0.004	3903.117	3903.117
	Ba	137	-0.002	ug/L	79	93	0.002	103.559	103.559
	Tl	203	-0.000	ug/L	127	135	0.001	151.728	151.728
	Tl	205	0.003	ug/L	407	311	0.009	263.124	263.124
	Pb	208	-0.001	ug/L	195	225	0.000	31.142	31.142
	Bi	209	0.013	ug/L	752	323	0.002	12.085	12.085
	U	238	0.002	ug/L	99	30	0.000	9.539	9.539
>	Tm	169		ug/L	737200	755304			0.707
	Tb	159		ug/L	744945	764824			44.371
	Kr	83		mg/L	410	464			24.287
	Y	89		ug/L	754011	775852			9.169
	In	115		ug/L	604357	630854			31.003
	Ho	165		mg/L	734728	739682			234.667
	Ar2	76		mg/L	160101	165950			7.552

04 1/R100621

Sample ID: GC8420-03 X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 17:59:10

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	24.769	ug/L		94787	77736	1.672	6.752	6.752
	Mg	26	4.664	ug/L		8884	1539	0.090	1.938	1.938
	Cl	35	4.750	mg/L		397567	82326	0.064	1.337	1.337
	Na	23	55.808	ug/L		984966	18451	0.557	0.997	0.997
	K	39	18.108	ug/L		2018471	1641825	1.036	5.720	5.720
>	Sc	45		ug/L		427099	436752			1.007
>	Li	6		ug/L		135010	131597			0.527
	Li	7		ug/L		9385	9235			142.360
	Be	9	-0.006	ug/L		80	85	0.008	128.161	128.161
	B	10	6.618	ug/L		2435	388	0.253	3.816	3.816
	B	11	6.786	ug/L		11396	1527	0.203	2.985	2.985
	Al	27	3.484	ug/L		85290	31398	0.106	3.055	3.055
	Ti	49	0.107	ug/L		144	-23	0.008	7.297	7.297
	V	51	-0.002	ug/L		5623	5814	0.003	132.878	132.878
	Cr	53	0.088	ug/L		549	316	0.022	24.768	24.768
	Cr	52	0.109	ug/L		15272	13073	0.010	8.818	8.818
	Fe	56	-4.770	ug/L		5140591	5398652	1.058	22.180	22.180
	Fe	57	-0.554	ug/L		18022	18823	0.469	84.603	84.603
	Fe	54	-11.096	ug/L		-48212	-29358	0.718	6.472	6.472
	Mn	55	0.057	ug/L		2924	895	0.002	3.572	3.572
	Co	59	0.002	ug/L		272	219	0.000	2.776	2.776
	Ni	62	0.075	ug/L		258	198	0.015	19.315	19.315
	Ni	60	0.081	ug/L		641	177	0.004	5.069	5.069
	Cu	63	16.731	ug/L		225172	477	0.191	1.143	1.143
	Cu	65	16.607	ug/L		108052	407	0.168	1.013	1.013
>	Sc-1	45		ug/L		427099	436752			1.007
	P	31	6.984	ug/L		4986	-2051	0.866	12.406	12.406
	Zn	68	4.728	ug/L		12811	955	0.084	1.781	1.781
	Zn	66	4.758	ug/L		19400	2537	0.071	1.485	1.485
	As	75	-0.006	ug/L	0	116	148	0.003	52.783	52.783
	Se	77	-0.094	ug/L		242	287	0.102	107.513	107.513
	Se	78	-0.205	ug/L		19766	21083	0.253	123.538	123.538
	Se	82	-0.050	ug/L		412	457	0.113	225.242	225.242
	Br	79	-0.015	mg/L		17074	30600	0.000	1.086	1.086
>	Ge	72		ug/L		184707	194952			0.430
>	Rh	103		ug/L		566981	590206			0.691
	Sr	88	0.011	ug/L		3003	2600	0.004	35.414	35.414
	Mo	97	0.018	ug/L		225	155	0.008	46.591	46.591
	Mo	98	0.022	ug/L		373	137	0.002	10.524	10.524
	Ag	107	0.009	ug/L		380	228	0.003	27.799	27.799
	Ag	109	0.009	ug/L		355	213	0.003	38.467	38.467
	Cd	111	0.018	ug/L		588	533	0.013	71.815	71.815
	Cd	114	0.015	ug/L		190	61	0.009	62.615	62.615
	Sn	118	9.259	ug/L		99545	142	0.355	3.835	3.835
	Sn	120	9.014	ug/L		133201	203	0.662	7.346	7.346
	Sb	121	0.020	ug/L		303	58	0.002	7.913	7.913
	Sb	123	0.019	ug/L		213	30	0.000	1.919	1.919
	Ba	135	0.065	ug/L		266	69	0.002	3.461	3.461
	Ba	137	0.059	ug/L		405	93	0.007	11.381	11.381
	Tl	203	0.000	ug/L		139	135	0.001	433.885	433.885
	Tl	205	-0.001	ug/L		273	311	0.001	72.008	72.008
	Pb	208	0.972	ug/L	i 458	39596	225	0.042	4.282	4.282
	Bi	209	0.032	ug/L		1399	323	0.002	7.712	7.712
	U	238	0.001	ug/L		87	30	0.000	3.300	3.300
>	Tm	169		ug/L		753072	755304			2.958
	Tb	159		ug/L		743767	764824			89.156
	Kr	83		mg/L		385	464			44.787
	Y	89		ug/L		746665	775852			10.695
	In	115		ug/L		606052	630854			18.666
	Ho	165		mg/L		733266	739682			82.115
	Ar2	76		mg/L		157958	165950			15.750

Sample ID: GC8423-04 X200

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:04:11
Method File: C:\elandata\Method\6020scan7cp.mth
Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	18.336	ug/L	89904	77736	2.590	14.123	14.123
	Mg	26	0.416	ug/L	2162	1539	0.015	3.613	3.613
	Cl	35	0.097	mg/L	87010	82326	0.029	30.127	30.127
	Na	23	6.187	ug/L	125231	18451	0.097	1.571	1.571
	K	39	5.885	ug/L	1739632	1641825	0.567	9.629	9.629
>	Sc	45		ug/L	427075	436752			0.713
>	Li	6		ug/L	137325	131597			0.380
	Li	7		ug/L	9527	9235			40.414
	Be	9	-0.004	ug/L 0	84	85	0.004	100.928	100.928
	B	10	514.476	ug/L	161483	388	3.395	0.660	0.660
	B	11	517.097	ug/L	763460	1527	10.041	1.942	1.942
	Al	27	0.898	ug/L	44759	31398	0.102	11.378	11.378
	Ti	49	-0.224	ug/L	-369	-23	0.033	14.968	14.968
	V	51	0.012	ug/L	5991	5814	0.010	88.833	88.833
	Cr	53	0.551	ug/L	1803	316	0.006	1.030	1.030
	Cr	52	0.534	ug/L	25021	13073	0.025	4.634	4.634
	Fe	56	-6.360	ug/L	5094297	5398652	0.692	10.877	10.877
	Fe	57	2.870	ug/L	20383	18823	0.948	33.025	33.025
	Fe	54	4.249	ug/L	-21233	-29358	0.547	12.880	12.880
	Mn	55	0.047	ug/L	2544	895	0.002	4.285	4.285
	Co	59	0.004	ug/L	308	219	0.001	14.853	14.853
	Ni	62	0.029	ug/L	218	198	0.014	49.816	49.816
	Ni	60	0.056	ug/L	496	177	0.003	5.916	5.916
	Cu	63	0.847	ug/L	11844	477	0.019	2.216	2.216
	Cu	65	1.568	ug/L	10564	407	0.043	2.714	2.714
>	Sc-1	45		ug/L	427075	436752			0.713
	P	31	0.568	ug/L	-1433	-2051	0.841	148.104	148.104
	Zn	68	1.420	ug/L	4515	955	0.029	2.045	2.045
	Zn	66	1.983	ug/L	9559	2537	0.013	0.662	0.662
	As	75	1.468	ug/L 44.04	6282	148	0.024	1.636	1.636
	Se	77	6.625	ug/L	2382	287	0.316	4.770	4.770
	Se	78	6.369	ug/L	26673	21083	0.284	4.462	4.462
	Se	82	7.463	ug/L	3606	457	0.198	2.651	2.651
	Br	79	-0.011	mg/L	20449	30600	0.000	2.680	2.680
>	Ge	72		ug/L	186136	194952			0.041
>	Rh	103		ug/L	566275	590206			0.546
	Sr	88	-0.023	ug/L	1416	2600	0.002	8.443	8.443
	Mo	97	0.063	ug/L	421	155	0.007	11.613	11.613
	Mo	98	0.092	ug/L	1143	137	0.006	6.345	6.345
	Ag	107	0.004	ug/L	285	228	0.001	39.460	39.460
	Ag	109	0.005	ug/L	290	213	0.002	34.167	34.167
	Cd	111	-0.005	ug/L	491	533	0.005	96.230	96.230
	Cd	114	-0.000	ug/L	56	61	0.003	1373.156	1373.156
	Sn	118	0.465	ug/L	5119	142	0.011	2.446	2.446
	Sn	120	0.459	ug/L	6960	203	0.012	2.643	2.643
	Sb	121	0.026	ug/L	384	58	0.002	6.767	6.767
	Sb	123	0.026	ug/L	273	30	0.001	4.604	4.604
	Ba	135	0.033	ug/L	167	69	0.008	23.512	23.512
	Ba	137	0.037	ug/L	289	93	0.001	1.961	1.961
	Tl	203	-0.003	ug/L	91	135	0.001	29.352	29.352
	Tl	205	-0.003	ug/L	212	311	0.000	11.169	11.169
	Pb	208	0.165	ug/L	6718	225	0.003	1.598	1.598
	Bi	209	0.004	ug/L	449	323	0.003	65.791	65.791
	U	238	0.000	ug/L	47	30	0.001	107.493	107.493
>	Tm	169		ug/L	732006	755304			2.060
	Tb	159		ug/L	734240	764824			11.888
	Kr	83		mg/L	1283	464			33.031
	Y	89		ug/L	747219	775852			7.683
	In	115		ug/L	601425	630854			11.276
	Ho	165		mg/L	714910	739682			41.777
	Ar2	78		mg/L	160448	165950			9.130

Sample ID: GC8423-04D X200

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:09:27

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	19.573	ug/L	90273	77736	1.813	9.264	9.264
	Mg	26	0.241	ug/L	1874	1539	0.036	14.770	14.770
	Cl	35	0.063	mg/L	84163	82326	0.023	36.332	36.332
	Na	23	6.196	ug/L	124603	18451	0.084	1.359	1.359
	K	39	5.672	ug/L	1723918	1641825	0.348	6.143	6.143
>	Sc	45		ug/L	424392	436752			0.477
>	Li	6		ug/L	136781	131597			0.874
	Li	7		ug/L	9506	9235			126.002
	Be	9	-0.012	ug/L	75	85	0.009	72.973	72.973
	B	10	525.945	ug/L	164409	388	9.963	1.894	1.894
	B	11	529.188	ug/L	778086	1527	19.292	3.646	3.646
	Al	27	0.536	ug/L	38846	31398	0.106	19.877	19.877
	Ti	49	-0.348	ug/L	-558	-23	0.056	16.126	16.126
	V	51	0.007	ug/L	5828	5814	0.008	114.468	114.468
	Cr	53	0.556	ug/L	1804	316	0.010	1.846	1.846
	Cr	52	0.550	ug/L	25223	13073	0.007	1.243	1.243
	Fe	56	-6.403	ug/L	5061006	5398652	0.958	14.961	14.961
	Fe	57	3.014	ug/L	20356	18823	0.294	9.772	9.772
	Fe	54	3.652	ug/L	-22147	-29358	0.764	20.909	20.909
	Mn	55	0.037	ug/L	2173	895	0.001	3.401	3.401
	Co	59	0.002	ug/L	277	219	0.001	23.030	23.030
	Ni	62	0.014	ug/L	205	198	0.016	112.050	112.050
	Ni	60	0.058	ug/L	505	177	0.005	8.366	8.366
	Cu	63	0.787	ug/L	10971	477	0.005	0.641	0.641
	Cu	65	1.523	ug/L	10207	407	0.018	1.206	1.206
>	Sc-1	45		ug/L	424392	436752			0.477
	P	31	-0.224	ug/L	-2218	-2051	0.565	251.832	251.832
	Zn	68	0.827	ug/L	3023	955	0.035	4.190	4.190
	Zn	66	1.457	ug/L	7696	2537	0.032	2.227	2.227
	As	75	1.441	ug/L	6194	148	0.002	0.168	0.168
	Se	77	6.492	ug/L	2349	287	0.209	3.215	3.215
	Se	78	6.057	ug/L	26455	21083	0.309	5.104	5.104
	Se	82	7.239	ug/L	3524	457	0.174	2.406	2.406
	Br	79	-0.011	mg/L	20274	30600	0.000	3.323	3.323
>	Ge	72		ug/L	186864	194952			0.340
>	Rh	103		ug/L	563751	590206			0.313
	Sr	88	-0.025	ug/L	1304	2600	0.002	6.105	6.105
	Mo	97	0.047	ug/L	351	155	0.006	13.239	13.239
	Mo	98	0.102	ug/L	1251	137	0.011	10.688	10.688
	Ag	107	0.003	ug/L	264	228	0.003	110.677	110.677
	Ag	109	0.003	ug/L	261	213	0.002	50.778	50.778
	Cd	111	-0.008	ug/L	478	533	0.001	17.280	17.280
	Cd	114	0.002	ug/L 0.06	78	61	0.001	41.526	41.526
	Sn	118	0.452	ug/L	4957	142	0.003	0.708	0.708
	Sn	120	0.446	ug/L	6735	203	0.015	3.306	3.306
	Sb	121	0.023	ug/L	347	58	0.002	9.706	9.706
	Sb	123	0.025	ug/L	263	30	0.002	6.494	6.494
	Ba	135	0.036	ug/L	176	69	0.014	38.408	38.408
	Ba	137	0.033	ug/L	265	93	0.000	1.037	1.037
	Tl	203	-0.003	ug/L	94	135	0.002	60.568	60.568
	Tl	205	-0.003	ug/L	208	311	0.001	18.766	18.766
	Pb	208	0.163	ug/L 4.89	6633	225	0.006	3.819	3.819
	Bi	209	0.002	ug/L	365	323	0.001	65.298	65.298
	U	238	0.000	ug/L	43	30	0.000	24.772	24.772
>	Tm	169		ug/L	730618	755304			2.368
	Tb	159		ug/L	728800	764824			13.641
	Kr	83		mg/L	1293	464			31.675
	Y	89		ug/L	743187	775852			22.619
	In	115		ug/L	599196	630854			14.283
	Ho	165		mg/L	714010	739682			59.597
	Ar2	76		mg/L	159532	165950			4.661

Sample ID: GC8423-04P X200

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:14:43

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1256.056	ug/L		1015256	77736	16.743	1.333	1.333
	Mg	26	236.480	ug/L		370984	1539	1.974	0.835	0.835
	Cl	35	0.050	mg/L		82810	82326	0.006	11.900	11.900
	Na	23	1185.911	ug/L		20311610	18451	3.719	0.314	0.314
	K	39	1179.703	ug/L		28161709	1641825	25.832	2.190	2.190
>	Sc	45		ug/L		421823	436752			0.838
>	Li	6		ug/L		137324	131597			0.175
	Li	7		ug/L		9554	9235			29.229
	Be	9	47.456	ug/L		52840	85	0.826	1.740	1.740
	B	10	566.627	ug/L		177807	388	7.770	1.371	1.371
	B	11	574.256	ug/L		847718	1527	7.102	1.237	1.237
	Al	27	94.585	ug/L		1493866	31398	2.183	2.308	2.308
	Ti	49	47.013	ug/L		72030	-23	0.219	0.467	0.467
	V	51	48.070	ug/L		1253112	5814	0.365	0.758	0.758
	Cr	53	48.558	ug/L		130218	316	0.281	0.580	0.580
	Cr	52	48.888	ug/L	96.7 %	1118585	13073	0.525	1.075	1.075
	Fe	56	228.435	ug/L		11766222	5398652	6.502	2.847	2.847
	Fe	57	247.540	ug/L		186869	18823	2.324	0.939	0.939
	Fe	54	248.020	ug/L		402335	-29358	3.024	1.219	1.219
	Mn	55	47.943	ug/L		1696666	895	0.548	1.142	1.142
	Co	59	47.237	ug/L		1242868	219	0.736	1.558	1.558
	Ni	62	47.248	ug/L		40352	198	0.766	1.621	1.621
	Ni	60	47.130	ug/L		267378	177	0.303	0.644	0.644
	Cu	63	48.131	ug/L		638887	477	0.567	1.178	1.178
	Cu	65	48.415	ug/L		310379	407	0.320	0.661	0.661
>	Sc-1	45		ug/L		421823	436752			0.838
	P	31	0.912	ug/L		-1078	-2051	0.166	18.152	18.152
	Zn	68	103.414	ug/L		262015	955	0.604	0.584	0.584
	Zn	66	104.182	ug/L		375590	2537	0.402	0.386	0.386
	As	75	49.694	ug/L	96.45 %	206968	148	0.151	0.303	0.303
	Se	77	57.203	ug/L		18383	287	1.396	2.440	2.440
	Se	78	57.491	ug/L		78792	21083	0.766	1.332	1.332
	Se	82	57.476	ug/L		24725	457	1.078	1.875	1.875
	Br	79	-0.012	mg/L		19831	30600	0.000	3.834	3.834
>	Ge	72		ug/L		185206	194952			0.362
>	Rh	103		ug/L		559002	590206			0.662
	Sr	88	46.541	ug/L		2153798	2600	0.743	1.597	1.597
	Mo	97	23.189	ug/L		98949	155	0.129	0.558	0.558
	Mo	98	23.533	ug/L		255296	137	0.229	0.973	0.973
	Ag	107	23.400	ug/L		411136	228	0.195	0.835	0.835
	Ag	109	23.632	ug/L		390849	213	0.294	1.243	1.243
	Cd	111	23.374	ug/L		95791	533	0.285	1.221	1.221
	Cd	114	23.740	ug/L		211683	61	0.229	0.966	0.966
	Sn	118	23.817	ug/L		252276	142	0.026	0.108	0.108
	Sn	120	23.646	ug/L		344050	203	0.597	2.524	2.524
	Sb	121	9.328	ug/L		116159	58	0.068	0.724	0.724
	Sb	123	9.350	ug/L		87758	30	0.029	0.306	0.306
	Ba	135	47.103	ug/L		143095	69	0.579	1.228	1.228
	Ba	137	47.147	ug/L		249787	93	0.821	1.742	1.742
	Tl	203	47.476	ug/L		600507	135	0.592	1.246	1.246
	Tl	205	49.250	ug/L		1469223	311	0.408	0.828	0.828
	Pb	208	49.535	ug/L		1950279	225	0.742	1.498	1.498
	Bi	209	49.456	ug/L		1604717	323	0.745	1.506	1.506
	U	238	48.393	ug/L		1850581	30	0.825	1.704	1.704
>	Tm	169		ug/L		731714	755304			1.561
	Tb	159		ug/L		728520	764824			2.654
	Kr	83		mg/L		1222	464			11.082
	Y	89		ug/L		732674	775852			12.076
	In	115		ug/L		600340	630854			17.367
	Ho	165		mg/L		713767	739682			9.412
	Ar2	76		mg/L		177720	165950			8.024

Sample ID: GC8423-04DP X200

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:22:44

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1262.097	ug/L		1023733	77736	8.913	0.706	0.706
	Mg	26	236.031	ug/L		371708	1539	2.630	1.114	1.114
	Cl	35	0.060	mg/L		83793	82326	0.011	18.907	18.907
	Na	23	1178.449	ug/L		20260421	18451	17.985	1.526	1.526
	K	39	1185.709	ug/L		28408577	1641825	10.084	0.850	0.850
>	Sc	45		ug/L		423453	436752			0.870
>	Li	6		ug/L		136667	131597			1.340
	Li	7		ug/L		9557	9235			534.736
	Be	9	47.769	ug/L	95.55%	52930	85	0.478	1.000	1.000
	B	10	567.193	ug/L		177120	388	14.456	2.549	2.549
	B	11	576.496	ug/L		846866	1527	5.465	0.948	0.948
	Al	27	95.604	ug/L		1515591	31398	0.868	0.908	0.908
	Ti	49	47.134	ug/L		72492	-23	0.138	0.294	0.294
	V	51	47.832	ug/L		1251663	5814	0.725	1.517	1.517
	Cr	53	48.199	ug/L		129746	316	0.547	1.136	1.136
	Cr	52	48.778	ug/L		1120374	13073	0.550	1.128	1.128
	Fe	56	234.050	ug/L		11973974	5398652	2.569	1.098	1.098
	Fe	57	248.619	ug/L		188340	18823	1.656	0.666	0.666
	Fe	54	248.500	ug/L		404703	-29358	4.636	1.866	1.866
	Mn	55	48.094	ug/L		1708522	895	0.512	1.065	1.065
	Co	59	47.542	ug/L		1255859	219	0.347	0.731	0.731
	Ni	62	47.546	ug/L		40759	198	1.073	2.257	2.257
	Ni	60	47.365	ug/L		269747	177	0.472	0.997	0.997
	Cu	63	47.570	ug/L		633919	477	0.186	0.391	0.391
	Cu	65	48.040	ug/L		309180	407	0.291	0.605	0.605
>	Sc-1	45		ug/L		423453	436752			0.870
	P	31	0.789	ug/L		-1204	-2051	0.061	7.734	7.734
	Zn	68	103.237	ug/L		262999	955	0.575	0.557	0.557
	Zn	66	103.694	ug/L		375872	2537	1.447	1.396	1.396
	As	75	49.747	ug/L		208313	148	0.639	1.284	1.284
	Se	77	57.664	ug/L		18630	287	1.028	1.782	1.782
	Se	78	57.686	ug/L		79422	21083	1.007	1.745	1.745
	Se	82	57.076	ug/L		24689	457	0.852	1.493	1.493
	Br	79	-0.012	mg/L		19446	30600	0.001	4.489	4.489
>	Ge	72		ug/L		186225	194952			0.964
>	Rh	103		ug/L		557073	590206			0.640
	Sr	88	47.492	ug/L		2190321	2600	0.150	0.316	0.316
	Mo	97	23.671	ug/L		100658	155	0.107	0.454	0.454
	Mo	98	23.843	ug/L		257773	137	0.225	0.942	0.942
	Ag	107	24.271	ug/L		424944	228	0.072	0.296	0.296
	Ag	109	23.838	ug/L		392914	213	0.152	0.637	0.637
	Cd	111	23.929	ug/L		97717	533	0.089	0.370	0.370
	Cd	114	24.091	ug/L		214062	61	0.336	1.396	1.396
	Sn	118	24.343	ug/L		256954	142	0.110	0.451	0.451
	Sn	120	24.096	ug/L		349408	203	0.434	1.803	1.803
	Sb	121	9.567	ug/L		118720	58	0.094	0.983	0.983
	Sb	123	9.589	ug/L		89687	30	0.148	1.540	1.540
	Ba	135	47.644	ug/L		144233	69	0.814	1.708	1.708
	Ba	137	48.546	ug/L		256319	93	0.388	0.799	0.799
	Tl	203	48.351	ug/L		612165	135	0.814	1.683	1.683
	Tl	205	48.458	ug/L		1447075	311	0.753	1.555	1.555
	Pb	208	49.996	ug/L	99.7%	1970317	225	0.260	0.520	0.520
	Bi	209	50.331	ug/L		1635081	323	0.977	1.941	1.941
	U	238	49.085	ug/L		1878624	30	0.699	1.423	1.423
>	Tm	169		ug/L		732455	755304			1.298
	Tb	159		ug/L		730113	764824			6.959
	Kr	83		mg/L		1410	464			13.994
	Y	89		ug/L		731405	775852			9.181
	In	115		ug/L		602587	630854			24.654
	Ho	165		mg/L		710427	739682			44.929
	Ar2	76		mg/L		178391	165950			8.125

04 NR100621

Sample ID: GC8424-~~03~~ X200

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:30:45

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	31.156	ug/L	97121	77736	1.464	4.698	4.698
	Mg	26	1.231	ug/L	3366	1539	0.054	4.407	4.407
	Cl	35	0.029	mg/L	80385	82326	0.009	30.338	30.338
	Na	23	5.651	ug/L	113039	18451	0.088	1.560	1.560
	K	39	7.270	ug/L	1726783	1641825	0.371	5.096	5.096
>	Sc	45		ug/L	416350	436752			0.551
>	Li	6		ug/L	134168	131597			1.380
	Li	7		ug/L	9318	9235			76.433
	Be	9	-0.006	ug/L	80	85	0.004	63.284	63.284
	B	10	801.328	ug/L	245484	388	22.787	2.844	2.844
	B	11	797.002	ug/L	1148659	1527	26.638	3.342	3.342
	Al	27	1.129	ug/L	47173	31398	0.083	7.327	7.327
	Ti	49	-0.465	ug/L	-725	-23	0.077	16.539	16.539
	V	51	0.021	ug/L	6069	5814	0.003	13.890	13.890
	Cr	53	0.226	ug/L	900	316	0.006	2.672	2.672
	Cr	52	0.215	ug/L 6.45	17255	13073	0.011	4.988	4.988
	Fe	56	-5.475	ug/L	4991392	5398652	0.625	11.424	11.424
	Fe	57	2.990	ug/L	19953	18823	0.702	23.494	23.494
	Fe	54	0.994	ug/L	-26283	-29358	0.108	10.860	10.860
	Mn	55	0.111	ug/L	4743	895	0.001	1.032	1.032
	Co	59	0.012	ug/L	527	219	0.001	4.426	4.426
	Ni	62	0.047	ug/L	228	198	0.009	20.243	20.243
	Ni	60	0.080	ug/L	618	177	0.007	9.019	9.019
	Cu	63	0.870	ug/L	11849	477	0.016	1.874	1.874
	Cu	65	1.986	ug/L	12942	407	0.069	3.458	3.458
>	Sc-I	45		ug/L	416350	436752			0.551
	P	31	0.552	ug/L	-1414	-2051	0.622	112.631	112.631
	Zn	68	1.203	ug/L	3903	955	0.030	2.533	2.533
	Zn	66	2.023	ug/L	9552	2537	0.058	2.877	2.877
	As	75	1.475	ug/L 44.25	6212	148	0.036	2.437	2.437
	Se	77	9.119	ug/L	3126	287	0.085	0.936	0.936
	Se	78	8.910	ug/L	28824	21083	0.242	2.712	2.712
	Se	82	10.269	ug/L	4723	457	0.104	1.014	1.014
	Br	79	-0.012	mg/L	19776	30600	0.000	3.936	3.936
>	Ge	72		ug/L	183229	194952			0.724
>	Rh	103		ug/L	553243	590206			0.488
	Sr	88	-0.016	ug/L	1721	2600	0.001	9.562	9.562
	Mo	97	0.017	ug/L	217	155	0.003	17.778	17.778
	Mo	98	0.069	ug/L	871	137	0.020	28.466	28.466
	Ag	107	0.020	ug/L	559	228	0.005	25.996	25.996
	Ag	109	0.020	ug/L	529	213	0.005	22.597	22.597
	Cd	111	0.008	ug/L	532	533	0.007	88.837	88.837
	Cd	114	0.001	ug/L	62	61	0.002	328.668	328.668
	Sn	118	0.801	ug/L	8524	142	0.011	1.345	1.345
	Sn	120	0.795	ug/L	11637	203	0.026	3.232	3.232
	Sb	121	0.033	ug/L	466	58	0.002	6.322	6.322
	Sb	123	0.034	ug/L	348	30	0.002	5.555	5.555
	Ba	135	0.086	ug/L	323	69	0.014	16.181	16.181
	Ba	137	0.090	ug/L	557	93	0.003	3.350	3.350
	Tl	203	0.001	ug/L	145	135	0.002	113.334	113.334
	Tl	205	0.001	ug/L	318	311	0.000	39.329	39.329
	Pb	208	0.192	ug/L	7597	225	0.002	0.900	0.900
	Bi	209	0.036	ug/L	1452	323	0.005	13.079	13.079
	U	238	0.004	ug/L	159	30	0.001	29.320	29.320
>	Tm	169		ug/L	715196	755304			1.198
	Tb	159		ug/L	721223	764824			26.224
	Kr	83		mg/L	1653	464			12.518
	Y	89		ug/L	726358	775852			12.448
	In	115		ug/L	592818	630854			2.318
	Ho	165		mg/L	709602	739682			31.127
	Ar2	76		mg/L	158068	165950			3.238

Sample ID: GC8425-04 X200

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:36:02
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	27.435	ug/L	95008	77736	1.893	6.901	6.901
	Mg	26	0.476	ug/L	2216	1539	0.029	6.071	6.071
	Cl	35	0.020	mg/L	80325	82326	0.016	81.163	81.163
	Na	23	4.881	ug/L	100702	18451	0.028	0.579	0.579
	K	39	5.057	ug/L	1688913	1641825	0.039	0.776	0.776
>	Sc	45		ug/L	419161	436752			0.486
>	Li	6		ug/L	134789	131597			0.702
	Li	7		ug/L	9387	9235			93.548
	Be	9	-0.010	ug/L	76	85	0.002	20.352	20.352
	B	10	699.234	ug/L	215275	388	4.048	0.579	0.579
	B	11	701.460	ug/L	1016060	1527	6.564	0.936	0.936
	Al	27	-0.337	ug/L	24942	31398	0.073	21.503	21.503
	Ti	49	-0.562	ug/L	-877	-23	0.209	37.227	37.227
	V	51	-0.009	ug/L	5348	5814	0.026	288.255	288.255
	Cr	53	3.212	ug/L	8843	316	0.029	0.905	0.905
	Cr	52	3.157	ug/L	83505	13073	0.048	1.511	1.511
	Fe	56	4.763	ug/L	5316909	5398652	2.089	43.848	43.848
	Fe	57	17.224	ug/L	29728	18823	0.605	3.515	3.515
	Fe	54	16.361	ug/L	55	-29358	0.443	2.706	2.706
	Mn	55	0.219	ug/L	8561	895	0.003	1.288	1.288
	Co	59	0.036	ug/L	1164	219	0.001	2.145	2.145
	Ni	62	1.693	ug/L	1620	198	0.012	0.687	0.687
	Ni	60	1.788	ug/L	10241	177	0.016	0.882	0.882
	Cu	63	1.030	ug/L	14034	477	0.004	0.418	0.418
	Cu	65	2.013	ug/L	13200	407	0.063	3.136	3.136
>	Sc-1	45		ug/L	419161	436752			0.486
	P	31	1.126	ug/L	-861	-2051	0.132	11.742	11.742
	Zn	68	1.110	ug/L	3655	955	0.052	4.658	4.658
	Zn	66	1.875	ug/L	8988	2537	0.057	3.045	3.045
	As	75	1.049	ug/L 31.47 ✓	4441	148	0.008	0.719	0.719
	Se	77	7.593	ug/L	2637	287	0.274	3.606	3.606
	Se	78	7.334	ug/L	27115	21083	0.198	2.702	2.702
	Se	82	8.340	ug/L	3900	457	0.271	3.250	3.250
	Br	79	-0.013	mg/L	18731	30600	0.001	5.077	5.077
>	Ge	72		ug/L	182449	194952			0.956
>	Rh	103		ug/L	549027	590206			0.785
	Sr	88	-0.031	ug/L	1013	2600	0.001	2.316	2.316
	Mo	97	0.018	ug/L	218	155	0.003	15.554	15.554
	Mo	98	0.069	ug/L	866	137	0.002	3.478	3.478
	Ag	107	0.009	ug/L	365	228	0.001	14.921	14.921
	Ag	109	0.007	ug/L	312	213	0.003	46.265	46.265
	Cd	111	-0.000	ug/L	494	533	0.009	2357.199	2357.199
	Cd	114	0.005	ug/L	97	61	0.001	23.325	23.325
	Sn	118	0.565	ug/L	6002	142	0.013	2.224	2.224
	Sn	120	0.598	ug/L	8729	203	0.109	18.244	18.244
	Sb	121	0.017	ug/L	267	58	0.003	15.927	15.927
	Sb	123	0.017	ug/L	188	30	0.001	6.043	6.043
	Ba	135	0.016	ug/L	112	69	0.001	8.675	8.675
	Ba	137	0.017	ug/L	177	93	0.001	6.320	6.320
	Tl	203	-0.002	ug/L	107	135	0.001	50.678	50.678
	Tl	205	-0.002	ug/L	241	311	0.000	15.890	15.890
	Pb	208	0.200	ug/L 6.0 ✓	7967	225	0.002	0.989	0.989
	Bi	209	0.014	ug/L	766	323	0.003	17.545	17.545
	U	238	0.001	ug/L	65	30	0.001	56.555	56.555
>	Tm	169		ug/L	718963	755304			3.068
	Tb	159		ug/L	720358	764824			32.955
	Kr	83		mg/L	1418	464			9.331
	Y	89		ug/L	720495	775852			10.343
	In	115		ug/L	584862	630854			8.774
	Ho	165		mg/L	700095	739682			73.034
	Ar2	76		mg/L	156561	165950			7.007

Sample ID: GC8425-04R X1000

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:41:18

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description: TX150 WS2181855

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	17.125	ug/L	86179	77736	1.067	6.231	6.231
	Mg	26	-0.193	ug/L	1161	1539	0.042	21.979	21.979
	Cl	35	-0.105	mg/L	71155	82326	0.020	18.997	18.997
	Na	23	1.274	ug/L	38842	18451	0.017	1.337	1.337
	K	39	4.747	ug/L	1659519	1641825	0.538	11.331	11.331
>	Sc	45		ug/L	413567	436752			0.224
>	Li	6		ug/L	134444	131597			0.339
	Li	7		ug/L	9184	9235			38.511
	Be	9	-0.003	ug/L	83	85	0.009	273.540	273.540
	B	10	156.568	ug/L	48386	388	2.468	1.576	1.576
	B	11	156.070	ug/L	226684	1527	2.773	1.777	1.777
	Al	27	-0.960	ug/L	15160	31398	0.073	7.590	7.590
	Ti	49	-0.125	ug/L	-209	-23	0.050	40.248	40.248
	V	51	-0.001	ug/L	5472	5814	0.004	277.040	277.040
	Cr	53	0.646	ug/L	1995	316	0.020	3.149	3.149
	Cr	52	0.629	ug/L 0.4 % RD	26339	13073	0.011	1.689	1.689
	Fe	56	-3.991	ug/L	4999772	5398652	1.311	32.845	32.845
	Fe	57	4.122	ug/L	20578	18823	0.415	10.071	10.071
	Fe	54	2.972	ug/L	-22740	-29358	0.278	9.366	9.366
	Mn	55	0.048	ug/L	2505	895	0.001	2.846	2.846
	Co	59	0.008	ug/L	406	219	0.000	6.223	6.223
	Ni	62	0.363	ug/L	490	198	0.031	8.420	8.420
	Ni	60	0.368	ug/L	2214	177	0.011	2.956	2.956
	Cu	63	0.218	ug/L	3289	477	0.002	0.926	0.926
	Cu	65	0.443	ug/L	3167	407	0.015	3.399	3.399
>	Sc-1	45		ug/L	413567	436752			0.224
	P	31	-0.450	ug/L	-2378	-2051	0.462	102.678	102.678
	Zn	68	0.412	ug/L	1878	955	0.020	4.867	4.867
	Zn	66	0.594	ug/L	4378	2537	0.042	7.123	7.123
	As	75	0.210	ug/L 0.1 % RD	976	148	0.014	6.869	6.869
	Se	77	1.520	ug/L	727	287	0.035	2.303	2.303
	Se	78	1.777	ug/L	21071	21083	0.426	23.956	23.956
	Se	82	1.617	ug/L	1078	457	0.057	3.553	3.553
	Br	79	-0.016	mg/L	16146	30600	0.001	4.510	4.510
>	Ge	72		ug/L	178676	194952			1.764
>	Rh	103		ug/L	544700	590206			1.302
	Sr	88	-0.040	ug/L	604	2600	0.001	2.027	2.027
	Mo	97	0.006	ug/L	167	155	0.001	12.296	12.296
	Mo	98	0.010	ug/L	231	137	0.001	13.013	13.013
	Ag	107	-0.000	ug/L	209	228	0.002	10014.444	10014.444
	Ag	109	-0.001	ug/L	188	213	0.001	123.403	123.403
	Cd	111	0.002	ug/L	502	533	0.001	47.982	47.982
	Cd	114	-0.001	ug/L	51	61	0.001	142.209	142.209
	Sn	118	0.137	ug/L	1541	142	0.024	17.272	17.272
	Sn	120	0.123	ug/L	1929	203	0.006	4.582	4.582
	Sb	121	0.008	ug/L	154	58	0.000	5.589	5.589
	Sb	123	0.009	ug/L	107	30	0.001	10.806	10.806
	Ba	135	0.009	ug/L	91	69	0.005	55.637	55.637
	Ba	137	0.007	ug/L	121	93	0.002	22.165	22.165
	Tl	203	-0.002	ug/L	103	135	0.001	37.644	37.644
	Tl	205	-0.003	ug/L	199	311	0.001	19.740	19.740
	Pb	208	0.044	ug/L 10.0 %	1879	225	0.001	3.087	3.087
	Bi	209	0.003	ug/L	393	323	0.001	39.735	39.735
	U	238	0.000	ug/L	37	30	0.000	58.501	58.501
>	Tm	169		ug/L	709655	755304			0.687
	Tb	159		ug/L	718998	764824			34.256
	Kr	83		mg/L	627	464			27.965
	Y	89		ug/L	715080	775852			6.943
	In	115		ug/L	580960	630854			12.494
	Ho	165		mg/L	691364	739682			7.165
	Ar2	76		mg/L	154289	165950			6.742

Sample ID: GD7184-01 X50

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:47:19
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description: AMP WS2181864

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	11.927	ug/L		82952	77736	0.990	8.298	8.298
	Mg	26	-0.120	ug/L		1283	1539	0.029	23.884	23.884
	Cl	35	0.848	mg/L		133713	82326	0.040	4.708	4.708
	Na	23	12.284	ug/L		225170	18451	0.184	1.500	1.500
	K	39	6.222	ug/L		1704251	1641825	0.307	4.933	4.933
>	Sc	45		ug/L		416536	436752			0.236
>	Li	6		ug/L		134200	131597			1.249
	Li	7		ug/L		9211	9235			70.192
	Be	9	2.306	ug/L		2592	85	0.089	3.859	3.859
	B	10	25.305	ug/L		8136	388	1.121	4.431	4.431
	B	11	26.134	ug/L		39161	1527	2.313	8.849	8.849
	Al	27	4.885	ug/L		104590	31398	0.053	1.077	1.077
	Ti	49	0.077	ug/L		94	-23	0.020	26.551	26.551
	V	51	-0.081	ug/L		3459	5814	0.017	21.117	21.117
	Cr	53	5.335	ug/L		14397	316	0.048	0.901	0.901
	Cr	52	5.312	ug/L		131136	13073	0.041	0.763	0.763
	Fe	56	-7.295	ug/L		4942082	5398652	0.651	8.921	8.921
	Fe	57	0.842	ug/L		18518	18823	0.383	45.490	45.490
	Fe	54	-0.869	ug/L		-29488	-29358	0.533	61.311	61.311
	Mn	55	4.118	ug/L		144699	895	0.043	1.040	1.040
	Co	59	1.709	ug/L		44615	219	0.012	0.721	0.721
	Ni	62	9.030	ug/L		7768	198	0.112	1.235	1.235
	Ni	60	9.120	ug/L		51230	177	0.136	1.488	1.488
	Cu	63	2.673	ug/L		35470	477	0.030	1.139	1.139
	Cu	65	2.715	ug/L		17553	407	0.025	0.937	0.937
>	Sc-1	45		ug/L		416536	436752			0.236
	P	31	-0.486	ug/L		-2431	-2051	0.322	66.189	66.189
	Zn	68	5.254	ug/L		13713	955	0.084	1.590	1.590
	Zn	66	5.329	ug/L		20802	2537	0.041	0.760	0.760
	As	75	5.809	ug/L		23530	148	0.035	0.603	0.603
	Se	77	3.775	ug/L		1420	287	0.193	5.104	5.104
	Se	78	3.971	ug/L		23306	21083	0.512	12.887	12.887
	Se	82	3.734	ug/L		1947	457	0.069	1.858	1.858
	Br	79	-0.018	mg/L		14192	30600	0.000	0.702	0.702
>	Ge	72		ug/L		179207	194952			0.788
>	Rh	103		ug/L		550073	590206			0.404
	Sr	88	-0.040	ug/L		622	2600	0.002	6.156	6.156
	Mo	97	0.000	ug/L		147	155	0.006	1210.475	1210.475
	Mo	98	-0.002	ug/L		110	137	0.000	2.467	2.467
	Ag	107	1.029	ug/L		17993	228	0.008	0.814	0.814
	Ag	109	1.009	ug/L		16616	213	0.005	0.537	0.537
	Cd	111	3.971	ug/L		16425	533	0.023	0.576	0.576
	Cd	114	3.975	ug/L	0.19875	34921	61	0.011	0.289	0.289
	Sn	118	0.049	ug/L		640	142	0.001	2.669	2.669
	Sn	120	0.045	ug/L		827	203	0.002	3.737	3.737
	Sb	121	3.348	ug/L		41057	58	0.039	1.171	1.171
	Sb	123	3.369	ug/L		31136	30	0.046	1.370	1.370
	Ba	135	2.348	ug/L		7079	69	0.033	1.395	1.395
	Ba	137	2.385	ug/L		12519	93	0.051	2.147	2.147
	Tl	203	2.862	ug/L		36101	135	0.036	1.271	1.271
	Tl	205	2.866	ug/L		85262	311	0.019	0.671	0.671
	Pb	208	33.196	ug/L	1.6598	1298997	225	0.039	0.119	0.119
	Bi	209	0.004	ug/L		426	323	0.002	55.846	55.846
	U	238	0.000	ug/L		37	30	0.000	76.354	76.354
>	Tm	169		ug/L		727221	755304			1.668
	Tb	159		ug/L		721965	764824			14.566
	Kr	83		mg/L		365	464			16.384
	Y	89		ug/L		714453	775852			12.010
	In	115		ug/L		581703	630854			4.168
	Ho	165		mg/L		709969	739682			28.100
	Ar2	76		mg/L		154642	165950			1.344

Sample ID: GD7184-01R X250

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 18:54:20
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description: AMP WS2181864

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	11.651	ug/L		81815	77736	1.591	13.658	13.658
	Mg	26	-0.435	ug/L		787	1539	0.037	8.538	8.538
	Cl	35	0.044	mg/L		80439	82326	0.012	27.192	27.192
	Na	23	2.499	ug/L		59146	18451	0.084	3.346	3.346
	K	39	3.719	ug/L		1630028	1641825	0.479	12.883	12.883
>	Sc	45		ug/L		411864	436752			0.782
>	Li	6		ug/L		133347	131597			0.237
	Li	7		ug/L		9158	9235			24.983
	Be	9	0.420	ug/L		540	85	0.027	6.309	6.309
	B	10	8.606	ug/L		3010	388	0.131	1.518	1.518
	B	11	9.020	ug/L		14453	1527	0.262	2.909	2.909
	Al	27	0.151	ug/L		31881	31398	0.118	78.242	78.242
	Ti	49	0.051	ug/L		55	-23	0.006	12.022	12.022
	V	51	-0.019	ug/L		5010	5814	0.006	31.248	31.248
	Cr	53	1.037	ug/L		3006	316	0.036	3.447	3.447
	Cr	52	1.033	ug/L		35148	13073	0.020	1.916	1.916
	Fe	56	-5.810	ug/L		4928072	5398652	1.529	26.324	26.324
	Fe	57	0.546	ug/L		18112	18823	0.519	95.130	95.130
	Fe	54	-0.137	ug/L		-27921	-29358	0.354	257.829	257.829
	Mn	55	0.819	ug/L		29124	895	0.012	1.478	1.478
	Co	59	0.335	ug/L		8815	219	0.009	2.583	2.583
	Ni	62	1.769	ug/L		1655	198	0.062	3.520	3.520
	Ni	60	1.783	ug/L		10036	177	0.044	2.446	2.446
	Cu	63	0.527	ug/L		7270	477	0.007	1.347	1.347
	Cu	65	0.548	ug/L		3811	407	0.012	2.262	2.262
>	Sc-1	45		ug/L		411864	436752			0.782
	P	31	-0.948	ug/L		-2848	-2051	0.566	59.708	59.708
	Zn	68	1.097	ug/L		3549	955	0.071	6.465	6.465
	Zn	66	1.185	ug/L		6419	2537	0.028	2.326	2.326
	As	75	1.134	ug/L		4691	148	0.025	2.188	2.188
	Se	77	0.715	ug/L		481	287	0.125	17.502	17.502
	Se	78	1.169	ug/L		20473	21083	0.128	10.930	10.930
	Se	82	0.740	ug/L		720	457	0.048	6.447	6.447
	Br	79	-0.018	mg/L		14135	30600	0.000	2.241	2.241
>	Ge	72		ug/L		178654	194952			0.524
>	Rh	103		ug/L		549581	590206			0.537
	Sr	88	-0.042	ug/L		493	2600	0.001	3.384	3.384
	Mo	97	-0.002	ug/L		137	155	0.003	147.779	147.779
	Mo	98	-0.002	ug/L		105	137	0.001	51.870	51.870
	Ag	107	0.197	ug/L		3617	228	0.003	1.737	1.737
	Ag	109	0.187	ug/L		3238	213	0.008	4.025	4.025
	Cd	111	0.774	ug/L		3599	533	0.004	0.494	0.494
	Cd	114	0.768	ug/L	3.4% RPD	6787	61	0.016	2.123	2.123
	Sn	118	0.014	ug/L		278	142	0.001	10.509	10.509
	Sn	120	0.011	ug/L		346	203	0.003	23.928	23.928
	Sb	121	0.658	ug/L		8104	58	0.008	1.156	1.156
	Sb	123	0.675	ug/L		6258	30	0.015	2.185	2.185
	Ba	135	0.450	ug/L		1409	69	0.012	2.645	2.645
	Ba	137	0.463	ug/L		2498	93	0.014	2.968	2.968
	Tl	203	0.541	ug/L		6856	135	0.005	0.848	0.848
	Tl	205	0.545	ug/L		16276	311	0.015	2.793	2.793
	Pb	208	6.410	ug/L	3.45% RPD	248321	225	0.189	2.950	2.950
	Bi	209	-0.000	ug/L		299	323	0.002	648.188	648.188
	U	238	-0.000	ug/L		28	30	0.000	822.157	822.157
>	Tm	169		ug/L		719438	755304			1.140
	Tb	159		ug/L		720862	764824			45.672
	Kr	83		mg/L		397	464			19.519
	Y	89		ug/L		720976	775852			6.355
	In	115		ug/L		588488	630854			3.365
	Ho	165		mg/L		700715	739682			66.875
	Ar2	76		mg/L		154285	165950			7.113

Sample ID: CCV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 19:00:52
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1248.970	ug/L	988002	77736	4.528	0.363	0.363
	Mg	26	235.607	ug/L	361583	1539	0.479	0.203	0.203
	Cl	35	-0.166	mg/L	67046	82326	0.011	6.724	6.724
	Na	23	1176.868	ug/L	19718012	18451	7.801	0.663	0.663
	K	39	1171.914	ug/L	27379210	1641825	13.225	1.128	1.128
>	Sc	45		ug/L	412637	436752			0.362
>	Li	6		ug/L	131716	131597			0.722
	Li	7		ug/L	9077	9235			56.252
	Be	9	49.008	ug/L	52334	85	0.590	1.204	1.204
	B	10	53.637	ug/L	16496	388	0.573	1.069	1.069
	B	11	53.401	ug/L	77004	1527	1.263	2.364	2.364
	Al	27	93.778	ug/L	1449307	31398	0.241	0.257	0.257
	Ti	49	47.801	ug/L	71641	-23	0.320	0.669	0.669
	V	51	48.491	ug/L	1236514	5814	0.313	0.646	0.646
	Cr	53	48.255	ug/L	126587	316	0.224	0.464	0.464
	Cr	52	48.424	ug/L	1084005	13073	0.235	0.485	0.485
	Fe	56	229.969	ug/L	11554008	5398652	4.457	1.938	1.938
	Fe	57	244.370	ug/L	180690	18823	3.063	1.253	1.253
	Fe	54	245.950	ug/L	390077	-29358	1.204	0.489	0.489
	Mn	55	48.217	ug/L	1669217	895	0.148	0.308	0.308
	Co	59	47.494	ug/L	1222496	219	0.502	1.057	1.057
	Ni	62	47.131	ug/L	39378	198	0.334	0.709	0.709
	Ni	60	47.688	ug/L	264664	177	0.379	0.795	0.795
	Cu	63	47.900	ug/L	621996	477	0.639	1.334	1.334
	Cu	65	47.707	ug/L	299185	407	0.300	0.629	0.629
>	Sc-1	45		ug/L	412637	436752			0.362
	P	31	91.748	ug/L	86879	-2051	0.853	0.929	0.929
	Zn	68	103.110	ug/L	253103	955	1.526	1.480	1.480
	Zn	66	102.602	ug/L	358399	2537	0.981	0.956	0.956
	As	75	48.589	ug/L	196065	148	0.808	1.664	1.664
	Se	77	47.988	ug/L	14984	287	0.852	1.775	1.775
	Se	78	48.375	ug/L	67311	21083	0.382	0.790	0.790
	Se	82	48.243	ug/L	20174	457	0.238	0.492	0.492
	Br	79	-0.027	mg/L	7458	30600	0.000	1.183	1.183
>	Ge	72		ug/L	179435	194952			0.361
>	Rh	103		ug/L	538818	590206			0.555
	Sr	88	47.768	ug/L	2130847	2600	0.320	0.670	0.670
	Mo	97	24.533	ug/L	100902	155	0.180	0.732	0.732
	Mo	98	24.347	ug/L	254599	137	0.102	0.420	0.420
	Ag	107	24.453	ug/L	414070	228	0.255	1.042	1.042
	Ag	109	24.429	ug/L	389445	213	0.366	1.497	1.497
	Cd	111	24.523	ug/L	96847	533	0.169	0.688	0.688
	Cd	114	24.403	ug/L	209735	61	0.335	1.372	1.372
	Sn	118	24.302	ug/L	248111	142	0.368	1.515	1.515
	Sn	120	23.589	ug/L	330864	203	0.139	0.588	0.588
	Sb	121	9.476	ug/L	113745	58	0.088	0.926	0.926
	Sb	123	9.534	ug/L	86255	30	0.135	1.420	1.420
	Ba	135	48.956	ug/L	143350	69	0.542	1.107	1.107
	Ba	137	49.122	ug/L	250861	93	0.509	1.036	1.036
	Tl	203	48.574	ug/L	597632	135	0.742	1.528	1.528
	Tl	205	49.760	ug/L	1443956	311	0.578	1.161	1.161
	Pb	208	50.529	ug/L	1935062	225	0.300	0.594	0.594
	Bi	209	49.781	ug/L	1571424	323	0.600	1.205	1.205
	U	238	48.958	ug/L	1820819	30	0.889	1.816	1.816
>	Tm	169		ug/L	711720	755304			0.626
	Tb	159		ug/L	709885	764824			9.291
	Kr	83		mg/L	517	464			57.131
	Y	89		ug/L	710335	775852			10.112
	In	115		ug/L	587211	630854			9.040
	Ho	165		mg/L	692628	739682			16.404
	Ar2	76		mg/L	172388	165950			28.991

Sample ID: CCB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 19:08:55
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	8.927	ug/L	79127	77736	1.581	17.706	17.706
	Mg	26	-0.588	ug/L	549	1539	0.024	4.071	4.071
	Cl	35	-0.110	mg/L	69938	82326	0.005	4.468	4.468
	Na	23	0.071	ug/L	18427	18451	0.025	35.615	35.615
	K	39	4.457	ug/L	1631872	1641825	0.712	15.974	15.974
>	Sc	45		ug/L	408263	436752			0.726
>	Li	6		ug/L	131940	131597			1.427
	Li	7		ug/L	9302	9235			503.064
	Be	9	-0.010	ug/L	74	85	0.004	33.868	33.868
	B	10	3.104	ug/L	1322	388	0.335	10.785	10.785
	B	11	3.438	ug/L	6393	1527	0.362	10.533	10.533
	Al	27	-1.384	ug/L	8611	31398	0.174	12.542	12.542
	Ti	49	0.048	ug/L	51	-23	0.010	19.984	19.984
	V	51	-0.003	ug/L	5356	5814	0.002	58.298	58.298
	Cr	53	-0.010	ug/L	270	316	0.007	70.353	70.353
	Cr	52	-0.011	ug/L	11982	13073	0.012	114.183	114.183
	Fe	56	-4.488	ug/L	4921614	5398652	2.198	48.972	48.972
	Fe	57	0.566	ug/L	17968	18823	0.184	32.575	32.575
	Fe	54	0.489	ug/L	-26623	-29358	0.484	99.024	99.024
	Mn	55	0.002	ug/L	908	895	0.001	61.097	61.097
	Co	59	0.003	ug/L	269	219	0.001	26.235	26.235
	Ni	62	-0.007	ug/L	179	198	0.004	60.553	60.553
	Ni	60	0.005	ug/L	195	177	0.003	52.335	52.335
	Cu	63	-0.000	ug/L	442	477	0.001	362.386	362.386
	Cu	65	0.020	ug/L	506	407	0.004	17.545	17.545
>	Sc-1	45		ug/L	408263	436752			0.726
	P	31	-0.393	ug/L	-2293	-2051	0.127	32.224	32.224
	Zn	68	0.055	ug/L	1007	955	0.028	51.007	51.007
	Zn	66	0.079	ug/L	2594	2537	0.018	23.094	23.094
	As	75	0.004	ug/L	152	148	0.001	31.646	31.646
	Se	77	-0.033	ug/L	253	287	0.038	117.151	117.151
	Se	78	0.591	ug/L	19881	21083	0.321	54.355	54.355
	Se	82	-0.040	ug/L	402	457	0.075	189.044	189.044
	Br	79	-0.019	mg/L	13692	30600	0.000	2.124	2.124
>	Ge	72		ug/L	178473	194952			1.723
>	Rh	103		ug/L	553101	590206			0.468
	Sr	88	-0.043	ug/L	489	2600	0.002	3.574	3.574
	Mo	97	0.005	ug/L	165	155	0.002	37.938	37.938
	Mo	98	0.006	ug/L	197	137	0.002	37.753	37.753
	Ag	107	0.004	ug/L	280	228	0.002	45.299	45.299
	Ag	109	0.003	ug/L	241	213	0.000	12.051	12.051
	Cd	111	0.003	ug/L	512	533	0.007	221.478	221.478
	Cd	114	0.001	ug/L	67	61	0.001	44.230	44.230
	Sn	118	0.025	ug/L	398	142	0.003	10.406	10.406
	Sn	120	0.028	ug/L	598	203	0.009	31.775	31.775
	Sb	121	0.022	ug/L	325	58	0.002	9.028	9.028
	Sb	123	0.021	ug/L	222	30	0.001	3.344	3.344
	Ba	135	-0.004	ug/L	54	69	0.005	125.112	125.112
	Ba	137	-0.002	ug/L	78	93	0.001	48.156	48.156
	Tl	203	-0.000	ug/L	122	135	0.001	217.350	217.350
	Tl	205	0.000	ug/L	296	311	0.001	1186.353	1186.353
	Pb	208	0.002	ug/L	279	225	0.001	63.503	63.503
	Bi	209	0.016	ug/L	799	323	0.003	17.445	17.445
	U	238	0.003	ug/L	131	30	0.001	20.970	20.970
>	Tm	169		ug/L	714390	755304			0.215
	Tb	159		ug/L	714751	764824			12.730
	Kr	83		mg/L	385	464			31.068
	Y	89		ug/L	721458	775852			7.631
	In	115		ug/L	591276	630854			13.323
	Ho	165		mg/L	686008	739682			14.049
	Ar2	76		mg/L	154920	165950			0.409

Sample ID: ICSA

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 20:20:44
Method File: C:\elandata\Method\6020scan7ep.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	24026.553	ug/L	16091141	77736	171.155	0.712	0.712
	Mg	26	23919.841	ug/L	33301644	1539	252.148	1.054	1.054
	Cl	35	192.820	mg/L	11395537	82326	6.454	3.347	3.347
	Na	23	24365.289	ug/L	371500662	18451	376.793	1.546	1.546
	K	39	23837.328	ug/L	479905589	1641825	524.634	2.201	2.201
>	Sc	45		ug/L	375840	436752			0.607
>	Li	6		ug/L	120376	131597			0.934
	Li	7		ug/L	8728	9235			43.843
	Be	9	0.003	ug/L	80	85	0.004	133.505	133.505
	B	10	0.909	ug/L	604	388	0.076	8.335	8.335
	B	11	0.937	ug/L	2606	1527	0.130	13.916	13.916
	Al	27	23989.095	ug/L	330775889	31398	413.258	1.723	1.723
	Ti	49	503.364	ug/L	687305	-23	3.300	0.656	0.656
	V	51	0.017	ug/L	5394	5814	0.020	114.730	114.730
	Cr	53	-0.509	ug/L	-941	316	0.052	10.254	10.254
	Cr	52	0.242	ug/L	16123	13073	0.005	2.156	2.156
	Fe	56	24552.044	ug/L	632187726	5398652	203.159	0.827	0.827
	Fe	57	24539.381	ug/L	14916075	18823	288.733	1.177	1.177
	Fe	54	24641.879	ug/L	38101543	-29358	186.901	0.758	0.758
	Mn	55	0.336	ug/L	11353	895	0.013	3.894	3.894
	Co	59	0.389	ug/L	9296	219	0.004	0.999	0.999
	Ni	62	-0.321	ug/L	-73	198	0.112	35.070	35.070
	Ni	60	0.317	ug/L	1754	177	0.022	7.084	7.084
	Cu	63	0.249	ug/L	3355	477	0.013	5.383	5.383
	Cu	65	-0.054	ug/L	40	407	0.033	61.519	61.519
>	Sc-1	45		ug/L	375840	436752			0.607
	P	31	23866.056	ug/L	21041075	-2051	282.751	1.185	1.185
	Zn	68	0.499	ug/L	2044	955	0.012	2.330	2.330
	Zn	66	0.164	ug/L	2826	2537	0.050	30.469	30.469
	As	75	-0.118	ug/L	-331	148	0.012	9.860	9.860
	Se	77	-0.915	ug/L	-16	287	0.149	16.247	16.247
	Se	78	1.427	ug/L	20268	21083	0.248	17.394	17.394
	Se	82	0.081	ug/L	441	457	0.011	14.261	14.261
	Br	79	-0.017	mg/L	14613	30600	0.000	0.764	0.764
>	Ge	72		ug/L	174702	194952			0.798
>	Rh	103		ug/L	497081	590206			1.042
	Sr	88	0.215	ug/L	11035	2600	0.002	1.055	1.055
	Mo	97	520.568	ug/L	1972405	155	3.861	0.742	0.742
	Mo	98	509.267	ug/L	4910703	137	1.929	0.379	0.379
	Ag	107	0.018	ug/L	465	228	0.002	11.517	11.517
	Ag	109	0.018	ug/L	447	213	0.000	2.536	2.536
	Cd	111	0.068	ug/L	695	533	0.013	19.697	19.697
	Cd	114	0.530	ug/L	4256	61	0.007	1.327	1.327
	Sn	118	0.016	ug/L	269	142	0.002	9.469	9.469
	Sn	120	0.012	ug/L	332	203	0.001	9.536	9.536
	Sb	121	0.043	ug/L	520	58	0.002	5.819	5.819
	Sb	123	0.039	ug/L	355	30	0.001	3.584	3.584
	Ba	135	0.121	ug/L	384	69	0.007	5.400	5.400
	Ba	137	0.117	ug/L	630	93	0.008	7.176	7.176
	Tl	203	0.010	ug/L	227	135	0.002	15.681	15.681
	Tl	205	0.011	ug/L	545	311	0.001	6.640	6.640
	Pb	208	0.125	ug/L	4527	225	0.007	5.332	5.332
	Bi	209	0.029	ug/L	1103	323	0.002	6.529	6.529
	U	238	0.001	ug/L	69	30	0.001	46.417	46.417
>	Tm	169		ug/L	644889	755304			2.026
	Tb	159		ug/L	662461	764824			2.907
	Kr	83		mg/L	540	464			12.059
	Y	89		ug/L	664232	775852			2.391
	In	115		ug/L	552024	630854			2.636
	Ho	165		mg/L	637626	739682			15.261
	Ar2	76		mg/L	152298	165950			4.949

Sample ID: ICSAB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Thursday, June 17, 2010 20:25:46

Method File: C:\elandata\Method\6020scan7ep.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	24013.764	ug/L	15957495	77736	260.998	1.087	1.087
	Mg	26	23562.116	ug/L	32544866	1539	210.608	0.894	0.894
	Cl	35	196.184	mg/L	11502419	82326	2.421	1.234	1.234
	Na	23	24158.826	ug/L	365458040	18451	146.769	0.608	0.608
	K	39	24210.153	ug/L	483597769	1641825	157.699	0.651	0.651
>	Sc	45		ug/L	372881	436752			0.928
>	Li	6		ug/L	116732	131597			1.657
	Li	7		ug/L	8417	9235			61.669
	Be	9	-0.001	ug/L	74	85	0.009	750.271	750.271
	B	10	1.237	ug/L	674	388	0.105	8.501	8.501
	B	11	1.358	ug/L	3055	1527	0.190	13.988	13.988
	Al	27	24264.087	ug/L	331941426	31398	156.611	0.645	0.645
	Ti	49	500.758	ug/L	678380	-23	1.470	0.294	0.294
	V	51	10.003	ug/L	234436	5814	0.074	0.744	0.744
	Cr	53	9.623	ug/L	23026	316	0.235	2.447	2.447
	Cr	52	10.116	ug/L	213460	13073	0.094	0.928	0.928
	Fe	56	24478.150	ug/L	625343441	5398652	300.029	1.226	1.226
	Fe	57	24407.554	ug/L	14718785	18823	310.483	1.272	1.272
	Fe	54	24400.668	ug/L	37432546	-29358	158.875	0.651	0.651
	Mn	55	10.077	ug/L	315854	895	0.059	0.581	0.581
	Co	59	9.773	ug/L	227460	219	0.107	1.091	1.091
	Ni	62	9.177	ug/L	7065	198	0.162	1.769	1.769
	Ni	60	9.557	ug/L	48047	177	0.156	1.630	1.630
	Cu	63	9.449	ug/L	111204	477	0.106	1.125	1.125
	Cu	65	9.045	ug/L	51541	407	0.074	0.814	0.814
>	Sc-I	45		ug/L	372881	436752			0.928
	P	31	23918.325	ug/L	20920941	-2051	176.467	0.738	0.738
	Zn	68	9.902	ug/L	24407	955	0.088	0.887	0.887
	Zn	66	9.722	ug/L	35074	2537	0.128	1.312	1.312
	As	75	9.430	ug/L	37107	148	0.054	0.573	0.573
	Se	77	9.026	ug/L	2949	287	0.301	3.340	3.340
	Se	78	11.125	ug/L	29581	21083	0.311	2.792	2.792
	Se	82	9.417	ug/L	4158	457	0.155	1.647	1.647
	Br	79	-0.016	mg/L	15774	30600	0.000	2.794	2.794
>	Ge	72		ug/L	174471	194952			0.486
>	Rh	103		ug/L	502060	590206			0.324
	Sr	88	0.184	ug/L	9865	2600	0.016	8.701	8.701
	Mo	97	501.249	ug/L	1918308	155	4.579	0.914	0.914
	Mo	98	501.638	ug/L	4885444	137	3.591	0.716	0.716
	Ag	107	9.472	ug/L	149580	228	0.122	1.293	1.293
	Ag	109	9.471	ug/L	140805	213	0.278	2.932	2.932
	Cd	111	4.990	ug/L	18724	533	0.073	1.462	1.462
	Cd	114	5.557	ug/L	44542	61	0.033	0.589	0.589
	Sn	118	0.016	ug/L	269	142	0.002	14.465	14.465
	Sn	120	0.013	ug/L	344	203	0.006	46.497	46.497
	Sb	121	0.051	ug/L	625	58	0.002	4.203	4.203
	Sb	123	0.051	ug/L	456	30	0.002	4.521	4.521
	Ba	135	0.116	ug/L	375	69	0.009	7.618	7.618
	Ba	137	0.108	ug/L	593	93	0.008	7.266	7.266
	Tl	203	0.009	ug/L	223	135	0.001	5.615	5.615
	Tl	205	0.011	ug/L	547	311	0.001	5.648	5.648
	Pb	208	0.033	ug/L	1359	225	0.002	4.942	4.942
	Bi	209	0.016	ug/L	727	323	0.002	14.034	14.034
	U	238	0.001	ug/L	45	30	0.000	54.653	54.653
>	Tm	169		ug/L	651866	755304			0.162
	Tb	159		ug/L	669339	764824			6.354
	Kr	83		mg/L	505	464			32.937
	Y	89		ug/L	663856	775852			4.335
	In	115		ug/L	561333	630854			5.664
	Ho	165		mg/L	643320	739682			7.793
	Ar2	76		mg/L	156949	165950			11.426

Job Comments
None

Worksheet Comments
None

Sample Comments
None

Test Comments

Test ICPMSFR-TR, WS # 2183342
Extra 5x dilution was required for samples GC8423-25, due to the matrix.
Post digestion duplicate and spike was done on sample GC8423.

Parameter Comments
None

Worksheet Number: 2183342

Metals F.H. in Filter + Rinses (6020) - Stack Sampling Train
(ug)

Parameter Name	Units	MTRX SPK	DL	MTRX SPKDup1	DL	SPIKE	DL	SPIKEDup1
Aluminum (Al)	ug	N/A*******		N/A*******		N/A*******	10	N/A*******
Chromium (Cr)	ug	102		99		96.05600	0.3	100.47000
Cobalt (Co)	ug	N/A*******		N/A*******		N/A*******	0.1	N/A*******
Copper (Cu)	ug	N/A*******		N/A*******		N/A*******	0.5	N/A*******
Iron (Fe)	ug	N/A*******		N/A*******		N/A*******	30	N/A*******
Lead (Pb)	ug	106		104		97.18600	0.2	100.71200
Magnesium (Mg)	ug	N/A*******		N/A*******		N/A*******	6	N/A*******
Manganese (Mn)	ug	N/A*******		N/A*******		N/A*******	0.75	N/A*******
Antimony (Sb)	ug	N/A*******		N/A*******		N/A*******	0.4	N/A*******
Molybdenum (Mo)	ug	N/A*******		N/A*******		N/A*******	0.5	N/A*******
Nickel (Ni)	ug	N/A*******		N/A*******		N/A*******	0.5	N/A*******
Potassium (K)	ug	N/A*******		N/A*******		N/A*******	30	N/A*******
Selenium (Se)	ug	N/A*******		N/A*******		N/A*******	1	N/A*******
Silver (Ag)	ug	N/A*******		N/A*******		N/A*******	0.2	N/A*******
Sodium (Na)	ug	N/A*******		N/A*******		N/A*******	20	N/A*******
Strontium (Sr)	ug	N/A*******		N/A*******		N/A*******	0.3	N/A*******
Arsenic (As)	ug	98		96		99.73400	0.4	102.64600
Thallium (Tl)	ug	N/A*******		N/A*******		N/A*******	0.5	N/A*******
Tin (Sn)	ug	N/A*******		N/A*******		N/A*******	0.6	N/A*******
Titanium (Ti)	ug	N/A*******		N/A*******		N/A*******	0.5	N/A*******
Uranium (U)	ug	N/A*******		N/A*******		N/A*******	0.2	N/A*******
Vanadium (V)	ug	N/A*******		N/A*******		N/A*******	0.3	N/A*******
Zinc (Zn)	ug	N/A*******		N/A*******		N/A*******	5	N/A*******
Barium (Ba)	ug	N/A*******		N/A*******		N/A*******	3	N/A*******
Beryllium (Be)	ug	100		100		98.87400	0.1	100.83600
Rhenium (Re)	ug	N/A*******		N/A*******		N/A*******	2	N/A*******
Bismuth (Bi)	ug	N/A*******		N/A*******		N/A*******	0.2	N/A*******
Boron (B)	ug	N/A*******		N/A*******		N/A*******	3	N/A*******
Cadmium (Cd)	ug	97		98		97.19600	0.1	99.72400
Calcium (Ca)	ug	N/A*******		N/A*******		N/A*******	30	N/A*******

Approved By: N. Kaylula 2010.06.23

Validated By: 20100623

Worksheet Number: 2183342 Contd....

						B073337		B073337
Parameter Name	DL	BLANK	DL	BLANKDup1	DL	GC8420	DL	GC8423
Aluminum (Al)	10	N/A*******	10	N/A*******	10	N/A*******	10	N/A*******
Chromium (Cr)	0.3	0.04200	0.3	0.03300	0.3	0.76800	0.3	136.92000
Cobalt (Co)	0.1	N/A*******	0.1	N/A*******	0.1	N/A*******	0.1	N/A*******
Copper (Cu)	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******
Iron (Fe)	30	N/A*******	30	N/A*******	30	N/A*******	30	N/A*******
Lead (Pb)	0.2	0.05100	0.2	0.04800	0.2	0.44400	0.2	321.52500
Magnesium (Mg)	6	N/A*******	6	N/A*******	6	N/A*******	6	N/A*******
Manganese (Mn)	0.75	N/A*******	0.75	N/A*******	0.75	N/A*******	0.75	N/A*******
Antimony (Sb)	0.4	N/A*******	0.4	N/A*******	0.4	N/A*******	0.4	N/A*******
Molybdenum (Mo)	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******
Nickel (Ni)	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******
Potassium (K)	30	N/A*******	30	N/A*******	30	N/A*******	30	N/A*******
Selenium (Se)	1	N/A*******	1	N/A*******	1	N/A*******	1	N/A*******
Silver (Ag)	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******
Sodium (Na)	20	N/A*******	20	N/A*******	20	N/A*******	20	N/A*******
Strontium (Sr)	0.3	N/A*******	0.3	N/A*******	0.3	N/A*******	0.3	N/A*******
Arsenic (As)	0.4	0.21000	0.4	0.21000	0.4	0.40200	0.4	5.07000
Thallium (Tl)	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******
Tin (Sn)	0.6	N/A*******	0.6	N/A*******	0.6	N/A*******	0.6	N/A*******
Titanium (Ti)	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******
Uranium (U)	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******
Vanadium (V)	0.3	N/A*******	0.3	N/A*******	0.3	N/A*******	0.3	N/A*******
Zinc (Zn)	5	N/A*******	5	N/A*******	5	N/A*******	5	N/A*******
Barium (Ba)	3	N/A*******	3	N/A*******	3	N/A*******	3	N/A*******
Beryllium (Be)	0.1	0	0.1	0	0.1	0	0.1	0.21000
Rhenium (Re)	2	N/A*******	2	N/A*******	2	N/A*******	2	N/A*******
Bismuth (Bi)	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******	0.2	N/A*******
Boron (B)	3	N/A*******	3	N/A*******	3	N/A*******	3	N/A*******
Cadmium (Cd)	0.1	0.04800	0.1	0.00900	0.1	0.02100	0.1	1.60500
Calcium (Ca)	30	N/A*******	30	N/A*******	30	N/A*******	30	N/A*******

Worksheet Number: 2183342 Contd....

		B073337		B073337		B073337	
Parameter Name	DL	GC8423Dup1	DL	GC8424	DL	GC8425	DL
Aluminum (Al)	50	N/A*******	50	N/A*******	50	N/A*******	50
Chromium (Cr)	1.5	125.43000	1.5	230.22000	1.5	249.18000	1.5
Cobalt (Co)	0.5	N/A*******	0.5	N/A*******	0.5	N/A*******	0.5
Copper (Cu)	2.5	N/A*******	2.5	N/A*******	2.5	N/A*******	2.5
Iron (Fe)	150	N/A*******	150	N/A*******	150	N/A*******	150
Lead (Pb)	1	320.94000	1	447.24000	1	399.91500	1
Magnesium (Mg)	30	N/A*******	30	N/A*******	30	N/A*******	30
Manganese (Mn)	3.75	N/A*******	3.75	N/A*******	3.75	N/A*******	3.75
Antimony (Sb)	2	N/A*******	2	N/A*******	2	N/A*******	2
Molybdenum (Mo)	2.5	N/A*******	2.5	N/A*******	2.5	N/A*******	2.5
Nickel (Ni)	2.5	N/A*******	2.5	N/A*******	2.5	N/A*******	2.5
Potassium (K)	150	N/A*******	150	N/A*******	150	N/A*******	150
Selenium (Se)	5	N/A*******	5	N/A*******	5	N/A*******	5
Silver (Ag)	1	N/A*******	1	N/A*******	1	N/A*******	1
Sodium (Na)	100	N/A*******	100	N/A*******	100	N/A*******	100
Strontium (Sr)	1.5	N/A*******	1.5	N/A*******	1.5	N/A*******	1.5
Arsenic (As)	2	4.75500	2	8.26500	2	8.40000	2
Thallium (Tl)	2.5	N/A*******	2.5	N/A*******	2.5	N/A*******	2.5
Tin (Sn)	3	N/A*******	3	N/A*******	3	N/A*******	3
Titanium (Ti)	2.5	N/A*******	2.5	N/A*******	2.5	N/A*******	2.5
Uranium (U)	1	N/A*******	1	N/A*******	1	N/A*******	1
Vanadium (V)	1.5	N/A*******	1.5	N/A*******	1.5	N/A*******	1.5
Zinc (Zn)	25	N/A*******	25	N/A*******	25	N/A*******	25
Barium (Ba)	15	N/A*******	15	N/A*******	15	N/A*******	15
Beryllium (Be)	0.5	0	0.5	0.36000	0.5	0.09000	0.5
Rhenium (Re)	10	N/A*******	10	N/A*******	10	N/A*******	10
Bismuth (Bi)	1	N/A*******	1	N/A*******	1	N/A*******	1
Boron (B)	15	N/A*******	15	N/A*******	15	N/A*******	15
Cadmium (Cd)	0.5	1.54500	0.5	2.34000	0.5	4.92000	0.5
Calcium (Ca)	150	N/A*******	150	N/A*******	150	N/A*******	150

Worksheet Number: 2183342 Contd....

	B073337		B073337				
Parameter Name	GD7165	DL	GD7181	DL	RDL	MDL	IDL
Aluminum (Al)	N/A*******	10	N/A*******	10	10	0	0.1
Chromium (Cr)	1.51800	0.3	68.53500	0.3	0.3	0	0.04
Cobalt (Co)	N/A*******	0.1	N/A*******	0.1	0.1	0	0.03
Copper (Cu)	N/A*******	0.5	N/A*******	0.5	0.5	0	0.08
Iron (Fe)	N/A*******	30	N/A*******	30	30	0	0.28
Lead (Pb)	0.70200	0.2	420.06000	0.2	0.2	0	0.06
Magnesium (Mg)	N/A*******	6	N/A*******	6	6	0	0.75
Manganese (Mn)	N/A*******	0.75	N/A*******	0.75	0.75	0	0.03
Antimony (Sb)	N/A*******	0.4	N/A*******	0.4	0.4	0	0.03
Molybdenum (Mo)	N/A*******	0.5	N/A*******	0.5	0.5	0	0.03
Nickel (Ni)	N/A*******	0.5	N/A*******	0.5	0.5	0	0.03
Potassium (K)	N/A*******	30	N/A*******	30	30	0	1.5
Selenium (Se)	N/A*******	1	N/A*******	1	1	0	0.04
Silver (Ag)	N/A*******	0.2	N/A*******	0.2	0.2	0	0.01
Sodium (Na)	N/A*******	20	N/A*******	20	20	0	7.5
Strontium (Sr)	N/A*******	0.3	N/A*******	0.3	0.3	0	0.03
Arsenic (As)	0.03300	0.4	68.55300	0.4	0.4	0	0.03
Thallium (Tl)	N/A*******	0.5	N/A*******	0.5	0.5	0	0.03
Tin (Sn)	N/A*******	0.6	N/A*******	0.6	0.6	0	0.02
Titanium (Ti)	N/A*******	0.5	N/A*******	0.5	0.5	0	0.05
Uranium (U)	N/A*******	0.2	N/A*******	0.2	0.2	0	0.04
Vanadium (V)	N/A*******	0.3	N/A*******	0.3	0.3	0	0.03
Zinc (Zn)	N/A*******	5	N/A*******	5	5	0	0.13
Barium (Ba)	N/A*******	3	N/A*******	3	3	0	0.02
Beryllium (Be)	0	0.1	29.39700	0.1	0.1	0	0.03
Rhenium (Re)	N/A*******	2	N/A*******	2	2	0	0.15
Bismuth (Bi)	N/A*******	0.2	N/A*******	0.2	0.2	0	0.05
Boron (B)	N/A*******	3	N/A*******	3	3	0	0.15
Cadmium (Cd)	0.01500	0.1	47.25300	0.1	0.1	0	0.03
Calcium (Ca)	N/A*******	30	N/A*******	30	30	0	2.5

Audit Vial/Filter preparation Log Sheet

Maxxam Sample No.: GD7181-01

Vial/Filter ID: M99-4584-01/AL-6142 AUDIT

Outlined dilution for Prep: N/A times — Not used in final calculation

Actual Dilution: N/A times — Not used in final calculation

Applied Dilution: 300 times — This will be 1 for vial or 300 for filters unless additional dilution was done

Volume Taken: N/A mL

Final Volume: 300 mL

Date: 10/06/18

Analyst's Initials: PB

Witnessed by: N/A

Attach Audit Vial/Filter Preparation Log Sheet and audit sample paper work to the digestion prep sheet.

Dilution at Instrument: 10x

Date: 2010.06.23

Analyst Initials: NK

Unit Reported: Circle one

Total ug or ug/mL

✓

Validation Calculation Check by Reviewer:

Pb = 140.020 ug/L x 10 x 300 mL

≈ 420.66 ug

Date: 2010-06-23

Reviewer's Initials: [illegible]

Assignment Date: Friday ; June 18, 2010
Assigned to: PREMPAL BHATTI
Test Code: ICPMSFR-TR Instrument Id:
Test Description: Total Metals Analysis of the FH Filter plus rinses HF Digest (standard train) by ICP-MS

Job Number	Sample Number	D	Sample ID	F	% Moist	Wt or Vol	Final Vol	DF or AF	# Cont	Expiry Date	Test Deadline	Criteria	Extract Date
	SPIKE	0	METFH										2010/06/18
	SPIKE	1	METFH										2010/06/18
	BLANK												2010/06/18
B073337	*GC8420-01R		BLANK-COND 2-M*						1	2010/07/04	2010/06/23 23:00		2010/06/18
B073337	*GC8423-01R		RUN 1-COND 2-M*						1	2010/07/03	2010/06/23 23:00		2010/06/18
B073337	*GC8424-01R		RUN 2-COND 2-M*						1	2010/07/03	2010/06/23 23:00		2010/06/18
B073337	*GC8425-01R		RUN 3-COND 2-M*						1	2010/07/04	2010/06/23 23:00		2010/06/18
B073337	*GD7165-01R		M29-FILTER BLA*						1	2010/06/24	2010/06/23 23:00		2010/06/18
B073337	*GD7181-01R		M29-4584-01/Fi*						1	2010/06/24	2010/06/23 23:00		2010/06/18

Remarks:

Samples extracted by: PREMPAL BHATTI 10-06-18
Instrumentation performed by: N. Nayeha Date: 2010.06.23
Calculations performed by: N. Nayeha Date: 2010.06.23
Validated by: [signature] Date: 2010/06/23

B073305, B073337, B073604

ICPMSFR-TR, ICPFH-TR, HGFR-TR

EPA METHOD 29 PREPARATION LOG: (non-combined front half)

DG29HF / DG29HFB

BRL SOP-00102

Front Half Standard Digestion

- ✓ 0.1 N HNO3 Probe wash reduced
- ✓ Acetone Wash redissolved with 6ml HNO3
- ✓ HF and HNO3 (if no acetone wash) added
- ✓ Filter and washes combined in bomb
- ✓ Bombs sealed, weighed and digested
- ✓ Bombs cooled and weighed
- ✓ Sample transferred to 300 ml HDPE bottle
- ✓ Samples bulked to 300 ml with RODI and mixed
- ✓ MARK "HF" ON LIDS IN RED

Front Half Bulk Digestion

- N/A 0.1 N HNO3 Probe wash reduced
- Acetone Wash redissolved with 6ml HNO3
- HF and HNO3 (if no acetone wash) added
- Filter and washes combined in digestion bottle
- Bottles sealed and sonicated
- Samples bulked to intermediate volume with RODI and mixed
- Sample aliquot transferred to bomb weighed and digested
- Samples transferred to 300 ml HDPE bottle and bulked to F.V. with RODI and mixed
- MARK "HF" ON LIDS IN RED

	Bomb #	Sample I.D.	B.Code	Bulk Interm Vol	Bulk Aliquot Vol.	Final Vol.	Bomb Pre Wt.	Bomb Post Wt.	Dilution Factor	Comment
1	B	BL 0617				300	239	239	300X	
2	1	BL 0617 M	"				240	240		1500 ul of ICPMS HQCA & HQCB
3	2	BL 0617 DM	"				239	239		1500 ul of ICPMS HQCA & HQCB
4	3	BL 0617 S	"				233	233		600 ul of ICP QCA & QCB
5	4	BL 0617 DS	"				238	238		600 ul of ICP QCA & QCB
6	13	GC8218-01R	"				245	245		
7	P1	8219	"				242	242		
8	15	8220	"				242	242		
9	T	8221	"				241	241		
10	11	GC8420-01R	"				238	238		
11	R	8423	"				240	240		
12	F	8424	"				240	240		
13	8	8425	"				238	238		
14	16	7165	"				241	241		Blank Filter
15	14	PB ~~7184~~ 7181	"				238	238		Audit Filter
16	18	GC9463-01R	"				235	235		
17	L	9464	"				237	237		
18	5	9465	"				233	233		
19	6	9466	"				239	238		
20	7	9513	"				236	236		
21			"							
22			"							
23										N/A
24			"							PB 10/06/17
25			"							

Notes:

Acids used are of a grade suitable for metals analyses

RODI water is Reverse Osmosis Deionized Water

*******	HYDROFLUORIC ACID - USE EXTREME CAUTION WEAR GLOVES, EYE PROTECTION AND LAB COAT	*******

Supplier/Lot Information	Supplier	Lot/Expiry Date	
PSC/ICPMS-HQC Solution A	High Purity	1001832	11-01-21
PSC/ICPMS-HQC Solution B	High Purity	1001833	11-01-21
PSC/ICP/QCA	High Purity	928008	10-10-15
PSC/ICP/QCB	High Purity	928701	10-10-15
HF	Fisher	5108120	10-12-07
HNO_3	Fisher	1110030	13-02-27

Prepared By: PB Date: 10/06/17 Checked By: PB

User Name: nraykha
Computer Name: ELAN9000
Sample File: C:\elandata\Sample\0623NR01.sam
Report Date/Time: Wednesday, June 23, 2010 15:22:07

Sample Batch

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Aliquot Vol.	Diluted Vol.
8	0623NR01	RINSE		Sample	1.000	1.000
8	0623NR01	RINSE		Sample	1.000	1.000
9	0623NR01	ICB		Sample	1.000	1.000
10	0623NR01	ICV		Sample	1.000	1.000
11	0623NR01	LLQC		Sample	1.000	1.000
3	0623NR01	CAL 2 CHK		Sample	1.000	1.000
12	0623NR01	SPEX		Sample	1.000	1.000
13	0623NR01	ICSA		Sample	1.000	1.000
14	0623NR01	ICSAB		Sample	1.000	1.000
8	0623NR01	RINSE		Sample	1.000	1.000
8	0623NR01	RINSE		Sample	1.000	1.000
15	0623NR01	CCV		Sample	1.000	1.000
16	0623NR01	CCB		Sample	1.000	1.000
17	0623NR01	TRAINRINSE	TX300 WS2183342 ✓	Sample	1.000	1.000
18	0623NR01	BLANK X10	TX300 WS2183342	Sample	1.000	1.000
19	0623NR01	BLANKD X10	TX300 WS2183342	Sample	1.000	1.000
20	0623NR01	BL0617M X10	TX300 WS2183342	Sample	1.000	1.000
21	0623NR01	BL0617DM X10	TX300 WS2183342	Sample	1.000	1.000
22	0623NR01	GC8423 X50	TX300 WS2183342	Sample	1.000	1.000
23	0623NR01	GC8423D X50	TX300 WS2183342	Sample	1.000	1.000
24	0623NR01	GC8423P X50	TX300 WS2183342	Sample	1.000	1.000
25	0623NR01	GC8423DP X50	TX300 WS2183342	Sample	1.000	1.000
26	0623NR01	GC8420 X10	TX300 WS2183342	Sample	1.000	1.000
27	0623NR01	GC8424 X50	TX300 WS2183342	Sample	1.000	1.000
28	0623NR01	GC8425 X50	TX300 WS2183342	Sample	1.000	1.000
29	0623NR01	GC8425R X250	TX300 WS2183342	Sample	1.000	1.000
30	0623NR01	GD7165 X10	TX300 WS2183342	Sample	1.000	1.000
31	0623NR01	GD7181 X10	TX300 WS2183342	Sample	1.000	1.000
32	0623NR01	CCV		Sample	1.000	1.000
33	0623NR01	CCB		Sample	1.000	1.000
34	0623NR01	BLANK X10	TX300 WS2185721/23/25	Sample	1.000	1.000
35	0623NR01	BLANKD X10	TX300 WS2185721/23/25	Sample	1.000	1.000
36	0623NR01	BL0622M X10	TX300 WS2185721/23/25	Sample	1.000	1.000
37	0623NR01	BL0622DM X10	TX300 WS2185721/23/25	Sample	1.000	1.000
38	0623NR01	GD6694 X50	TX300 WS2185721 ✓	Sample	1.000	1.000
39	0623NR01	GD6694D X50	TX300 WS2185721	Sample	1.000	1.000
40	0623NR01	GD6694P X50	TX300 WS2185721	Sample	1.000	1.000
41	0623NR01	GD6694DP X50	TX300 WS2185721	Sample	1.000	1.000
42	0623NR01	GD6695 X50	TX300 WS2185721	Sample	1.000	1.000
43	0623NR01	GD6696 X50	TX300 WS2185721	Sample	1.000	1.000
44	0623NR01	GD6697 X50	TX300 WS2185721 } DNU	Sample	1.000	1.000
45	0623NR01	GD6698 X50	TX300 WS2185721 } REANALYZE	Sample	1.000	1.000
46	0623NR01	GD6698R X250	TX300 WS2185721 } AT 200X DIL	Sample	1.000	1.000
47	0623NR01	CCV		Sample	1.000	1.000
48	0623NR01	CCB		Sample	1.000	1.000
49	0623NR01	GD6801 X10	TX300 WS2185723 ✓	Sample	1.000	1.000
50	0623NR01	GD6802 X50	TX300 WS2185723	Sample	1.000	1.000

51	0623NR01	GD6802D X50	TX300 WS2185723	Sample	1.000	1.000
52	0623NR01	GD6802P X50	TX300 WS2185723	Sample	1.000	1.000
53	0623NR01	GD6802DP X50	TX300 WS2185723	Sample	1.000	1.000
54	0623NR01	GD6803 X50	TX300 WS2185723	Sample	1.000	1.000
55	0623NR01	GD6804 X50	TX300 WS2185723	Sample	1.000	1.000
56	0623NR01	GD6804R X250	TX300 WS2185723	Sample	1.000	1.000
57	0623NR01	CCV		Sample	1.000	1.000
58	0623NR01	CCB		Sample	1.000	1.000
59	0623NR01	GE1285 X10	TX300 WS2185725 ✓	Sample	1.000	1.000
60	0623NR01	GE1286 X50	TX300 WS2185725	Sample	1.000	1.000
61	0623NR01	GE1286D X50	TX300 WS2185725	Sample	1.000	1.000
62	0623NR01	GE1286P X50	TX300 WS2185725	Sample	1.000	1.000
63	0623NR01	GE1286DP X50	TX300 WS2185725	Sample	1.000	1.000
64	0623NR01	GE1287 X50	TX300 WS2185725	Sample	1.000	1.000
65	0623NR01	GE1288 X50	TX300 WS2185725	Sample	1.000	1.000
66	0623NR01	GE1288R X250	TX300 WS2185725	Sample	1.000	1.000
67	0623NR01	CCV		Sample	1.000	1.000
68	0623NR01	CCB		Sample	1.000	1.000
69	0623NR01	HFRINSE	S/1g to 1000ml WS2179719 ✓	Sample	1.000	1.000
70	0623NR01	BLANK	S/1g to 1000ml WS2179719	Sample	1.000	1.000
71	0623NR01	BL0616M	S/1g to 1000ml WS2179719	Sample	1.000	1.000
72	0623NR01	BL0616DM	S/1g to 1000ml WS2179719	Sample	1.000	1.000
73	0623NR01	GD8637 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
74	0623NR01	GD8637D X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
75	0623NR01	GD8637M X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
76	0623NR01	GD8637DM X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
77	0623NR01	GD8638 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
78	0623NR01	GD8639 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
79	0623NR01	GD8640 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
80	0623NR01	GD8641 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
81	0623NR01	GD8646 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
82	0623NR01	GD8655 X25	S/1g to 1000ml WS2179719	Sample	1.000	1.000
83	0623NR01	GD8655R X125	S/1g to 1000ml WS2179719	Sample	1.000	1.000
84	0623NR01	RTC036 X5	S/1g to 1000ml WS2179719	Sample	1.000	1.000
85	0623NR01	CCV		Sample	1.000	1.000
86	0623NR01	CCB		Sample	1.000	1.000
87	0623NR01	BLANK X5	FX50 WS2186174 DNU	Sample	1.000	1.000
88	0623NR01	BLANKD X5	FX50 WS2186174 NO CCV	Sample	1.000	1.000
89	0623NR01	BL0622M X5	FX50 WS2186174 AT END	Sample	1.000	1.000
90	0623NR01	BL0622DM X5	FX50 WS2186174	Sample	1.000	1.000
91	0623NR01	GE6620 X10	FX50 WS2186174	Sample	1.000	1.000
92	0623NR01	GE6620D X10	FX50 WS2186174	Sample	1.000	1.000
93	0623NR01	GE6620P X10	FX50 WS2186174	Sample	1.000	1.000
94	0623NR01	GE6620DP X10	FX50 WS2186174	Sample	1.000	1.000
95	0623NR01	GE6621 X10	FX50 WS2186174	Sample	1.000	1.000
96	0623NR01	GE6622 X10	FX50 WS2186174	Sample	1.000	1.000
97	0623NR01	GE6622R X50	FX50 WS2186174	Sample	1.000	1.000
98	0623NR01	CCV - VIAL FULL		Sample	1.000	1.000
99	0623NR01	CCB		Sample	1.000	1.000
100	0623NR01	ICSA		Sample	1.000	1.000
101	0623NR01	ICSAB		Sample	1.000	1.000

Sample ID: Blank #95

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 10:39:40
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44		ug/L	79994				
	Mg	26		ug/L	451				
	Cl	35		mg/L	91117				
	Na	23		ug/L	13672				
	K	39		ug/L	1890458				
>	Ge	72		ug/L	213980				
>	Li	6		ug/L	144792				
	Li	7		ug/L	9938				
	Be	9		ug/L	85				
	B	10		ug/L	224				
	B	11		ug/L	824				
	Al	27		ug/L	5153				
	Ti	49		ug/L	-83				
	V	51		ug/L	7152				
	Cr	53		ug/L	366				
	Cr	52		ug/L	17444				
	Fe	56		ug/L	7064904				
	Fe	57		ug/L	30783				
	Fe	54		ug/L	-26061				
	Mn	55		ug/L	1095				
	Co	59		ug/L	238				
	Ni	62		ug/L	242				
	Ni	60		ug/L	161				
	Cu	63		ug/L	312				
	Cu	65		ug/L	311				
	Sc	45		ug/L	488163				
	P	31		ug/L	-1401				
	Zn	68		ug/L	731				
	Zn	66		ug/L	2257				
	As	75		ug/L	165				
	Se	77		ug/L	307				
	Se	78		ug/L	22720				
	Se	82		ug/L	482				
	Br	79		mg/L	29165				
>	Ge-1	72		ug/L	213980				
>	Rh	103		ug/L	698055				
	Sr	88		ug/L	424				
	Mo	97		ug/L	154				
	Mo	98		ug/L	125				
	Ag	107		ug/L	130				
	Ag	109		ug/L	110				
	Cd	111		ug/L	670				
	Cd	114		ug/L	62				
	Sn	118		ug/L	182				
	Sn	120		ug/L	221				
	Sb	121		ug/L	67				
	Sb	123		ug/L	46				
	Ba	135		ug/L	74				
	Ba	137		ug/L	83				
	Tl	203		ug/L	61				
	Tl	205		ug/L	102				
	Pb	208		ug/L	168				
	Bi	209		ug/L	211				
	U	238		ug/L	35				
>	Tm	169		ug/L	843658				
	Tb	159		ug/L	863889				
	Kr	83		mg/L	463				
	Y	89		ug/L	902151				
	In	115		ug/L	786386				
	Ho	165		mg/L	831689				
	Ar2	76		mg/L	179121				

Sample ID: Standard 1 #268

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 10:44:09
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44		ug/L	329953	79994			2.057
	Mg	26		ug/L	95265	451			2.456
	Cl	35		mg/L	86804	91117			14.011
	Na	23		ug/L	5377812	13672			1.112
	K	39		ug/L	9089678	1890458			3.012
>	Ge	72		ug/L	217894	213980			0.305
>	Li	6		ug/L	148830	144792			2.752
	Li	7		ug/L	10236	9938			979.683
	Be	9	10.000	ug/L	11813	85	0.428	4.283	4.283
	B	10	10.000	ug/L	3664	224	0.269	2.691	2.691
	B	11	10.000	ug/L	17705	824	0.222	2.222	2.222
	Al	27	20.000	ug/L	392805	5153	0.271	1.354	1.354
	Ti	49	10.000	ug/L	18980	-83	0.149	1.493	1.493
	V	51	10.000	ug/L	327333	7152	0.070	0.701	0.701
	Cr	53	10.000	ug/L	33572	366	0.259	2.586	2.586
	Cr	52	10.000	ug/L	295481	17444	0.240	2.396	2.396
	Fe	56	50.000	ug/L	8929738	7064904	0.724	1.448	1.448
	Fe	57	50.000	ug/L	75029	30783	0.170	0.340	0.340
	Fe	54	50.000	ug/L	90662	-26061	1.277	2.555	2.555
	Mn	55	10.000	ug/L	455941	1095	0.226	2.264	2.264
	Co	59	10.000	ug/L	326509	238	0.064	0.641	0.641
	Ni	62	10.000	ug/L	10756	242	0.042	0.423	0.423
	Ni	60	10.000	ug/L	71280	161	0.125	1.245	1.245
	Cu	63	10.000	ug/L	162172	312	0.258	2.578	2.578
	Cu	65	10.000	ug/L	77341	311	0.026	0.262	0.262
	Sc	45		ug/L	504945	488163			71.805
	P	31	20.000	ug/L	25714	-1401	0.821	4.107	4.107
	Zn	68	20.000	ug/L	81767	731	0.359	1.797	1.797
	Zn	66	20.000	ug/L	117199	2257	0.204	1.020	1.020
	As	75	10.000	ug/L	48379	165	0.161	1.611	1.611
	Se	77	10.000	ug/L	4146	307	0.177	1.768	1.768
	Se	78	10.000	ug/L	34859	22720	0.135	1.351	1.351
	Se	82	10.000	ug/L	5465	482	0.108	1.082	1.082
	Br	79		mg/L	8323	29165			4.261
>	Ge-1	72		ug/L	217894	213980			0.305
>	Rh	103		ug/L	702567	698055			0.622
	Sr	88	10.000	ug/L	575623	424	0.212	2.125	2.125
	Mo	97	5.000	ug/L	25866	154	0.134	2.684	2.684
	Mo	98	5.000	ug/L	66017	125	0.010	0.199	0.199
	Ag	107	5.000	ug/L	70725	130	0.040	0.803	0.803
	Ag	109	5.000	ug/L	66750	110	0.050	1.005	1.005
	Cd	111	5.000	ug/L	26865	670	0.053	1.067	1.067
	Cd	114	5.000	ug/L	58551	62	0.036	0.727	0.727
	Sn	118	5.000	ug/L	70408	182	0.091	1.812	1.812
	Sn	120	5.000	ug/L	94417	221	0.062	1.243	1.243
	Sb	121	2.000	ug/L	32170	67	0.036	1.789	1.789
	Sb	123	2.000	ug/L	24171	46	0.038	1.876	1.876
	Ba	135	10.000	ug/L	39911	74	0.138	1.383	1.383
	Ba	137	10.000	ug/L	68826	83	0.166	1.659	1.659
	Tl	203	10.000	ug/L	139007	61	0.169	1.693	1.693
	Tl	205	10.000	ug/L	331644	102	0.110	1.100	1.100
	Pb	208	10.000	ug/L	443326	168	0.067	0.667	0.667
	Bi	209	10.000	ug/L	357309	211	0.176	1.764	1.764
	U	238	10.000	ug/L	408084	35	0.109	1.087	1.087
>	Tm	169		ug/L	853461	843658			0.986
	Tb	159		ug/L	881183	863889			35.326
	Kr	83		mg/L	445	463			86.602
	Y	89		ug/L	912579	902151			55.469
	In	115		ug/L	798098	786386			57.842
	Ho	165		mg/L	849779	831689			47.297
	Ar2	76		mg/L	186443	179121			6.334

Sample ID: Standard 2 #383

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 10:50:09
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	1250.000	ug/L	1243047	79994	29.398	2.352	2.352
Mg	26	250.000	ug/L	471330	451	0.519	0.208	0.208
Cl	35		mg/L	87511	91117			10.043
Na	23	1250.000	ug/L	25918873	13672	11.838	0.947	0.947
K	39	1250.000	ug/L	34981000	1890458	21.770	1.742	1.742
Ge	72		ug/L	218220	213980			1.398
Li	6		ug/L	148418	144792			0.859
Li	7		ug/L	9954	9938			14.755
Be	9	50.025	ug/L	59362	85	0.290	0.579	0.579
B	10	50.030	ug/L	17632	224	0.108	0.215	0.215
B	11	50.038	ug/L	86611	824	0.397	0.793	0.793
Al	27	99.868	ug/L	1881164	5153	1.865	1.868	1.868
Ti	49	49.974	ug/L	94105	-83	0.355	0.711	0.711
V	51	49.982	ug/L	1594881	7152	0.528	1.057	1.057
Cr	53	50.014	ug/L	167779	366	0.893	1.786	1.786
Cr	52	50.010	ug/L	1415607	17444	0.366	0.732	0.732
Fe	56	250.338	ug/L	16207060	7064904	14.642	5.849	5.849
Fe	57	249.974	ug/L	249498	30783	4.897	1.959	1.959
Fe	54	249.611	ug/L	537364	-26061	5.375	2.153	2.153
Mn	55	49.957	ug/L	2228062	1095	0.714	1.429	1.429
Co	59	49.985	ug/L	1621391	238	0.464	0.929	0.929
Ni	62	49.960	ug/L	51811	242	0.829	1.659	1.659
Ni	60	49.953	ug/L	347863	161	0.631	1.264	1.264
Cu	63	49.968	ug/L	797509	312	0.753	1.506	1.506
Cu	65	49.976	ug/L	381137	311	0.402	0.805	0.805
Sc	45		ug/L	499113	488163			1213.189
P	31	99.657	ug/L	123261	-1401	3.099	3.110	3.110
Zn	68	99.153	ug/L	332636	731	2.484	2.505	2.505
Zn	66	99.091	ug/L	466830	2257	1.404	1.417	1.417
As	75	50.023	ug/L	244544	165	0.270	0.540	0.540
Se	77	49.968	ug/L	19191	307	0.391	0.783	0.783
Se	78	50.069	ug/L	84033	22720	1.052	2.101	2.101
Se	82	50.045	ug/L	25994	482	0.482	0.964	0.964
Br	79		mg/L	6121	29165			0.542
Ge-1	72		ug/L	218220	213980			1.398
Rh	103		ug/L	697228	698055			1.365
Sr	88	49.991	ug/L	2840965	424	0.100	0.200	0.200
Mo	97	25.020	ug/L	130486	154	0.324	1.296	1.296
Mo	98	25.015	ug/L	332100	125	0.312	1.246	1.246
Ag	107	25.356	ug/L	551996	130	0.582	2.296	2.296
Ag	109	25.369	ug/L	531444	110	0.328	1.294	1.294
Cd	111	25.011	ug/L	132167	670	0.245	0.979	0.979
Cd	114	24.997	ug/L	289511	62	0.151	0.606	0.606
Sn	118	25.003	ug/L	349685	182	0.341	1.365	1.365
Sn	120	25.020	ug/L	477446	221	0.494	1.974	1.974
Sb	121	10.008	ug/L	162868	67	0.210	2.100	2.100
Sb	123	10.009	ug/L	122694	46	0.161	1.606	1.606
Ba	135	50.001	ug/L	197782	74	0.843	1.687	1.687
Ba	137	50.001	ug/L	341378	83	0.593	1.186	1.186
Tl	203	50.027	ug/L	709393	61	0.249	0.497	0.497
Tl	205	49.988	ug/L	1658578	102	1.113	2.227	2.227
Pb	208	50.006	ug/L	2238136	168	0.783	1.565	1.565
Bi	209	50.011	ug/L	1808715	211	0.789	1.577	1.577
U	238	49.977	ug/L	2029492	35	1.991	3.985	3.985
Tm	169		ug/L	859230	843658			0.346
Tb	159		ug/L	874885	863889			30.050
Kr	83		mg/L	424	463			102.075
Y	89		ug/L	907444	902151			117.815
In	115		ug/L	794899	786386			95.576
Ho	165		mg/L	859869	831689			76.310
Ar2	76		mg/L	203092	179121			6.214

Sample ID: Standard 3 #236

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 10:59:09

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	2486.043	ug/L	2286808	79994	17.589	0.708	0.708
	Mg	26	499.987	ug/L	920007	451	9.301	1.860	1.860
	Cl	35		mg/L	87064	91117			36.873
	Na	23	2510.389	ug/L	51684666	13672	46.573	1.855	1.855
	K	39	2498.806	ug/L	66287507	1890458	78.533	3.143	3.143
>	Ge	72		ug/L	213123	213980			0.372
>	Li	6		ug/L	146767	144792			1.403
	Li	7		ug/L	9942	9938			111.608
	Be	9	99.671	ug/L	115408	85	0.914	0.917	0.917
	B	10	100.293	ug/L	35114	224	1.906	1.901	1.901
	B	11	100.132	ug/L	171417	824	1.167	1.165	1.165
	Al	27	200.023	ug/L	3676688	5153	3.539	1.769	1.769
	Ti	49	100.042	ug/L	184361	-83	1.572	1.571	1.571
	V	51	99.698	ug/L	3064292	7152	3.210	3.220	3.220
	Cr	53	100.063	ug/L	328314	366	0.867	0.866	0.866
	Cr	52	99.827	ug/L	2724702	17444	1.904	1.907	1.907
	Fe	56	504.480	ug/L	25396300	7064904	5.646	1.119	1.119
	Fe	57	503.632	ug/L	472205	30783	13.932	2.766	2.766
	Fe	54	501.635	ug/L	1095155	-26061	1.478	0.295	0.295
	Mn	55	100.251	ug/L	4408955	1095	1.294	1.290	1.290
	Co	59	100.208	ug/L	3200068	238	2.328	2.323	2.323
	Ni	62	100.539	ug/L	103732	242	0.660	0.656	0.656
	Ni	60	100.561	ug/L	698816	161	1.326	1.319	1.319
	Cu	63	100.306	ug/L	1581813	312	1.019	1.016	1.016
	Cu	65	99.962	ug/L	743196	311	0.706	0.706	0.706
	Sc	45		ug/L	491600	488163			226.393
	P	31	201.207	ug/L	250381	-1401	4.790	2.381	2.381
	Zn	68	199.337	ug/L	644303	731	2.313	1.160	1.160
	Zn	66	200.173	ug/L	921797	2257	0.734	0.367	0.367
	As	75	99.988	ug/L	477008	165	1.389	1.389	1.389
	Se	77	100.592	ug/L	38286	307	1.934	1.923	1.923
	Se	78	100.444	ug/L	143965	22720	1.696	1.688	1.688
	Se	82	100.425	ug/L	51294	482	0.606	0.603	0.603
	Br	79		mg/L	5977	29165			0.627
>	Ge-I	72		ug/L	213123	213980			0.372
>	Rh	103		ug/L	688183	698055			0.592
	Sr	88	100.214	ug/L	5667262	424	1.509	1.505	1.505
	Mo	97	50.192	ug/L	262096	154	0.537	1.070	1.070
	Mo	98	50.229	ug/L	669936	125	0.064	0.128	0.128
	Ag	107	50.392	ug/L	1116450	130	0.400	0.794	0.794
	Ag	109	50.325	ug/L	1067237	110	0.687	1.364	1.364
	Cd	111	50.236	ug/L	266175	670	0.495	0.986	0.986
	Cd	114	50.322	ug/L	589773	62	0.640	1.273	1.273
	Sn	118	50.292	ug/L	710046	182	0.623	1.239	1.239
	Sn	120	50.243	ug/L	964304	221	0.533	1.061	1.061
	Sb	121	20.093	ug/L	328570	67	0.288	1.433	1.433
	Sb	123	20.073	ug/L	246276	46	0.281	1.400	1.400
	Ba	135	100.184	ug/L	393931	74	1.009	1.007	1.007
	Ba	137	100.296	ug/L	683656	83	0.617	0.616	0.616
	Tl	203	100.349	ug/L	1419845	61	1.861	1.854	1.854
	Tl	205	100.124	ug/L	3286275	102	4.663	4.657	4.657
	Pb	208	100.291	ug/L	4469098	168	0.166	0.165	0.165
	Bi	209	100.763	ug/L	3695914	211	1.304	1.294	1.294
	U	238	100.605	ug/L	4117730	35	2.969	2.951	2.951
>	Tm	169		ug/L	845924	843658			0.635
	Tb	159		ug/L	874761	863889			53.736
	Kr	83		mg/L	472	463			344.612
	Y	89		ug/L	901564	902151			802.434
	In	115		ug/L	793598	786386			81.584
	Ho	165		mg/L	845722	831689			109.960
	Ar2	76		mg/L	226166	179121			4.642

Sample ID: Standard 4 #222

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:09:11

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	9964.232	ug/L	8280497	79994	195.672	1.964	1.964
	Mg	26	9999.679	ug/L	17646197	451	347.128	3.471	3.471
	Cl	35		mg/L	87757	91117			1781.778
	Na	23	10015.390	ug/L	203783715	13672	517.415	5.166	5.166
	K	39	9990.782	ug/L	248618354	1890458	272.118	2.724	2.724
>	Ge	72		ug/L	206712	213980			2.885
>	Li	6		ug/L	137893	144792			1.433
	Li	7		ug/L	9705	9938			38.124
	Be	9	0.007	ug/L	88	85	0.006	90.172	90.172
	B	10	1.085	ug/L	569	224	0.135	12.484	12.484
	B	11	1.095	ug/L	2537	824	0.067	6.162	6.162
	Al	27	1999.690	ug/L	35154490	5153	70.212	3.511	3.511
	Ti	49	0.033	ug/L	-22	-83	0.014	43.563	43.563
	V	51	0.013	ug/L	7307	7152	0.004	29.270	29.270
	Cr	53	0.268	ug/L	1205	366	0.012	4.321	4.321
	Cr	52	0.281	ug/L	24247	17444	0.007	2.368	2.368
	Fe	56	4998.172	ug/L	178255948	7064904	52.174	1.044	1.044
	Fe	57	4996.000	ug/L	4025180	30783	36.673	0.734	0.734
	Fe	54	4996.278	ug/L	10199297	-26061	95.925	1.920	1.920
	Mn	55	-0.268	ug/L	-10366	1095	0.012	4.445	4.445
	Co	59	0.031	ug/L	1178	238	0.000	1.272	1.272
	Ni	62	0.191	ug/L	424	242	0.006	3.232	3.232
	Ni	60	-0.054	ug/L	-208	161	0.015	27.669	27.669
	Cu	63	0.240	ug/L	3969	312	0.007	2.864	2.864
	Cu	65	0.186	ug/L	1639	311	0.003	1.791	1.791
	Sc	45		ug/L	466962	488163			216.549
	P	31	1999.497	ug/L	2376391	-1401	76.197	3.811	3.811
	Zn	68	1998.143	ug/L	5824376	731	84.647	4.236	4.236
	Zn	66	1998.660	ug/L	8455958	2257	25.102	1.256	1.256
	As	75	0.017	ug/L	240	165	0.003	16.048	16.048
	Se	77	0.109	ug/L	336	307	0.041	37.814	37.814
	Se	78	0.293	ug/L	22283	22720	0.413	140.638	140.638
	Se	82	0.169	ug/L	548	482	0.041	24.069	24.069
	Br	79		mg/L	5335	29165			0.753
>	Ge-1	72		ug/L	206712	213980			2.885
>	Rh	103		ug/L	674979	698055			1.042
	Sr	88	0.016	ug/L	1322	424	0.008	46.238	46.238
	Mo	97	0.049	ug/L	400	154	0.004	7.831	7.831
	Mo	98	0.050	ug/L	779	125	0.004	8.431	8.431
	Ag	107	0.018	ug/L	517	130	0.002	10.957	10.957
	Ag	109	0.017	ug/L	457	110	0.002	9.808	9.808
	Cd	111	0.049	ug/L	902	670	0.014	27.663	27.663
	Cd	114	0.008	ug/L	156	62	0.001	7.134	7.134
	Sn	118	0.045	ug/L	801	182	0.001	1.234	1.234
	Sn	120	0.043	ug/L	1023	221	0.003	7.143	7.143
	Sb	121	0.056	ug/L	955	67	0.003	5.001	5.001
	Sb	123	0.054	ug/L	691	46	0.005	8.760	8.760
	Ba	135	0.038	ug/L	218	74	0.008	20.137	20.137
	Ba	137	0.040	ug/L	346	83	0.004	10.407	10.407
	Tl	203	0.010	ug/L	201	61	0.002	15.498	15.498
	Tl	205	0.009	ug/L	387	102	0.001	7.285	7.285
	Pb	208	0.018	ug/L	969	168	0.001	4.116	4.116
	Bi	209	0.116	ug/L	4433	211	0.010	8.672	8.672
	U	238	0.006	ug/L	281	35	0.001	14.807	14.807
>	Tm	169		ug/L	836943	843658			0.905
	Tb	159		ug/L	871858	863889			115.507
	Kr	83		mg/L	484	463			126.549
	Y	89		ug/L	887144	902151			29.274
	In	115		ug/L	785637	786386			882.991
	Ho	165		mg/L	840542	831689			65.098
	Ar2	76		mg/L	176453	179121			37.061

Sample ID: Standard 5 #54

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:15:12

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	20.042	ug/L	95671	79994	0.877	4.377	4.377
	Mg	26	1.318	ug/L	2819	451	0.057	4.340	4.340
	Cl	35	5.000	mg/L	490250	91117	0.160	3.202	3.202
	Na	23	1417.612	ug/L	29464187	13672	29.591	2.087	2.087
	K	39	5592.665	ug/L	142848292	1890458	43.001	0.769	0.769
>	Ge	72		ug/L	210887	213980			0.780
>	Li	6		ug/L	138025	144792			2.330
	Li	7		ug/L	9623	9938			105.723
	Be	9	-0.001	ug/L	79	85	0.008	540.310	540.310
	B	10	0.617	ug/L	415	224	0.096	15.507	15.507
	B	11	0.604	ug/L	1752	824	0.079	13.106	13.106
	Al	27	0.516	ug/L	14339	5153	0.036	6.889	6.889
	Ti	49	0.016	ug/L	-52	-83	0.048	293.940	293.940
	V	51	0.015	ug/L	7503	7152	0.003	21.033	21.033
	Cr	53	-0.019	ug/L	300	366	0.006	32.046	32.046
	Cr	52	0.045	ug/L	18405	17444	0.005	10.554	10.554
	Fe	56	14.112	ug/L	7456191	7064904	2.573	18.236	18.236
	Fe	57	-0.551	ug/L	29890	30783	0.593	107.503	107.503
	Fe	54	1.200	ug/L	-23170	-26061	0.745	62.100	62.100
	Mn	55	0.032	ug/L	2456	1095	0.001	2.533	2.533
	Co	59	0.002	ug/L	291	238	0.000	27.302	27.302
	Ni	62	0.051	ug/L	290	242	0.015	29.834	29.834
	Ni	60	0.043	ug/L	451	161	0.005	12.517	12.517
	Cu	63	0.080	ug/L	1561	312	0.003	3.768	3.768
	Cu	65	0.066	ug/L	793	311	0.003	4.822	4.822
	Sc	45		ug/L	487172	488163			78.576
	P	31	1.420	ug/L	346	-1401	0.469	33.028	33.028
	Zn	68	3.507	ug/L	11156	731	0.159	4.536	4.536
	Zn	66	3.477	ug/L	17233	2257	0.068	1.955	1.955
	As	75	-0.006	ug/L	136	165	0.005	84.745	84.745
	Se	77	0.003	ug/L	304	307	0.069	2261.788	2261.788
	Se	78	0.079	ug/L	22484	22720	0.256	325.563	325.563
	Se	82	0.355	ug/L	654	482	0.433	122.266	122.266
	Br	79	5.000	mg/L	4656219	29165	0.090	1.800	1.800
>	Ge-1	72		ug/L	210887	213980			0.780
>	Rh	103		ug/L	715943	698055			0.431
	Sr	88	0.185	ug/L	11340	424	0.001	0.533	0.533
	Mo	97	0.087	ug/L	630	154	0.005	5.288	5.288
	Mo	98	0.012	ug/L	289	125	0.001	11.927	11.927
	Ag	107	0.003	ug/L	213	130	0.001	22.446	22.446
	Ag	109	0.003	ug/L	178	110	0.001	25.904	25.904
	Cd	111	0.038	ug/L	896	670	0.011	29.175	29.175
	Cd	114	0.002	ug/L	86	62	0.001	54.946	54.946
	Sn	118	0.016	ug/L	418	182	0.002	9.770	9.770
	Sn	120	0.018	ug/L	583	221	0.001	7.970	7.970
	Sb	121	0.020	ug/L	408	67	0.002	7.821	7.821
	Sb	123	0.019	ug/L	289	46	0.001	5.314	5.314
	Ba	135	0.196	ug/L	879	74	0.008	3.964	3.964
	Ba	137	0.191	ug/L	1437	83	0.006	3.182	3.182
	Tl	203	0.003	ug/L	107	61	0.000	13.970	13.970
	Tl	205	0.003	ug/L	208	102	0.000	9.035	9.035
	Pb	208	0.011	ug/L	658	168	0.000	4.510	4.510
	Bi	209	0.075	ug/L	2994	211	0.004	4.859	4.859
	U	238	0.001	ug/L	96	35	0.000	16.096	16.096
>	Tm	169		ug/L	858571	843658			0.956
	Tb	159		ug/L	898299	863889			25.803
	Kr	83		mg/L	449	463			158.006
	Y	89		ug/L	917601	902151			137.992
	In	115		ug/L	817630	786386			42.857
	Ho	165		mg/L	861002	831689			16.687
	Ar2	76		mg/L	178612	179121			583.906

Sample ID: ICB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:23:11
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	2.227	ug/L	81916	79994	2.568	115.288	115.288
Mg	26	0.132	ug/L	694	451	0.019	14.041	14.041
Cl	35	-0.012	mg/L	90130	91117	0.051	418.395	418.395
Na	23	0.647	ug/L	27315	13672	0.065	10.120	10.120
K	39	2.531	ug/L	1955760	1890458	1.989	78.586	78.586
Ge	72		ug/L	214114	213980			1.911
Li	6		ug/L	143021	144792			0.975
Li	7		ug/L	9701	9938			51.592
Be	9	-0.010	ug/L	72	85	0.003	30.523	30.523
B	10	0.526	ug/L	400	224	0.173	32.842	32.842
B	11	0.647	ug/L	1893	824	0.361	55.780	55.780
Al	27	0.625	ug/L	16543	5153	0.112	17.872	17.872
Ti	49	0.006	ug/L	-72	-83	0.022	350.646	350.646
V	51	0.017	ug/L	7693	7152	0.008	47.391	47.391
Cr	53	0.001	ug/L	368	366	0.008	1257.186	1257.186
Cr	52	0.036	ug/L	18419	17444	0.024	66.202	66.202
Fe	56	12.692	ug/L	7519134	7064904	2.620	20.646	20.646
Fe	57	-2.280	ug/L	28912	30783	0.335	14.682	14.682
Fe	54	2.210	ug/L	-21403	-26061	0.468	21.186	21.186
Mn	55	0.000	ug/L	1095	1095	0.001	19633.330	19633.330
Co	59	-0.000	ug/L	238	238	0.000	2053.137	2053.137
Ni	62	0.022	ug/L	266	242	0.005	21.097	21.097
Ni	60	0.004	ug/L	187	161	0.003	83.987	83.987
Cu	63	0.006	ug/L	399	312	0.001	21.909	21.909
Cu	65	0.009	ug/L	375	311	0.004	41.353	41.353
Sc	45		ug/L	495916	488163			196.433
P	31	2.969	ug/L	2260	-1401	0.968	32.614	32.614
Zn	68	0.154	ug/L	1196	731	0.011	7.468	7.468
Zn	66	0.106	ug/L	2721	2257	0.043	40.089	40.089
As	75	0.003	ug/L	179	165	0.002	70.376	70.376
Se	77	0.066	ug/L	332	307	0.059	89.690	89.690
Se	78	0.315	ug/L	23112	22720	0.357	113.405	113.405
Se	82	-0.010	ug/L	477	482	0.082	811.355	811.355
Br	79	-0.011	mg/L	19077	29165	0.001	6.374	6.374
Ge-1	72		ug/L	214114	213980			1.911
Rh	103		ug/L	731529	698055			0.958
Sr	88	0.009	ug/L	1000	424	0.002	25.931	25.931
Mo	97	0.001	ug/L	165	154	0.002	330.246	330.246
Mo	98	0.003	ug/L	174	125	0.002	73.012	73.012
Ag	107	0.002	ug/L	183	130	0.001	40.673	40.673
Ag	109	0.002	ug/L	167	110	0.001	47.866	47.866
Cd	111	0.028	ug/L	861	670	0.002	8.267	8.267
Cd	114	-0.001	ug/L	58	62	0.001	113.340	113.340
Sn	118	0.005	ug/L	264	182	0.001	13.828	13.828
Sn	120	0.006	ug/L	363	221	0.002	35.629	35.629
Sb	121	0.004	ug/L	132	67	0.001	18.076	18.076
Sb	123	0.004	ug/L	95	46	0.001	39.643	39.643
Ba	135	0.001	ug/L	83	74	0.005	431.015	431.015
Ba	137	0.003	ug/L	111	83	0.003	91.175	91.175
Tl	203	-0.000	ug/L	60	61	0.001	350.238	350.238
Tl	205	0.000	ug/L	113	102	0.000	235.939	235.939
Pb	208	0.001	ug/L	229	168	0.000	40.456	40.456
Bi	209	0.003	ug/L	343	211	0.001	28.322	28.322
U	238	0.001	ug/L	58	35	0.000	27.045	27.045
Tm	169		ug/L	882012	843658			0.203
Tb	159		ug/L	913697	863889			17.857
Kr	83		mg/L	437	463			41.307
Y	89		ug/L	935754	902151			31.439
In	115		ug/L	823408	786386			7.479
Ho	165		mg/L	870853	831689			21.649
Ar2	76		mg/L	182741	179121			64.487

Sample ID: ICV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:28:12
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
⌈	Ca	44	1297.666	ug/L	1194680	79994	34.658	2.671	2.671
|	Mg	26	245.735	ug/L	452894	451	1.815	0.739	0.739
|	Cl	35	-0.028	mg/L	89467	91117	0.020	70.246	70.246
|	Na	23	1187.126	ug/L	25221856	13672	15.299	1.289	1.289
|	K	39	1212.629	ug/L	33148358	1890458	40.471	3.337	3.337
⌊>	Ge	72		ug/L	215540	213980			0.539
⌈>	Li	6		ug/L	143611	144792			0.766
|	Li	7		ug/L	9792	9938			144.078
|	Be	9	49.641	ug/L	56293	85	0.606	1.221	1.221
|	B	10	48.293	ug/L	16661	224	1.096	2.269	2.269
⌊	B	11	49.026	ug/L	82543	824	0.705	1.439	1.439
⌈	Al	27	99.993	ug/L	1839035	5153	1.911	1.911	1.911
|	Ti	49	47.605	ug/L	88681	-83	1.168	2.453	2.453
|	V	51	49.320	ug/L	1536598	7152	0.994	2.016	2.016
|	Cr	53	48.145	ug/L	159943	366	0.917	1.904	1.904
|	Cr	52	49.223	ug/L	1367533	17444	1.204	2.447	2.447
|	Fe	56	250.674	ug/L	16082270	7064904	5.141	2.051	2.051
|	Fe	57	253.727	ug/L	242572	30783	6.402	2.523	2.523
|	Fe	54	255.935	ug/L	519887	-26061	9.475	3.702	3.702
|	Mn	55	48.839	ug/L	2172580	1095	1.601	3.278	3.278
|	Co	59	48.477	ug/L	1565897	238	1.069	2.205	2.205
|	Ni	62	48.423	ug/L	50650	242	0.909	1.876	1.876
|	Ni	60	47.904	ug/L	336728	161	0.761	1.589	1.589
|	Cu	63	49.799	ug/L	794344	312	0.664	1.333	1.333
|	Cu	65	50.456	ug/L	379544	311	0.526	1.043	1.043
|	Sc	45		ug/L	500582	488163			129.240
|	P	31	98.177	ug/L	120395	-1401	1.988	2.025	2.025
|	Zn	68	98.992	ug/L	301795	731	3.328	3.362	3.362
|	Zn	66	99.231	ug/L	440021	2257	1.548	1.560	1.560
|	As	75	49.893	ug/L	240800	165	0.580	1.163	1.163
|	Se	77	49.059	ug/L	19042	307	0.965	1.968	1.968
|	Se	78	50.304	ug/L	84345	22720	0.250	0.497	0.497
|	Se	82	49.579	ug/L	25856	482	0.371	0.749	0.749
|	Br	79	-0.018	mg/L	12772	29165	0.001	3.275	3.275
⌊>	Ge-1	72		ug/L	215540	213980			0.539
⌈>	Rh	103		ug/L	718135	698055			1.455
|	Sr	88	48.324	ug/L	2852210	424	0.160	0.332	0.332
|	Mo	97	23.800	ug/L	129732	154	0.861	3.618	3.618
|	Mo	98	23.677	ug/L	329597	125	0.260	1.096	1.096
|	Ag	107	24.474	ug/L	565692	130	1.023	4.182	4.182
|	Ag	109	23.856	ug/L	527961	110	0.280	1.175	1.175
|	Cd	111	24.065	ug/L	133407	670	0.286	1.188	1.188
|	Cd	114	24.258	ug/L	296694	62	0.209	0.863	0.863
|	Sn	118	23.976	ug/L	353284	182	0.541	2.258	2.258
|	Sn	120	23.902	ug/L	478765	221	0.369	1.542	1.542
|	Sb	121	9.490	ug/L	161959	67	0.148	1.556	1.556
|	Sb	123	9.460	ug/L	121117	46	0.213	2.249	2.249
|	Ba	135	48.783	ug/L	200166	74	0.973	1.995	1.995
⌊	Ba	137	48.698	ug/L	346359	83	1.074	2.206	2.206
⌈	Tl	203	47.172	ug/L	680839	61	1.755	3.720	3.720
|	Tl	205	49.019	ug/L	1641045	102	1.147	2.341	2.341
|	Pb	208	48.611	ug/L	2209523	168	1.138	2.341	2.341
|	Bi	209	48.583	ug/L	1817774	211	0.769	1.583	1.583
|	U	238	48.012	ug/L	2004775	35	1.375	2.864	2.864
⌊>	Tm	169		ug/L	862858	843658			0.292
	Tb	159		ug/L	899206	863889			22.485
	Kr	83		mg/L	486	463			153.083
	Y	89		ug/L	927094	902151			10.621
	In	115		ug/L	818138	786386			28.217
	Ho	165		mg/L	874199	831689			27.639
	Ar2	76		mg/L	204232	179121			9.277

Sample ID: LLQC

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:36:13

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	20.258	ug/L	99398	79994	3.076	15.186	15.186
	Mg	26	4.749	ug/L	9333	451	0.111	2.332	2.332
	Cl	35	-0.049	mg/L	89070	91117	0.045	92.302	92.302
	Na	23	17.781	ug/L	397127	13672	0.342	1.925	1.925
	K	39	20.570	ug/L	2469918	1890458	1.670	8.121	8.121
>	Ge	72		ug/L	218744	213980			1.702
>	Li	6		ug/L	145771	144792			0.510
	Li	7		ug/L	9912	9938			170.887
	Be	9	0.086	ug/L	184	85	0.018	21.266	21.266
	B	10	2.441	ug/L	1069	224	0.131	5.358	5.358
	B	11	2.498	ug/L	5055	824	0.192	7.668	7.668
	Al	27	3.013	ug/L	61328	5153	0.121	4.004	4.004
	Ti	49	0.199	ug/L	291	-83	0.021	10.496	10.496
	V	51	0.103	ug/L	10543	7152	0.010	10.050	10.050
	Cr	53	0.191	ug/L	1018	366	0.010	5.274	5.274
	Cr	52	0.202	ug/L	23436	17444	0.029	14.390	14.390
	Fe	56	22.742	ug/L	8046404	7064904	3.303	14.525	14.525
	Fe	57	16.531	ug/L	45449	30783	0.978	5.913	5.913
	Fe	54	20.748	ug/L	18314	-26061	0.786	3.788	3.788
	Mn	55	0.188	ug/L	9621	1095	0.006	3.320	3.320
	Co	59	0.041	ug/L	1574	238	0.002	5.529	5.529
	Ni	62	0.215	ug/L	475	242	0.029	13.398	13.398
	Ni	60	0.202	ug/L	1602	161	0.003	1.463	1.463
	Cu	63	0.196	ug/L	3491	312	0.006	2.899	2.899
	Cu	65	0.197	ug/L	1818	311	0.004	2.087	2.087
	Sc	45		ug/L	495761	488163			111.037
	P	31	57.352	ug/L	70779	-1401	0.510	0.889	0.889
	Zn	68	3.138	ug/L	10431	731	0.022	0.712	0.712
	Zn	66	3.195	ug/L	16607	2257	0.048	1.497	1.497
	As	75	0.283	ug/L	1552	165	0.009	3.234	3.234
	Se	77	1.028	ug/L	713	307	0.072	6.973	6.973
	Se	78	0.738	ug/L	24135	22720	0.385	52.173	52.173
	Se	82	1.000	ug/L	1012	482	0.039	3.883	3.883
	Br	79	-0.015	mg/L	15000	29165	0.000	0.989	0.989
>	Ge-1	72		ug/L	218744	213980			1.702
>	Rh	103		ug/L	728051	698055			1.195
	Sr	88	0.052	ug/L	3581	424	0.002	3.440	3.440
	Mo	97	0.187	ug/L	1195	154	0.009	4.732	4.732
	Mo	98	0.189	ug/L	2800	125	0.002	0.894	0.894
	Ag	107	0.091	ug/L	2257	130	0.004	4.768	4.768
	Ag	109	0.089	ug/L	2100	110	0.009	10.703	10.703
	Cd	111	0.073	ug/L	1108	670	0.005	7.344	7.344
	Cd	114	0.038	ug/L	535	62	0.002	4.787	4.787
	Sn	118	0.108	ug/L	1801	182	0.005	4.329	4.329
	Sn	120	0.109	ug/L	2441	221	0.001	1.356	1.356
	Sb	121	0.058	ug/L	1071	67	0.001	1.326	1.326
	Sb	123	0.057	ug/L	790	46	0.004	6.948	6.948
	Ba	135	0.101	ug/L	498	74	0.009	8.617	8.617
	Ba	137	0.091	ug/L	745	83	0.005	5.903	5.903
	Tl	203	0.040	ug/L	638	61	0.004	9.314	9.314
	Tl	205	0.039	ug/L	1428	102	0.002	4.626	4.626
	Pb	208	0.096	ug/L	4541	168	0.002	1.744	1.744
	Bi	209	0.087	ug/L	3455	211	0.014	16.434	16.434
	U	238	0.019	ug/L	842	35	0.001	6.204	6.204
>	Tm	169		ug/L	864012	843658			0.902
	Tb	159		ug/L	909852	863889			16.624
	Kr	83		mg/L	479	463			149.129
	Y	89		ug/L	935842	902151			19.572
	In	115		ug/L	823586	786386			3.978
	Ho	165		mg/L	872012	831689			26.406
	Ar2	76		mg/L	183861	179121			28.541

Sample ID: CAL 2 CHK

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:41:14
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1362.956	ug/L	1249202	79994	23.985	1.760	1.760
	Mg	26	257.339	ug/L	473659	451	2.877	1.118	1.118
	Cl	35	-0.037	mg/L	88676	91117	0.027	73.821	73.821
	Na	23	1233.695	ug/L	26173903	13672	29.389	2.382	2.382
	K	39	1240.139	ug/L	33827009	1890458	37.404	3.016	3.016
>	Ge	72		ug/L	215294	213980			1.957
>	Li	6		ug/L	145280	144792			1.248
	Li	7		ug/L	9899	9938			60.644
	Be	9	50.275	ug/L	57680	85	1.188	2.362	2.362
	B	10	49.838	ug/L	17387	224	0.720	1.446	1.446
	B	11	49.834	ug/L	84834	824	2.758	5.534	5.534
	Al	27	102.176	ug/L	1876478	5153	1.540	1.507	1.507
	Ti	49	48.865	ug/L	90909	-83	0.654	1.337	1.337
	V	51	49.356	ug/L	1535495	7152	2.065	4.183	4.183
	Cr	53	49.738	ug/L	165008	366	1.107	2.227	2.227
	Cr	52	50.393	ug/L	1397782	17444	0.942	1.870	1.870
	Fe	56	255.554	ug/L	16232906	7064904	12.180	4.766	4.766
	Fe	57	261.892	ug/L	248998	30783	8.002	3.056	3.056
	Fe	54	256.853	ug/L	521155	-26061	6.515	2.536	2.536
	Mn	55	48.565	ug/L	2156865	1095	2.353	4.845	4.845
	Co	59	49.691	ug/L	1602899	238	0.951	1.913	1.913
	Ni	62	49.152	ug/L	51351	242	0.626	1.273	1.273
	Ni	60	49.366	ug/L	346603	161	0.839	1.701	1.701
	Cu	63	49.842	ug/L	794109	312	0.206	0.414	0.414
	Cu	65	50.456	ug/L	379017	311	0.956	1.896	1.896
	Sc	45		ug/L	491771	488163			941.607
	P	31	103.297	ug/L	126585	-1401	1.833	1.775	1.775
	Zn	68	106.033	ug/L	322757	731	1.681	1.585	1.585
	Zn	66	105.821	ug/L	468474	2257	2.591	2.449	2.449
	As	75	50.718	ug/L	244489	165	0.353	0.696	0.696
	Se	77	51.271	ug/L	19862	307	0.783	1.527	1.527
	Se	78	50.895	ug/L	84933	22720	2.283	4.485	4.485
	Se	82	50.015	ug/L	26040	482	1.885	3.768	3.768
	Br	79	-0.021	mg/L	9605	29165	0.000	2.327	2.327
>	Ge-1	72		ug/L	215294	213980			1.957
>	Rh	103		ug/L	716589	698055			0.653
	Sr	88	49.665	ug/L	2924988	424	0.580	1.169	1.169
	Mo	97	24.213	ug/L	131734	154	0.720	2.972	2.972
	Mo	98	24.072	ug/L	334380	125	0.167	0.692	0.692
	Ag	107	24.635	ug/L	568395	130	0.437	1.775	1.775
	Ag	109	24.350	ug/L	537793	110	0.119	0.489	0.489
	Cd	111	24.668	ug/L	136450	670	0.408	1.655	1.655
	Cd	114	24.587	ug/L	300075	62	0.302	1.228	1.228
	Sn	118	24.414	ug/L	359026	182	0.116	0.477	0.477
	Sn	120	24.326	ug/L	486266	221	0.128	0.524	0.524
	Sb	121	9.752	ug/L	166094	67	0.166	1.707	1.707
	Sb	123	9.817	ug/L	125452	46	0.167	1.701	1.701
	Ba	135	49.508	ug/L	202743	74	0.736	1.487	1.487
	Ba	137	49.168	ug/L	348999	83	0.749	1.523	1.523
	Tl	203	47.625	ug/L	695670	61	0.782	1.641	1.641
	Tl	205	48.315	ug/L	1636309	102	1.391	2.879	2.879
	Pb	208	49.475	ug/L	2275075	168	1.256	2.539	2.539
	Bi	209	48.421	ug/L	1833117	211	0.579	1.195	1.195
	U	238	46.933	ug/L	1981936	35	2.265	4.827	4.827
>	Tm	169		ug/L	873151	843658			1.733
	Tb	159		ug/L	903082	863889			25.679
	Kr	83		mg/L	468	463			566.946
	Y	89		ug/L	922854	902151			14.696
	In	115		ug/L	815410	786386			20.832
	Ho	165		mg/L	878547	831689			43.089
	Ar2	76		mg/L	206541	179121			4.794

Sample ID: SPEX

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:49:16
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	408.239	ug/L	438602	79994	2.822	0.691	0.691
	Mg	26	395.173	ug/L	740647	451	8.202	2.076	2.076
	Cl	35	-0.059	mg/L	88501	91117	0.011	18.425	18.425
	Na	23	392.008	ug/L	8483873	13672	3.516	0.897	0.897
	K	39	388.206	ug/L	12112755	1890458	18.009	4.639	4.639
>	Ge	72		ug/L	219294	213980			0.924
>	Li	6		ug/L	145449	144792			1.724
	Li	7		ug/L	9956	9938			565.789
	Be	9	19.760	ug/L	22743	85	0.372	1.884	1.884
	B	10	0.814	ug/L	506	224	0.109	13.416	13.416
	B	11	0.820	ug/L	2211	824	0.058	7.111	7.111
	Al	27	21.421	ug/L	404930	5153	0.194	0.905	0.905
	Ti	49	19.498	ug/L	36904	-83	0.047	0.241	0.241
	V	51	19.461	ug/L	621356	7152	0.070	0.358	0.358
	Cr	53	19.749	ug/L	66977	366	0.120	0.609	0.609
	Cr	52	19.861	ug/L	572102	17444	0.030	0.149	0.149
	Fe	56	393.939	ug/L	21574253	7064904	10.292	2.613	2.613
	Fe	57	405.134	ug/L	375211	30783	3.262	0.805	0.805
	Fe	54	406.965	ug/L	856894	-26061	7.920	1.946	1.946
	Mn	55	19.393	ug/L	878319	1095	0.660	3.404	3.404
	Co	59	19.427	ug/L	638562	238	0.120	0.615	0.615
	Ni	62	19.534	ug/L	20934	242	0.549	2.812	2.812
	Ni	60	19.359	ug/L	138537	161	0.470	2.429	2.429
	Cu	63	19.753	ug/L	320763	312	0.244	1.234	1.234
	Cu	65	19.844	ug/L	152065	311	0.219	1.104	1.104
	Sc	45		ug/L	501285	488163			178.988
	P	31	3.024	ug/L	2389	-1401	2.338	77.313	77.313
	Zn	68	20.533	ug/L	64284	731	0.475	2.311	2.311
	Zn	66	19.767	ug/L	91012	2257	0.957	4.840	4.840
	As	75	19.557	ug/L	96137	165	0.049	0.251	0.251
	Se	77	19.760	ug/L	7993	307	0.406	2.053	2.053
	Se	78	19.273	ug/L	47239	22720	0.477	2.474	2.474
	Se	82	19.942	ug/L	10876	482	0.288	1.444	1.444
	Br	79	-0.019	mg/L	11440	29165	0.000	1.050	1.050
>	Ge-1	72		ug/L	219294	213980			0.924
>	Rh	103		ug/L	716151	698055			1.368
	Sr	88	19.797	ug/L	1165341	424	0.282	1.423	1.423
	Mo	97	39.276	ug/L	213463	154	0.323	0.822	0.822
	Mo	98	39.382	ug/L	546529	125	0.988	2.509	2.509
	Ag	107	19.779	ug/L	456087	130	0.210	1.060	1.060
	Ag	109	19.619	ug/L	433015	110	0.310	1.578	1.578
	Cd	111	19.469	ug/L	107755	670	0.375	1.925	1.925
	Cd	114	19.574	ug/L	238753	62	0.246	1.258	1.258
	Sn	118	19.599	ug/L	288076	182	0.077	0.390	0.390
	Sn	120	19.751	ug/L	394557	221	0.359	1.817	1.817
	Sb	121	19.729	ug/L	335695	67	0.302	1.531	1.531
	Sb	123	19.735	ug/L	251957	46	0.223	1.128	1.128
	Ba	135	19.799	ug/L	81064	74	0.261	1.321	1.321
	Ba	137	19.773	ug/L	140310	83	0.222	1.124	1.124
	Tl	203	19.971	ug/L	288203	61	0.536	2.684	2.684
	Tl	205	20.315	ug/L	679876	102	0.375	1.846	1.846
	Pb	208	19.106	ug/L	867921	168	0.889	4.653	4.653
	Bi	209	0.047	ug/L	1986	211	0.003	6.285	6.285
	U	238	19.923	ug/L	831354	35	0.690	3.462	3.462
>	Tm	169		ug/L	862613	843658			1.528
	Tb	159		ug/L	907824	863889			6.716
	Kr	83		mg/L	469	463			539.889
	Y	89		ug/L	936064	902151			49.666
	In	115		ug/L	831596	786386			24.816
	Ho	165		mg/L	881059	831689			21.182
	Ar2	76		mg/L	194293	179121			24.475

Sample ID: ICSA

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 11:55:18

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	23604.697	ug/L	19677841	79994	640.487	2.713	2.713
	Mg	26	22992.044	ug/L	40942819	451	375.215	1.632	1.632
	Cl	35	171.370	mg/L	13659524	91117	2.768	1.615	1.615
	Na	23	S	ug/L	S	13672	S	S	S
	K	39	S	ug/L	S	1890458	S	S	S
>	Ge	72		ug/L	208475	213980			0.702
>	Li	6		ug/L	136012	144792			2.138
	Li	7		ug/L	9640	9938			36.234
	Be	9	0.000	ug/L	80	85	0.009	6900.119	6900.119
	B	10	0.597	ug/L	403	224	0.099	16.510	16.510
	B	11	0.585	ug/L	1698	824	0.024	4.158	4.158
	Al	27	23613.754	ug/L	418855117	5153	46.125	0.195	0.195
	Ti	49	481.726	ug/L	868660	-83	6.828	1.417	1.417
	V	51	-0.039	ug/L	5785	7152	0.057	143.854	143.854
	Cr	53	-0.052	ug/L	192	366	0.203	390.483	390.483
	Cr	52	0.294	ug/L	24792	17444	0.010	3.437	3.437
	Fe	56	S	ug/L	S	7064904	S	S	S
	Fe	57	25104.974	ug/L	20274949	30783	281.622	1.122	1.122
	Fe	54	24509.866	ug/L	50569938	-26061	230.902	0.942	0.942
	Mn	55	0.409	ug/L	18656	1095	0.028	6.895	6.895
	Co	59	0.388	ug/L	12363	238	0.013	3.300	3.300
	Ni	62	0.252	ug/L	489	242	0.069	27.490	27.490
	Ni	60	0.064	ug/L	594	161	0.040	62.476	62.476
	Cu	63	0.046	ug/L	1008	312	0.020	44.115	44.115
	Cu	65	0.048	ug/L	652	311	0.012	24.568	24.568
	Sc	45		ug/L	457526	488163			32.857
	P	31	23198.884	ug/L	27837458	-1401	385.083	1.660	1.660
	Zn	68	0.838	ug/L	3177	731	0.027	3.238	3.238
	Zn	66	0.433	ug/L	4047	2257	0.050	11.478	11.478
	As	75	-0.027	ug/L	33	165	0.028	102.686	102.686
	Se	77	-0.177	ug/L	234	307	0.064	36.210	36.210
	Se	78	0.794	ug/L	23073	22720	0.089	11.210	11.210
	Se	82	0.187	ug/L	562	482	0.014	7.675	7.675
	Br	79	-0.009	mg/L	19987	29165	0.000	4.276	4.276
>	Ge-1	72		ug/L	208475	213980			0.702
>	Rh	103		ug/L	652685	698055			0.837
	Sr	88	0.298	ug/L	16362	424	0.009	2.985	2.985
	Mo	97	510.398	ug/L	2526515	154	5.267	1.032	1.032
	Mo	98	508.188	ug/L	6427218	125	4.209	0.828	0.828
	Ag	107	0.032	ug/L	805	130	0.004	11.989	11.989
	Ag	109	0.036	ug/L	821	110	0.003	7.413	7.413
	Cd	111	0.115	ug/L	1200	670	0.022	19.052	19.052
	Cd	114	0.707	ug/L	7918	62	0.017	2.360	2.360
	Sn	118	0.020	ug/L	437	182	0.002	9.475	9.475
	Sn	120	0.020	ug/L	575	221	0.003	13.650	13.650
	Sb	121	0.038	ug/L	656	67	0.001	1.982	1.982
	Sb	123	0.038	ug/L	490	46	0.001	1.760	1.760
	Ba	135	0.113	ug/L	491	74	0.002	1.603	1.603
	Ba	137	0.122	ug/L	865	83	0.006	5.100	5.100
	Tl	203	0.008	ug/L	159	61	0.002	25.104	25.104
	Tl	205	0.006	ug/L	289	102	0.000	7.719	7.719
	Pb	208	0.126	ug/L	5476	168	0.004	2.931	2.931
	Bi	209	0.029	ug/L	1219	211	0.002	6.452	6.452
	U	238	0.002	ug/L	94	35	0.000	18.245	18.245
>	Tm	169		ug/L	799800	843658			0.632
	Tb	159		ug/L	842007	863889			5.780
	Kr	83		mg/L	619	463			30.938
	Y	89		ug/L	869593	902151			35.472
	In	115		ug/L	773092	786386			51.147
	Ho	165		mg/L	802392	831689			19.083
	Ar2	76		mg/L	178455	179121			54.140

Sample ID: ICSAB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:03:18
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	23218.928	ug/L	19648328	79994	288.655	1.243	1.243
	Mg	26	22849.295	ug/L	41297108	451	608.698	2.664	2.664
	Cl	35	170.478	mg/L	13790944	91117	2.592	1.521	1.521
	Na	23	S	ug/L	S	13672	S	S	S
	K	39	S	ug/L	S	1890458	S	S	S
>	Ge	72		ug/L	211599	213980			0.809
>	Li	6		ug/L	136852	144792			1.214
	Li	7		ug/L	9671	9938			58.181
	Be	9	0.004	ug/L	84	85	0.004	91.055	91.055
	B	10	0.778	ug/L	465	224	0.159	20.450	20.450
	B	11	0.767	ug/L	1998	824	0.094	12.307	12.307
	Al	27	23613.741	ug/L	425080626	5153	551.365	2.335	2.335
	Ti	49	481.707	ug/L	881648	-83	2.711	0.563	0.563
	V	51	9.960	ug/L	310262	7152	0.196	1.963	1.963
	Cr	53	9.684	ug/L	31876	366	0.200	2.065	2.065
	Cr	52	9.844	ug/L	282277	17444	0.178	1.807	1.807
	Fe	56	S	ug/L	S	7064904	S	S	S
	Fe	57	24700.683	ug/L	20247134	30783	376.797	1.525	1.525
	Fe	54	23869.271	ug/L	49982202	-26061	140.921	0.590	0.590
	Mn	55	9.815	ug/L	429557	1095	0.199	2.025	2.025
	Co	59	9.690	ug/L	307445	238	0.038	0.389	0.389
	Ni	62	9.443	ug/L	9889	242	0.259	2.739	2.739
	Ni	60	9.131	ug/L	63141	161	0.089	0.974	0.974
	Cu	63	8.978	ug/L	140839	312	0.090	1.002	1.002
	Cu	65	9.113	ug/L	67548	311	0.099	1.086	1.086
	Sc	45		ug/L	466114	488163			32.260
	P	31	22815.022	ug/L	27789332	-1401	78.724	0.345	0.345
	Zn	68	10.158	ug/L	31046	731	0.255	2.506	2.506
	Zn	66	9.751	ug/L	44461	2257	0.123	1.265	1.265
	As	75	10.067	ug/L	47831	165	0.087	0.866	0.866
	Se	77	9.864	ug/L	4002	307	0.268	2.720	2.720
	Se	78	10.453	ug/L	35005	22720	0.099	0.945	0.945
	Se	82	9.905	ug/L	5453	482	0.110	1.114	1.114
	Br	79	-0.007	mg/L	22369	29165	0.000	6.500	6.500
>	Ge-1	72		ug/L	211599	213980			0.809
>	Rh	103		ug/L	662989	698055			0.850
	Sr	88	0.283	ug/L	15793	424	0.005	1.688	1.688
	Mo	97	501.814	ug/L	2523222	154	1.316	0.262	0.262
	Mo	98	496.653	ug/L	6380454	125	10.052	2.024	2.024
	Ag	107	9.643	ug/L	205900	130	0.279	2.898	2.898
	Ag	109	9.557	ug/L	195330	110	0.223	2.335	2.335
	Cd	111	5.110	ug/L	26654	670	0.042	0.824	0.824
	Cd	114	5.682	ug/L	64213	62	0.029	0.517	0.517
	Sn	118	0.013	ug/L	343	182	0.002	13.462	13.462
	Sn	120	0.014	ug/L	474	221	0.002	17.423	17.423
	Sb	121	0.052	ug/L	881	67	0.003	5.872	5.872
	Sb	123	0.048	ug/L	608	46	0.001	1.787	1.787
	Ba	135	0.129	ug/L	558	74	0.008	6.487	6.487
	Ba	137	0.121	ug/L	875	83	0.007	5.590	5.590
	Tl	203	0.008	ug/L	163	61	0.001	17.320	17.320
	Tl	205	0.008	ug/L	361	102	0.001	14.406	14.406
	Pb	208	0.033	ug/L	1603	168	0.001	3.615	3.615
	Bi	209	0.016	ug/L	768	211	0.002	9.967	9.967
	U	238	0.001	ug/L	67	35	0.000	25.637	25.637
>	Tm	169		ug/L	821022	843658			0.592
	Tb	159		ug/L	860924	863889			420.353
	Kr	83		mg/L	624	463			18.422
	Y	89		ug/L	886904	902151			26.649
	In	115		ug/L	797343	786386			46.936
	Ho	165		mg/L	826826	831689			251.667
	Ar2	76		mg/L	184617	179121			26.034

Sample ID: RINSE

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:11:18
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	17.602	ug/L	90972	79994	0.574	3.262	3.262
	Mg	26	1.805	ug/L	3591	451	0.807	44.744	44.744
	Cl	35	1.031	mg/L	167524	91117	0.217	21.085	21.085
	Na	23	1.486	ug/L	43085	13672	0.088	5.905	5.905
	K	39	4.336	ug/L	1916660	1890458	0.759	17.495	17.495
>	Ge	72		ug/L	204911	213980			1.227
>	Li	6		ug/L	132329	144792			2.310
	Li	7		ug/L	9058	9938			472.363
	Be	9	-0.001	ug/L	76	85	0.011	851.779	851.779
	B	10	0.474	ug/L	354	224	0.154	32.566	32.566
	B	11	0.425	ug/L	1405	824	0.064	15.102	15.102
	Al	27	2.733	ug/L	52587	5153	0.262	9.603	9.603
	Ti	49	0.008	ug/L	-66	-83	0.007	86.369	86.369
	V	51	0.015	ug/L	7278	7152	0.006	43.641	43.641
	Cr	53	0.145	ug/L	806	366	0.020	14.106	14.106
	Cr	52	0.033	ug/L	17563	17444	0.020	60.642	60.642
	Fe	56	14.004	ug/L	7241450	7064904	3.467	24.756	24.756
	Fe	57	9.679	ug/L	37151	30783	0.550	5.677	5.677
	Fe	54	2.827	ug/L	-19217	-26061	0.979	34.614	34.614
	Mn	55	0.005	ug/L	1266	1095	0.002	44.519	44.519
	Co	59	0.001	ug/L	254	238	0.001	71.902	71.902
	Ni	62	0.009	ug/L	241	242	0.021	239.579	239.579
	Ni	60	0.006	ug/L	197	161	0.002	37.647	37.647
	Cu	63	0.008	ug/L	426	312	0.001	16.712	16.712
	Cu	65	0.012	ug/L	384	311	0.003	21.650	21.650
	Sc	45		ug/L	461312	488163			62.643
	P	31	1.043	ug/L	-111	-1401	0.562	53.857	53.857
	Zn	68	0.155	ug/L	1147	731	0.005	3.380	3.380
	Zn	66	0.149	ug/L	2785	2257	0.028	18.897	18.897
	As	75	0.008	ug/L	193	165	0.005	72.303	72.303
	Se	77	0.077	ug/L	322	307	0.027	35.691	35.691
	Se	78	1.466	ug/L	23457	22720	0.324	22.099	22.099
	Se	82	-0.020	ug/L	451	482	0.071	348.580	348.580
	Br	79	-0.018	mg/L	11396	29165	0.000	0.888	0.888
>	Ge-1	72		ug/L	204911	213980			1.227
>	Rh	103		ug/L	727181	698055			1.848
	Sr	88	0.035	ug/L	2555	424	0.001	1.903	1.903
	Mo	97	0.127	ug/L	864	154	0.013	9.968	9.968
	Mo	98	0.132	ug/L	1994	125	0.015	11.567	11.567
	Ag	107	0.009	ug/L	357	130	0.001	9.029	9.029
	Ag	109	0.010	ug/L	343	110	0.001	6.560	6.560
	Cd	111	0.007	ug/L	738	670	0.006	89.255	89.255
	Cd	114	0.000	ug/L	67	62	0.001	271.253	271.253
	Sn	118	0.006	ug/L	283	182	0.001	12.452	12.452
	Sn	120	0.006	ug/L	358	221	0.002	36.066	36.066
	Sb	121	0.002	ug/L	107	67	0.001	30.259	30.259
	Sb	123	0.001	ug/L	64	46	0.001	68.811	68.811
	Ba	135	0.005	ug/L	97	74	0.002	43.372	43.372
	Ba	137	0.005	ug/L	124	83	0.002	44.951	44.951
	Tl	203	0.001	ug/L	71	61	0.001	218.696	218.696
	Tl	205	0.000	ug/L	113	102	0.000	129.885	129.885
	Pb	208	0.003	ug/L	292	168	0.001	27.997	27.997
	Bi	209	0.005	ug/L	399	211	0.001	24.723	24.723
	U	238	0.000	ug/L	57	35	0.000	5.055	5.055
>	Tm	169		ug/L	869069	843658			1.616
	Tb	159		ug/L	913524	863889			11.427
	Kr	83		mg/L	444	463			135.276
	Y	89		ug/L	896840	902151			46.039
	In	115		ug/L	840331	786386			0.201
	Ho	165		mg/L	879649	831689			35.219
	Ar2	76		mg/L	182938	179121			116.632

Sample ID: RINSE

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:17:18
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	12.957	ug/L	90414	79994	1.751	13.516	13.516
	Mg	26	0.679	ug/L	1680	451	0.127	18.662	18.662
	Cl	35	0.402	mg/L	122962	91117	0.066	16.469	16.469
	Na	23	1.639	ug/L	47887	13672	1.327	80.966	80.966
	K	39	1.628	ug/L	1918887	1890458	0.726	44.595	44.595
>	Ge	72		ug/L	212526	213980			0.575
>	Li	6		ug/L	134684	144792			1.716
	Li	7		ug/L	9418	9938			140.109
	Be	9	-0.003	ug/L	76	85	0.010	390.940	390.940
	B	10	0.508	ug/L	371	224	0.151	29.804	29.804
	B	11	0.593	ug/L	1692	824	0.256	43.239	43.239
	Al	27	2.265	ug/L	46058	5153	0.134	5.911	5.911
	Ti	49	-0.000	ug/L	-83	-83	0.008	2276.193	2276.193
	V	51	0.009	ug/L	7384	7152	0.004	43.725	43.725
	Cr	53	0.078	ug/L	618	366	0.012	15.515	15.515
	Cr	52	0.031	ug/L	18161	17444	0.011	36.737	36.737
	Fe	56	3.822	ug/L	7151519	7064904	1.717	44.925	44.925
	Fe	57	5.618	ug/L	35189	30783	1.204	21.438	21.438
	Fe	54	2.689	ug/L	-20239	-26061	1.624	60.389	60.389
	Mn	55	0.003	ug/L	1232	1095	0.001	43.631	43.631
	Co	59	0.000	ug/L	244	238	0.001	310.422	310.422
	Ni	62	0.013	ug/L	254	242	0.008	61.364	61.364
	Ni	60	0.007	ug/L	207	161	0.002	23.267	23.267
	Cu	63	0.007	ug/L	414	312	0.002	23.282	23.282
	Cu	65	0.010	ug/L	385	311	0.003	33.120	33.120
	Sc	45		ug/L	472286	488163			138.506
	P	31	0.589	ug/L	-671	-1401	0.380	64.509	64.509
	Zn	68	0.147	ug/L	1165	731	0.016	10.839	10.839
	Zn	66	0.121	ug/L	2766	2257	0.030	25.082	25.082
	As	75	0.007	ug/L	196	165	0.004	51.981	51.981
	Se	77	0.042	ug/L	321	307	0.047	112.044	112.044
	Se	78	0.905	ug/L	23654	22720	0.442	48.836	48.836
	Se	82	0.023	ug/L	490	482	0.086	373.994	373.994
	Br	79	-0.019	mg/L	11064	29165	0.000	1.279	1.279
>	Ge-1	72		ug/L	212526	213980			0.575
>	Rh	103		ug/L	721778	698055			1.476
	Sr	88	0.040	ug/L	2806	424	0.002	6.071	6.071
	Mo	97	0.070	ug/L	545	154	0.013	18.369	18.369
	Mo	98	0.075	ug/L	1183	125	0.007	8.959	8.959
	Ag	107	0.005	ug/L	255	130	0.001	22.185	22.185
	Ag	109	0.005	ug/L	228	110	0.001	21.453	21.453
	Cd	111	0.015	ug/L	775	670	0.012	79.643	79.643
	Cd	114	0.000	ug/L	64	62	0.000	2527.093	2527.093
	Sn	118	0.006	ug/L	270	182	0.001	23.731	23.731
	Sn	120	0.006	ug/L	348	221	0.000	5.923	5.923
	Sb	121	0.002	ug/L	107	67	0.001	66.857	66.857
	Sb	123	0.002	ug/L	69	46	0.000	26.643	26.643
	Ba	135	0.008	ug/L	109	74	0.004	54.495	54.495
	Ba	137	0.005	ug/L	121	83	0.002	32.415	32.415
	Tl	203	-0.000	ug/L	60	61	0.000	96.028	96.028
	Tl	205	0.000	ug/L	118	102	0.001	158.707	158.707
	Pb	208	0.003	ug/L	294	168	0.001	28.179	28.179
	Bi	209	0.003	ug/L	337	211	0.001	33.665	33.665
	U	238	0.000	ug/L	45	35	0.000	119.197	119.197
>	Tm	169		ug/L	872567	843658			1.252
	Tb	159		ug/L	919141	863889			9.209
	Kr	83		mg/L	463	463			1652.217
	Y	89		ug/L	930031	902151			29.847
	In	115		ug/L	847266	786386			19.390
	Ho	165		mg/L	880342	831689			22.668
	Ar2	76		mg/L	184313	179121			43.901

Sample ID: CCV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:23:19
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1238.398	ug/L	1122336	79994	51.539	4.162	4.162
	Mg	26	248.483	ug/L	449425	451	6.545	2.634	2.634
	Cl	35	0.238	mg/L	109142	91117	0.062	26.207	26.207
	Na	23	1201.153	ug/L	25046818	13672	27.202	2.265	2.265
	K	39	1178.278	ug/L	31664960	1890458	28.215	2.395	2.395
>	Ge	72		ug/L	211594	213980			1.923
>	Li	6		ug/L	137267	144792			0.449
	Li	7		ug/L	9253	9938			131.577
	Be	9	49.028	ug/L	53138	85	0.900	1.836	1.836
	B	10	48.578	ug/L	16019	224	1.445	2.974	2.974
	B	11	49.149	ug/L	79095	824	0.896	1.824	1.824
	Al	27	103.139	ug/L	1861766	5153	1.851	1.794	1.794
	Ti	49	46.668	ug/L	85304	-83	1.675	3.588	3.588
	V	51	48.221	ug/L	1474461	7152	1.542	3.197	3.197
	Cr	53	48.346	ug/L	157692	366	1.358	2.808	2.808
	Cr	52	48.803	ug/L	1331207	17444	0.716	1.467	1.467
	Fe	56	251.266	ug/L	15805355	7064904	8.649	3.442	3.442
	Fe	57	255.390	ug/L	239418	30783	8.110	3.176	3.176
	Fe	54	256.989	ug/L	512745	-26061	8.777	3.415	3.415
	Mn	55	49.216	ug/L	2149059	1095	1.042	2.116	2.116
	Co	59	49.251	ug/L	1560938	238	1.901	3.860	3.860
	Ni	62	49.467	ug/L	50789	242	0.639	1.291	1.291
	Ni	60	47.490	ug/L	327664	161	0.678	1.427	1.427
	Cu	63	50.135	ug/L	784743	312	2.104	4.196	4.196
	Cu	65	50.078	ug/L	369664	311	1.455	2.906	2.906
	Sc	45		ug/L	462500	488163			54.460
	P	31	101.812	ug/L	122609	-1401	2.141	2.103	2.103
	Zn	68	97.605	ug/L	292095	731	2.222	2.277	2.277
	Zn	66	96.266	ug/L	419102	2257	0.313	0.325	0.325
	As	75	50.392	ug/L	238656	165	2.112	4.191	4.191
	Se	77	51.369	ug/L	19554	307	1.489	2.899	2.899
	Se	78	50.925	ug/L	83510	22720	2.263	4.444	4.444
	Se	82	49.579	ug/L	25368	482	2.416	4.873	4.873
	Br	79	-0.023	mg/L	7176	29165	0.000	1.176	1.176
>	Ge-1	72		ug/L	211594	213980			1.923
>	Rh	103		ug/L	730361	698055			1.097
	Sr	88	47.065	ug/L	2824850	424	1.697	3.606	3.606
	Mo	97	23.782	ug/L	131874	154	0.292	1.227	1.227
	Mo	98	23.879	ug/L	338023	125	0.499	2.090	2.090
	Ag	107	24.073	ug/L	566065	130	0.373	1.551	1.551
	Ag	109	23.870	ug/L	537293	110	0.286	1.198	1.198
	Cd	111	24.311	ug/L	137066	670	0.202	0.831	0.831
	Cd	114	24.304	ug/L	302316	62	0.322	1.323	1.323
	Sn	118	24.176	ug/L	362354	182	0.070	0.288	0.288
	Sn	120	23.967	ug/L	488308	221	0.147	0.613	0.613
	Sb	121	9.550	ug/L	165777	67	0.112	1.178	1.178
	Sb	123	9.643	ug/L	125584	46	0.114	1.181	1.181
	Ba	135	49.670	ug/L	207309	74	0.285	0.574	0.574
	Ba	137	49.806	ug/L	360311	83	0.594	1.192	1.192
	Tl	203	45.761	ug/L	675777	61	0.208	0.455	0.455
	Tl	205	46.346	ug/L	1587432	102	0.759	1.638	1.638
	Pb	208	45.654	ug/L	2123181	168	0.074	0.161	0.161
	Bi	209	45.060	ug/L	1725333	211	1.494	3.316	3.316
	U	238	43.866	ug/L	1873932	35	0.309	0.705	0.705
>	Tm	169		ug/L	882801	843658			0.934
	Tb	159		ug/L	930175	863889			8.700
	Kr	83		mg/L	482	463			28.347
	Y	89		ug/L	924216	902151			53.407
	In	115		ug/L	847255	786386			16.640
	Ho	165		mg/L	874971	831689			11.285
	Ar2	76		mg/L	208970	179121			24.608

Sample ID: CCB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:31:18
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	10.186	ug/L	86183	79994	2.148	21.084	21.084
Mg	26	0.092	ug/L	602	451	0.056	61.411	61.411
Cl	35	0.177	mg/L	102573	91117	0.037	20.746	20.746
Na	23	0.585	ug/L	25280	13672	0.077	13.172	13.172
K	39	3.772	ug/L	1931388	1890458	0.881	23.351	23.351
> Ge	72		ug/L	208027	213980			2.296
> Li	6		ug/L	137072	144792			0.309
Li	7		ug/L	9297	9938			155.124
Be	9	0.008	ug/L	89	85	0.006	74.624	74.624
B	10	0.631	ug/L	417	224	0.107	16.904	16.904
B	11	0.789	ug/L	2036	824	0.200	25.287	25.287
Al	27	0.276	ug/L	9895	5153	0.036	12.973	12.973
Ti	49	0.029	ug/L	-29	-83	0.012	42.395	42.395
V	51	0.011	ug/L	7286	7152	0.003	27.475	27.475
Cr	53	0.029	ug/L	449	366	0.016	54.738	54.738
Cr	52	0.027	ug/L	17673	17444	0.002	9.034	9.034
Fe	56	8.558	ug/L	7160303	7064904	6.696	78.250	78.250
Fe	57	2.315	ug/L	31786	30783	0.340	14.702	14.702
Fe	54	1.987	ug/L	-21237	-26061	0.688	34.596	34.596
Mn	55	0.003	ug/L	1208	1095	0.000	7.107	7.107
Co	59	0.001	ug/L	264	238	0.000	40.118	40.118
Ni	62	0.013	ug/L	248	242	0.015	115.505	115.505
Ni	60	0.006	ug/L	198	161	0.002	38.032	38.032
Cu	63	0.007	ug/L	408	312	0.001	14.433	14.433
Cu	65	0.010	ug/L	372	311	0.003	36.056	36.056
Sc	45		ug/L	481524	488163			274.311
P	31	1.843	ug/L	851	-1401	0.413	22.416	22.416
Zn	68	0.131	ug/L	1093	731	0.008	5.857	5.857
Zn	66	0.100	ug/L	2617	2257	0.010	10.395	10.395
As	75	0.007	ug/L	194	165	0.001	19.727	19.727
Se	77	0.135	ug/L	348	307	0.069	51.209	51.209
Se	78	1.367	ug/L	23692	22720	0.503	36.783	36.783
Se	82	0.069	ug/L	503	482	0.021	30.981	30.981
Br	79	-0.019	mg/L	11152	29165	0.000	1.102	1.102
> Ge-1	72		ug/L	208027	213980			2.296
> Rh	103		ug/L	737460	698055			0.847
Sr	88	0.003	ug/L	612	424	0.002	56.076	56.076
Mo	97	0.031	ug/L	338	154	0.007	21.261	21.261
Mo	98	0.030	ug/L	565	125	0.004	12.158	12.158
Ag	107	0.008	ug/L	339	130	0.001	14.459	14.459
Ag	109	0.008	ug/L	287	110	0.001	18.013	18.013
Cd	111	0.018	ug/L	812	670	0.006	32.839	32.839
Cd	114	-0.000	ug/L	60	62	0.000	99.811	99.811
Sn	118	0.022	ug/L	522	182	0.003	15.958	15.958
Sn	120	0.021	ug/L	665	221	0.001	6.599	6.599
Sb	121	0.019	ug/L	409	67	0.001	7.085	7.085
Sb	123	0.019	ug/L	302	46	0.001	5.267	5.267
Ba	135	0.001	ug/L	84	74	0.005	348.833	348.833
Ba	137	0.002	ug/L	102	83	0.001	39.953	39.953
Tl	203	0.002	ug/L	96	61	0.000	13.482	13.482
Tl	205	0.001	ug/L	149	102	0.000	30.158	30.158
Pb	208	0.002	ug/L	267	168	0.001	66.402	66.402
Bi	209	0.016	ug/L	845	211	0.001	4.894	4.894
U	238	0.001	ug/L	91	35	0.000	21.977	21.977
> Tm	169		ug/L	883487	843658			1.073
Tb	159		ug/L	935272	863889			7.056
Kr	83		mg/L	465	463			1201.391
Y	89		ug/L	948098	902151			18.935
In	115		ug/L	855081	786386			16.398
Ho	165		mg/L	885920	831689			17.348
Ar2	76		mg/L	185188	179121			39.405

Sample ID: TRAINRINSE

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:36:18

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description: TX300 WS2183342

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	24.857	ug/L	102312	79994	3.250	13.076	13.076
	Mg	26	0.800	ug/L	1938	451	0.128	15.996	15.996
	Cl	35	0.107	mg/L	100924	91117	0.017	16.313	16.313
	Na	23	2.672	ug/L	70920	13672	1.251	46.821	46.821
	K	39	1.717	ug/L	1955647	1890458	0.953	55.515	55.515
>	Ge	72		ug/L	216366	213980			1.854
>	Li	6		ug/L	141748	144792			1.176
	Li	7		ug/L	9463	9938			140.777
	Be	9	0.002	ug/L	85	85	0.007	384.482	384.482
	B	10	1.243	ug/L	637	224	0.230	18.536	18.536
	B	11	1.209	ug/L	2795	824	0.183	15.120	15.120
	Al	27	3.667	ug/L	72733	5153	0.342	9.339	9.339
	Ti	49	0.223	ug/L	333	-83	0.046	20.619	20.619
	V	51	0.007	ug/L	7455	7152	0.005	71.690	71.690
	Cr	53	0.027	ug/L	459	366	0.007	26.499	26.499
	Cr	52	0.010	ug/L	17901	17444	0.017	174.739	174.739
	Fe	56	7.367	ug/L	7405313	7064904	6.472	87.853	87.853
	Fe	57	1.309	ug/L	32216	30783	1.126	86.027	86.027
	Fe	54	4.047	ug/L	-17682	-26061	0.386	9.540	9.540
	Mn	55	0.029	ug/L	2391	1095	0.006	21.493	21.493
	Co	59	0.003	ug/L	336	238	0.000	11.056	11.056
	Ni	62	0.017	ug/L	262	242	0.007	43.196	43.196
	Ni	60	0.007	ug/L	210	161	0.002	27.300	27.300
	Cu	63	0.034	ug/L	857	312	0.002	5.085	5.085
	Cu	65	0.036	ug/L	590	311	0.003	9.121	9.121
	Sc	45		ug/L	495408	488163			747.583
	P	31	2.481	ug/L	1690	-1401	1.403	56.554	56.554
	Zn	68	0.364	ug/L	1850	731	0.020	5.416	5.416
	Zn	66	0.337	ug/L	3775	2257	0.004	1.124	1.124
	As	75	0.061	ug/L	463	165	0.011	18.564	18.564
	Se	77	0.053	ug/L	331	307	0.016	29.929	29.929
	Se	78	0.666	ug/L	23785	22720	0.376	56.427	56.427
	Se	82	-0.025	ug/L	475	482	0.017	70.692	70.692
	Br	79	-0.018	mg/L	12453	29165	0.000	1.796	1.796
>	Ge-1	72		ug/L	216366	213980			1.854
>	Rh	103		ug/L	728925	698055			1.011
	Sr	88	0.024	ug/L	1905	424	0.005	22.379	22.379
	Mo	97	0.062	ug/L	505	154	0.004	6.900	6.900
	Mo	98	0.066	ug/L	1061	125	0.001	1.701	1.701
	Ag	107	0.007	ug/L	293	130	0.001	16.497	16.497
	Ag	109	0.007	ug/L	267	110	0.000	7.029	7.029
	Cd	111	0.009	ug/L	752	670	0.008	89.179	89.179
	Cd	114	0.003	ug/L	100	62	0.002	54.690	54.690
	Sn	118	0.068	ug/L	1208	182	0.017	24.569	24.569
	Sn	120	0.069	ug/L	1628	221	0.016	23.906	23.906
	Sb	121	0.044	ug/L	826	67	0.010	22.860	22.860
	Sb	123	0.045	ug/L	631	46	0.010	21.531	21.531
	Ba	135	1.151	ug/L	4864	74	0.305	26.468	26.468
	Ba	137	1.131	ug/L	8240	83	0.294	25.971	25.971
	Tl	203	0.001	ug/L	78	61	0.001	87.548	87.548
	Tl	205	0.002	ug/L	157	102	0.000	27.542	27.542
	Pb	208	0.015	ug/L	881	168	0.001	8.506	8.506
	Bi	209	0.061	ug/L	2508	211	0.012	19.343	19.343
	U	238	0.001	ug/L	70	35	0.000	13.540	13.540
>	Tm	169		ug/L	873079	843658			1.289
	Tb	159		ug/L	902565	863889			14.478
	Kr	83		mg/L	460	463			719.999
	Y	89		ug/L	941868	902151			41.013
	In	115		ug/L	839342	786386			19.543
	Ho	165		mg/L	873828	831689			6.321
	Ar2	76		mg/L	189879	179121			25.553

Sample ID: BLANK X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:41:18

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description: TX300 WS2183342

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	25.478	ug/L	106727	79994	2.354	9.239	9.239
	Mg	26	1.002	ug/L	2392	451	0.108	10.734	10.734
	Cl	35	0.041	mg/L	99097	91117	0.041	98.688	98.688
	Na	23	4.229	ug/L	107799	13672	0.320	7.561	7.561
	K	39	0.289	ug/L	1991037	1890458	2.080	719.666	719.666
>	Ge	72		ug/L	224607	213980			2.873
>	Li	6		ug/L	147582	144792			1.134
	Li	7		ug/L	9946	9938			56.985
	Be	9	-0.006	ug/L	79	85	0.003	45.955	45.955
	B	10	1.197	ug/L	647	224	0.030	2.539	2.539
	B	11	1.135	ug/L	2784	824	0.052	4.602	4.602
	Al	27	4.201	ug/L	85629	5153	0.199	4.747	4.747
	Ti	49	0.208	ug/L	316	-83	0.015	7.068	7.068
	V	51	0.008	ug/L	7762	7152	0.008	98.290	98.290
	Cr	53	0.028	ug/L	482	366	0.007	24.751	24.751
	Cr	52	0.014	ug/L	18691	17444	0.026	188.163	188.163
	Fe	56	6.692	ug/L	7660429	7064904	6.745	100.785	100.785
	Fe	57	-2.858	ug/L	29809	30783	1.262	44.152	44.152
	Fe	54	3.555	ug/L	-19424	-26061	0.588	16.543	16.543
	Mn	55	0.048	ug/L	3364	1095	0.003	6.713	6.713
	Co	59	0.002	ug/L	314	238	0.001	37.716	37.716
	Ni	62	-0.008	ug/L	245	242	0.017	217.862	217.862
	Ni	60	0.014	ug/L	272	161	0.002	11.065	11.065
	Cu	63	0.057	ug/L	1270	312	0.002	3.396	3.396
	Cu	65	0.061	ug/L	803	311	0.006	9.631	9.631
	Sc	45		ug/L	518825	488163			162.513
	P	31	0.995	ug/L	-193	-1401	0.544	54.676	54.676
	Zn	68	0.439	ug/L	2156	731	0.009	1.948	1.948
	Zn	66	0.404	ug/L	4223	2257	0.026	6.487	6.487
	As	75	0.070	ug/L 0.210	527	165	0.004	6.052	6.052
	Se	77	0.119	ug/L	370	307	0.024	19.840	19.840
	Se	78	0.213	ug/L	24108	22720	0.482	225.914	225.914
	Se	82	0.045	ug/L	530	482	0.018	38.739	38.739
	Br	79	-0.018	mg/L	12908	29165	0.000	2.527	2.527
>	Ge-I	72		ug/L	224607	213980			2.873
>	Rh	103		ug/L	737026	698055			0.838
	Sr	88	0.032	ug/L	2357	424	0.002	6.535	6.535
	Mo	97	0.137	ug/L	926	154	0.017	12.368	12.368
	Mo	98	0.131	ug/L	2002	125	0.011	8.208	8.208
	Ag	107	0.004	ug/L	225	130	0.001	35.126	35.126
	Ag	109	0.004	ug/L	208	110	0.000	4.225	4.225
	Cd	111	0.025	ug/L	849	670	0.002	6.818	6.818
	Cd	114	0.016	ug/L 0.048	272	62	0.003	17.866	17.866
	Sn	118	0.032	ug/L	674	182	0.002	6.375	6.375
	Sn	120	0.037	ug/L	986	221	0.002	4.713	4.713
	Sb	121	0.013	ug/L	304	67	0.002	11.587	11.587
	Sb	123	0.013	ug/L	221	46	0.000	2.914	2.914
	Ba	135	1.325	ug/L	5655	74	0.048	3.657	3.657
	Ba	137	1.345	ug/L	9905	83	0.063	4.677	4.677
	Tl	203	0.001	ug/L	72	61	0.001	211.467	211.467
	Tl	205	-0.000	ug/L	101	102	0.001	289.312	289.312
	Pb	208	0.017	ug/L	981	168	0.000	2.050	2.050
	Bi	209	0.041	ug/L	1813	211	0.003	8.038	8.038
	U	238	0.000	ug/L	49	35	0.000	145.446	145.446
>	Tm	169		ug/L	887150	843658			1.745
	Tb	159		ug/L	911581	863889			10.026
	Kr	83		mg/L	495	463			14.434
	Y	89		ug/L	975791	902151			5.669
	In	115		ug/L	839708	786386			5.379
	Ho	165		mg/L	873533	831689			38.238
	Ar2	76		mg/L	191442	179121			16.322

Sample ID: BLANKD X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:46:18
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

	Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	26.079	ug/L		106907	79994	2.843	10.903	10.903
	Mg	26	0.869	ug/L		2132	451	0.075	8.679	8.679
	Cl	35	0.032	mg/L		97992	91117	0.023	72.590	72.590
	Na	23	4.143	ug/L		105643	13672	0.250	6.032	6.032
	K	39	0.100	ug/L		1979818	1890458	0.864	864.166	864.166
>	Ge	72		ug/L		223799	213980			0.424
>	Li	6		ug/L		148627	144792			0.354
	Li	7		ug/L		10086	9938			53.559
	Be	9	-0.012	ug/L	0	73	85	0.001	9.330	9.330
	B	10	1.208	ug/L		656	224	0.038	3.173	3.173
	B	11	1.271	ug/L		3041	824	0.284	22.299	22.299
	Al	27	3.788	ug/L		77505	5153	0.176	4.649	4.649
	Ti	49	0.180	ug/L		261	-83	0.017	9.672	9.672
	V	51	0.009	ug/L		7765	7152	0.004	46.629	46.629
	Cr	53	0.023	ug/L		462	366	0.004	16.221	16.221
	Cr	52	0.011	ug/L	0.033	18560	17444	0.013	116.015	116.015
	Fe	56	6.191	ug/L		7618905	7064904	1.177	19.017	19.017
	Fe	57	-4.489	ug/L		28311	30783	0.575	12.807	12.807
	Fe	54	3.255	ug/L		-20044	-26061	0.125	3.853	3.853
	Mn	55	0.040	ug/L		3007	1095	0.005	12.001	12.001
	Co	59	0.002	ug/L		303	238	0.000	18.165	18.165
	Ni	62	-0.022	ug/L		229	242	0.022	99.995	99.995
	Ni	60	0.009	ug/L		236	161	0.002	22.744	22.744
	Cu	63	0.031	ug/L		832	312	0.002	6.212	6.212
	Cu	65	0.037	ug/L		614	311	0.004	10.551	10.551
	Sc	45		ug/L		527255	488163			51.635
	P	31	1.669	ug/L		685	-1401	0.711	42.579	42.579
	Zn	68	0.341	ug/L		1840	731	0.031	9.084	9.084
	Zn	66	0.297	ug/L		3718	2257	0.038	12.710	12.710
	As	75	0.070	ug/L		524	165	0.009	12.991	12.991
	Se	77	0.115	ug/L		367	307	0.024	20.727	20.727
	Se	78	0.231	ug/L		24055	22720	0.098	42.579	42.579
	Se	82	0.042	ug/L		526	482	0.044	105.719	105.719
	Br	79	-0.018	mg/L		12553	29165	0.000	0.798	0.798
>	Ge-1	72		ug/L		223799	213980			0.424
>	Rh	103		ug/L		741324	698055			0.281
	Sr	88	0.028	ug/L		2143	424	0.003	9.432	9.432
	Mo	97	0.023	ug/L		293	154	0.005	22.237	22.237
	Mo	98	0.025	ug/L		496	125	0.004	16.522	16.522
	Ag	107	0.003	ug/L		209	130	0.001	29.259	29.259
	Ag	109	0.004	ug/L		212	110	0.001	30.378	30.378
	Cd	111	0.005	ug/L		742	670	0.007	126.525	126.525
	Cd	114	0.003	ug/L		98	62	0.002	66.637	66.637
	Sn	118	0.021	ug/L		520	182	0.002	7.033	7.033
	Sn	120	0.020	ug/L		652	221	0.005	26.684	26.684
	Sb	121	0.009	ug/L		233	67	0.000	3.235	3.235
	Sb	123	0.009	ug/L		166	46	0.001	11.802	11.802
	Ba	135	1.322	ug/L		5678	74	0.026	1.974	1.974
	Ba	137	1.340	ug/L		9927	83	0.062	4.601	4.601
	Tl	203	0.000	ug/L		65	61	0.001	853.853	853.853
	Tl	205	0.000	ug/L		121	102	0.001	142.526	142.526
	Pb	208	0.016	ug/L		893	168	0.001	3.298	3.298
	Bi	209	0.016	ug/L		842	211	0.003	15.365	15.365
	U	238	0.000	ug/L		48	35	0.000	101.557	101.557
>	Tm	169		ug/L		872769	843658			0.679
	Tb	159		ug/L		900919	863889			27.001
	Kr	83		mg/L		460	463			419.998
	Y	89		ug/L		963402	902151			11.024
	In	115		ug/L		834598	786386			5.508
	Ho	165		mg/L		870249	831689			37.692
	Ar2	76		mg/L		188539	179121			29.442

Sample ID: BL0617M X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:51:18

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description: TX300 WS2183342

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1298.770	ug/L	1239742	79994	10.049	0.774	0.774
	Mg	26	237.703	ug/L	454318	451	3.700	1.557	1.557
	Cl	35	-0.004	mg/L	94798	91117	0.004	102.814	102.814
	Na	23	1137.938	ug/L	25069090	13672	13.078	1.149	1.149
	K	39	1205.621	ug/L	34181920	1890458	9.395	0.779	0.779
>	Ge	72		ug/L	223494	213980			0.895
>	Li	6		ug/L	148018	144792			1.461
	Li	7		ug/L	10028	9938			57.516
	Be	9	49.431	ug/L	57756	85	1.357	2.745	2.745
	B	10	50.240	ug/L	17853	224	1.194	2.376	2.376
	B	11	51.152	ug/L	88736	824	0.546	1.067	1.067
	Al	27	100.675	ug/L	1919822	5153	1.203	1.194	1.194
	Ti	49	47.946	ug/L	92611	-83	0.495	1.033	1.033
	V	51	48.546	ug/L	1568473	7152	0.729	1.502	1.502
	Cr	53	48.342	ug/L	166521	366	0.380	0.785	0.785
	Cr	52	48.042	ug/L	1384484	17444	0.836	1.741	1.741
	Fe	56	244.910	ug/L	16459776	7064904	10.614	4.334	4.334
	Fe	57	253.603	ug/L	251405	30783	2.132	0.841	0.841
	Fe	54	255.751	ug/L	538741	-26061	0.580	0.227	0.227
	Mn	55	48.556	ug/L	2239695	1095	0.801	1.649	1.649
	Co	59	49.243	ug/L	1649261	238	0.200	0.406	0.406
	Ni	62	48.204	ug/L	52281	242	1.104	2.291	2.291
	Ni	60	48.680	ug/L	354804	161	0.572	1.176	1.176
	Cu	63	48.613	ug/L	804017	312	0.671	1.381	1.381
	Cu	65	49.354	ug/L	384911	311	1.121	2.270	2.270
	Sc	45		ug/L	520115	488163			90.395
	P	31	96.110	ug/L	122173	-1401	1.941	2.019	2.019
	Zn	68	102.107	ug/L	322707	731	1.854	1.815	1.815
	Zn	66	99.669	ug/L	458177	2257	3.085	3.095	3.095
	As	75	49.937	ug/L	249893	165	0.570	1.142	1.142
	Se	77	50.320	ug/L	20247	307	1.144	2.274	2.274
	Se	78	49.481	ug/L	86411	22720	0.675	1.364	1.364
	Se	82	49.676	ug/L	26860	482	0.908	1.829	1.829
	Br	79	-0.018	mg/L	12761	29165	0.000	0.941	0.941
>	Ge-I	72		ug/L	223494	213980			0.895
>	Rh	103		ug/L	716606	698055			0.406
	Sr	88	49.197	ug/L	2897425	424	0.195	0.397	0.397
	Mo	97	23.956	ug/L	130345	154	0.363	1.514	1.514
	Mo	98	24.196	ug/L	336098	125	0.640	2.647	2.647
	Ag	107	24.232	ug/L	559129	130	0.282	1.162	1.162
	Ag	109	23.927	ug/L	528464	110	0.045	0.189	0.189
	Cd	111	24.180	ug/L	133766	670	0.335	1.386	1.386
	Cd	114	24.315	ug/L 97.146%	296779	62	0.316	1.299	1.299
	Sn	118	24.144	ug/L	355063	182	0.292	1.211	1.211
	Sn	120	24.164	ug/L	483051	221	0.093	0.386	0.386
	Sb	121	9.756	ug/L	166157	67	0.106	1.084	1.084
	Sb	123	9.788	ug/L	125073	46	0.084	0.858	0.858
	Ba	135	49.796	ug/L	203919	74	0.475	0.954	0.954
	Ba	137	49.705	ug/L	352839	83	0.244	0.492	0.492
	Tl	203	47.166	ug/L	673902	61	0.738	1.565	1.565
	Tl	205	47.917	ug/L	1588597	102	1.330	2.776	2.776
	Pb	208	48.610	ug/L 97.186%	2187395	168	0.909	1.870	1.870
	Bi	209	47.504	ug/L	1759176	211	1.283	2.702	2.702
	U	238	46.810	ug/L	1935066	35	0.836	1.787	1.787
>	Tm	169		ug/L	854271	843658			2.226
	Tb	159		ug/L	881017	863889			37.756
	Kr	83		mg/L	532	463			48.125
	Y	89		ug/L	946387	902151			14.793
	In	115		ug/L	818860	786386			23.320
	Ho	165		mg/L	846427	831689			103.473
	Ar2	76		mg/L	211535	179121			2.060

Sample ID: BL0617DM X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 12:59:19
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	1347.329	ug/L	1256594	79994	14.424	1.071	1.071
Mg	26	246.417	ug/L	461179	451	4.132	1.677	1.677
Cl	35	-0.022	mg/L	91326	91117	0.021	94.084	94.084
Na	23	1186.716	ug/L	25607380	13672	14.085	1.187	1.187
K	39	1236.843	ug/L	34288535	1890458	37.971	3.070	3.070
Ge	72		ug/L	218884	213980			1.003
Li	6		ug/L	146263	144792			1.907
Li	7		ug/L	9764	9938			47.071
Be	9	50.412	ug/L	58195	85	2.165	4.295	4.295
B	10	51.265	ug/L	17996	224	1.152	2.248	2.248
B	11	51.291	ug/L	87892	824	2.011	3.920	3.920
Al	27	104.138	ug/L	1944598	5153	0.952	0.914	0.914
Ti	49	49.978	ug/L	94535	-83	1.502	3.004	3.004
V	51	50.970	ug/L	1612352	7152	1.545	3.031	3.031
Cr	53	50.279	ug/L	169588	366	1.537	3.057	3.057
Cr	52	50.249	ug/L 100.417 %	1417359	17444	0.304	0.605	0.605
Fe	56	251.715	ug/L	16368535	7064904	5.944	2.361	2.361
Fe	57	257.675	ug/L	249639	30783	4.942	1.918	1.918
Fe	54	263.616	ug/L	544711	-26061	4.364	1.655	1.655
Mn	55	49.502	ug/L	2236772	1095	1.634	3.301	3.301
Co	59	51.507	ug/L	1689333	238	1.122	2.177	2.177
Ni	62	49.794	ug/L	52886	242	0.416	0.836	0.836
Ni	60	49.898	ug/L	356171	161	0.811	1.625	1.625
Cu	63	50.613	ug/L	819887	312	0.325	0.643	0.643
Cu	65	51.585	ug/L	394010	311	0.882	1.710	1.710
Sc	45		ug/L	510858	488163			86.841
P	31	100.815	ug/L	125598	-1401	0.512	0.508	0.508
Zn	68	106.303	ug/L	328998	731	2.093	1.969	1.969
Zn	66	103.074	ug/L	464017	2257	1.730	1.678	1.678
As	75	51.393	ug/L 102.646 %	251897	165	0.488	0.949	0.949
Se	77	52.056	ug/L	20500	307	0.212	0.408	0.408
Se	78	52.701	ug/L	88621	22720	0.863	1.638	1.638
Se	82	50.701	ug/L	26837	482	1.388	2.737	2.737
Br	79	-0.018	mg/L	12282	29165	0.000	1.175	1.175
Ge-1	72		ug/L	218884	213980			1.003
Rh	103		ug/L	702430	698055			0.897
Sr	88	50.864	ug/L	2936136	424	0.811	1.595	1.595
Mo	97	24.802	ug/L	132277	154	0.095	0.385	0.385
Mo	98	24.571	ug/L	334589	125	0.224	0.912	0.912
Ag	107	24.928	ug/L	563758	130	0.347	1.392	1.392
Ag	109	24.735	ug/L	535480	110	0.263	1.063	1.063
Cd	111	24.917	ug/L	135095	670	0.309	1.241	1.241
Cd	114	24.947	ug/L	298454	62	0.207	0.832	0.832
Sn	118	24.819	ug/L	357758	182	0.203	0.818	0.818
Sn	120	24.959	ug/L	489034	221	0.409	1.639	1.639
Sb	121	9.997	ug/L	166884	67	0.117	1.168	1.168
Sb	123	10.095	ug/L	126434	46	0.131	1.300	1.300
Ba	135	51.069	ug/L	204973	74	0.819	1.605	1.605
Ba	137	50.812	ug/L	353558	83	0.185	0.364	0.364
Tl	203	50.240	ug/L	702759	61	1.637	3.259	3.259
Tl	205	51.283	ug/L	1663644	102	0.679	1.324	1.324
Pb	208	50.373	ug/L	2218381	168	0.436	0.865	0.865
Bi	209	50.425	ug/L	1827981	211	0.371	0.735	0.735
U	238	48.965	ug/L	1981174	35	0.984	2.010	2.010
Tm	169		ug/L	836046	843658			1.302
Tb	159		ug/L	862653	863889			606.049
Kr	83		mg/L	485	463			271.867
Y	89		ug/L	927985	902151			75.980
In	115		ug/L	795902	786386			75.573
Ho	165		mg/L	825277	831689			87.938
Ar2	76		mg/L	209778	179121			10.574

Sample ID: GC8423 X50

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:07:20
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	106.621	ug/L	181921	79994	1.761	1.652	1.652
Mg	26	8.126	ug/L	16294	451	0.034	0.421	0.421
Cl	35	0.500	mg/L	140248	91117	0.021	4.181	4.181
Na	23	123.208	ug/L	2779981	13672	1.400	1.136	1.136
K	39	27.531	ug/L	2762406	1890458	0.704	2.556	2.556
Ge	72		ug/L	227813	213980			0.297
Li	6		ug/L	157154	144792			1.221
Li	7		ug/L	12944	9938			5.390
Be	9	0.014	ug/L	110	85	0.014	96.896	96.896
B	10	6.459	ug/L	2650	224	0.215	3.335	3.335
B	11	6.127	ug/L	12074	824	0.198	3.236	3.236
Al	27	84.040	ug/L	1634404	5153	0.784	0.933	0.933
Ti	49	5.761	ug/L	11265	-83	0.060	1.035	1.035
V	51	-1.202	ug/L	-31815	7152	1.337	111.204	111.204
Cr	53	10.250	ug/L	36287	366	3.598	35.104	35.104
Cr	52	9.128	ug/L 136.92	283140	17444	0.694	7.605	7.605
Fe	56	51.783	ug/L	9479192	7064904	0.852	1.645	1.645
Fe	57	60.932	ug/L	86471	30783	0.360	0.591	0.591
Fe	54	70.804	ug/L	131968	-26061	0.497	0.702	0.702
Mn	55	0.956	ug/L	46075	1095	0.009	0.955	0.955
Co	59	0.085	ug/L	3171	238	0.002	2.401	2.401
Ni	62	1.367	ug/L	1762	242	0.043	3.178	3.178
Ni	60	1.417	ug/L	10695	161	0.010	0.730	0.730
Cu	63	0.887	ug/L	15277	312	0.019	2.112	2.112
Cu	65	0.892	ug/L	7417	311	0.019	2.186	2.186
Sc	45		ug/L	578522	488163			8.266
P	31	5.152	ug/L	5265	-1401	0.514	9.967	9.967
Zn	68	10.799	ug/L	35489	731	0.088	0.819	0.819
Zn	66	10.299	ug/L	50424	2257	0.116	1.126	1.126
As	75	0.338	ug/L	1897	165	0.016	4.725	4.725
Se	77	0.662	ug/L	594	307	0.045	6.736	6.736
Se	78	-0.846	ug/L	23097	22720	0.096	11.400	11.400
Se	82	0.797	ug/L	944	482	0.086	10.824	10.824
Br	79	-0.018	mg/L	12706	29165	0.000	1.184	1.184
Ge-1	72		ug/L	227813	213980			0.297
Rh	103		ug/L	700895	698055			0.988
Sr	88	0.359	ug/L	21112	424	0.002	0.586	0.586
Mo	97	1.193	ug/L	6494	154	0.022	1.852	1.852
Mo	98	1.178	ug/L	16126	125	0.013	1.133	1.133
Ag	107	0.071	ug/L	1739	130	0.005	6.812	6.812
Ag	109	0.075	ug/L	1719	110	0.005	6.424	6.424
Cd	111	0.110	ug/L	1262	670	0.012	11.253	11.253
Cd	114	0.107	ug/L	1344	62	0.002	1.926	1.926
Sn	118	0.087	ug/L	1434	182	0.002	2.565	2.565
Sn	120	0.084	ug/L	1861	221	0.005	5.400	5.400
Sb	121	0.079	ug/L	1379	67	0.004	4.959	4.959
Sb	123	0.082	ug/L	1065	46	0.001	1.707	1.707
Ba	135	0.823	ug/L	3371	74	0.013	1.638	1.638
Ba	137	0.811	ug/L	5713	83	0.017	2.127	2.127
Tl	203	0.056	ug/L	838	61	0.002	3.509	3.509
Tl	205	0.059	ug/L	2030	102	0.003	4.229	4.229
Pb	208	21.435	ug/L 321.525	945320	168	0.354	1.653	1.653
Bi	209	0.030	ug/L	1310	211	0.003	10.228	10.228
U	238	0.055	ug/L	2281	35	0.001	1.652	1.652
Tm	169		ug/L	837165	843658			1.051
Tb	159		ug/L	854598	863889			117.243
Kr	83		mg/L	771	463			12.429
Y	89		ug/L	911373	902151			140.182
In	115		ug/L	779792	786386			160.040
Ho	165		mg/L	845208	831689			59.470
Ar2	76		mg/L	181110	179121			92.883

Sample ID: GC8423D X50

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:12:51
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	101.243	ug/L	173430	79994	0.980	0.968	0.968
Mg	26	8.010	ug/L	15742	451	0.187	2.329	2.329
Cl	35	0.504	mg/L	137716	91117	0.022	4.417	4.417
Na	23	125.039	ug/L	2763704	13672	0.795	0.636	0.636
K	39	27.251	ug/L	2698511	1890458	0.872	3.199	3.199
Ge	72		ug/L	223177	213980			1.047
Li	6		ug/L	162925	144792			0.562
Li	7		ug/L	13265	9938			2.780
Be	9	-0.000	ug/L	95	85	0.009	3963.645	3963.645
B	10	5.970	ug/L	2558	224	0.178	2.976	2.976
B	11	6.035	ug/L	12341	824	0.254	4.208	4.208
Al	27	82.499	ug/L	1571811	5153	0.902	1.093	1.093
Ti	49	5.995	ug/L	11487	-83	0.113	1.878	1.878
V	51	0.628	ug/L	27623	7152	0.145	23.134	23.134
Cr	53	11.832	ug/L	40994	366	4.239	35.826	35.826
Cr	52	8.362	ug/L	255538	17444	0.648	7.754	7.754
Fe	56	47.658	ug/L	9133414	7064904	0.526	1.103	1.103
Fe	57	60.091	ug/L	83979	30783	1.166	1.940	1.940
Fe	54	70.903	ug/L	129503	-26061	0.532	0.750	0.750
Mn	55	0.948	ug/L	44767	1095	0.009	0.902	0.902
Co	59	0.083	ug/L	3030	238	0.004	5.052	5.052
Ni	62	1.301	ug/L	1655	242	0.052	3.994	3.994
Ni	60	1.395	ug/L	10315	161	0.026	1.854	1.854
Cu	63	0.881	ug/L	14875	312	0.001	0.077	0.077
Cu	65	0.882	ug/L	7188	311	0.015	1.644	1.644
Sc	45		ug/L	570044	488163			18.036
P	31	4.887	ug/L	4818	-1401	0.731	14.953	14.953
Zn	68	10.722	ug/L	34524	731	0.073	0.677	0.677
Zn	66	10.306	ug/L	49425	2257	0.079	0.766	0.766
As	75	0.317	ug/L 4.755	1753	165	0.001	0.412	0.412
Se	77	0.588	ug/L	553	307	0.082	13.906	13.906
Se	78	-1.082	ug/L	22327	22720	0.235	21.730	21.730
Se	82	0.830	ug/L	942	482	0.053	6.408	6.408
Br	79	-0.018	mg/L	12600	29165	0.000	0.254	0.254
Ge-1	72		ug/L	223177	213980			1.047
Rh	103		ug/L	685469	698055			0.539
Sr	88	0.349	ug/L	20098	424	0.001	0.276	0.276
Mo	97	1.151	ug/L	6136	154	0.014	1.183	1.183
Mo	98	1.150	ug/L	15392	125	0.016	1.423	1.423
Ag	107	0.077	ug/L	1831	130	0.002	2.708	2.708
Ag	109	0.073	ug/L	1649	110	0.003	3.460	3.460
Cd	111	0.110	ug/L	1237	670	0.008	7.629	7.629
Cd	114	0.103	ug/L 1.545	1258	62	0.003	2.713	2.713
Sn	118	0.081	ug/L	1319	182	0.001	1.686	1.686
Sn	120	0.085	ug/L	1841	221	0.001	1.715	1.715
Sb	121	0.077	ug/L	1323	67	0.002	2.635	2.635
Sb	123	0.078	ug/L	998	46	0.002	2.491	2.491
Ba	135	0.790	ug/L	3167	74	0.030	3.775	3.775
Ba	137	0.810	ug/L	5579	83	0.031	3.878	3.878
Tl	203	0.057	ug/L	880	61	0.007	11.748	11.748
Tl	205	0.057	ug/L	1992	102	0.003	5.912	5.912
Pb	208	21.396	ug/L	964842	168	0.577	2.695	2.695
Bi	209	0.021	ug/L	1007	211	0.003	12.917	12.917
U	238	0.055	ug/L	2308	35	0.001	2.703	2.703
Tm	169		ug/L	856037	843658			0.846
Tb	159		ug/L	863008	863889			3183.509
Kr	83		mg/L	756	463			21.964
Y	89		ug/L	882335	902151			49.619
In	115		ug/L	756065	786386			17.926
Ho	165		mg/L	845815	831689			24.539
Ar2	76		mg/L	175937	179121			41.681

Sample ID: GC8423P X50

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:18:23
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	1433.854	ug/L	1286727	79994	26.470	1.846	1.846
Mg	26	257.768	ug/L	466046	451	2.988	1.159	1.159
Cl	35	0.570	mg/L	135793	91117	0.026	4.583	4.583
Na	23	1342.430	ug/L	27980438	13672	15.081	1.123	1.123
K	39	1288.337	ug/L	34431278	1890458	16.020	1.243	1.243
Ge	72		ug/L	211473	213980			1.340
Li	6		ug/L	162364	144792			0.610
Li	7		ug/L	13266	9938			5.910
Be	9	50.088	ug/L	64211	85	0.598	1.195	1.195
B	10	54.007	ug/L	21036	224	1.300	2.407	2.407
B	11	54.416	ug/L	103477	824	0.715	1.314	1.314
Al	27	181.664	ug/L	3273093	5153	3.916	2.156	2.156
Ti	49	55.775	ug/L	101945	-83	0.408	0.732	0.732
V	51	51.594	ug/L	1576682	7152	0.585	1.134	1.134
Cr	53	61.718	ug/L	201206	366	5.372	8.704	8.704
Cr	52	60.155	ug/L 102.1%	1635540	17444	1.943	3.230	3.230
Fe	56	307.828	ug/L	17783972	7064904	2.677	0.870	0.870
Fe	57	322.717	ug/L	294438	30783	2.888	0.895	0.895
Fe	54	333.026	ug/L	671585	-26061	2.325	0.698	0.698
Mn	55	50.876	ug/L	2220482	1095	0.484	0.952	0.952
Co	59	49.646	ug/L	1573387	238	0.377	0.760	0.760
Ni	62	49.656	ug/L	50953	242	0.515	1.038	1.038
Ni	60	50.479	ug/L	348128	161	0.442	0.876	0.876
Cu	63	49.144	ug/L	769117	312	0.201	0.408	0.408
Cu	65	49.922	ug/L	368419	311	0.347	0.695	0.695
Sc	45		ug/L	553672	488163			5.431
P	31	6.048	ug/L	5975	-1401	0.268	4.431	4.431
Zn	68	116.542	ug/L	348401	731	1.778	1.526	1.526
Zn	66	113.502	ug/L	493461	2257	0.853	0.751	0.751
As	75	49.200	ug/L 97.7%	232978	165	0.083	0.168	0.168
Se	77	49.163	ug/L	18723	307	0.185	0.376	0.376
Se	78	47.938	ug/L	79916	22720	0.146	0.304	0.304
Se	82	48.490	ug/L	24822	482	0.121	0.251	0.251
Br	79	-0.018	mg/L	12246	29165	0.000	1.646	1.646
Ge-1	72		ug/L	211473	213980			1.340
Rh	103		ug/L	652727	698055			0.695
Sr	88	48.752	ug/L	2615220	424	0.540	1.109	1.109
Mo	97	25.126	ug/L	124520	154	0.305	1.215	1.215
Mo	98	25.271	ug/L	319739	125	0.264	1.045	1.045
Ag	107	24.429	ug/L	513403	130	0.526	2.153	2.153
Ag	109	24.218	ug/L	487206	110	0.261	1.077	1.077
Cd	111	24.278	ug/L	122332	670	0.439	1.808	1.808
Cd	114	24.367	ug/L	270890	62	0.357	1.466	1.466
Sn	118	24.180	ug/L	323892	182	0.246	1.019	1.019
Sn	120	24.094	ug/L	438690	221	0.294	1.219	1.219
Sb	121	9.792	ug/L	151911	67	0.061	0.619	0.619
Sb	123	9.846	ug/L	114609	46	0.073	0.738	0.738
Ba	135	49.705	ug/L	185397	74	0.422	0.848	0.848
Ba	137	49.539	ug/L	320290	83	0.865	1.745	1.745
Tl	203	50.520	ug/L	707469	61	0.334	0.661	0.661
Tl	205	52.733	ug/L	1713079	102	1.771	3.358	3.358
Pb	208	74.488	ug/L	3284931	168	1.142	1.533	1.533
Bi	209	51.345	ug/L	1863499	211	1.658	3.230	3.230
U	238	52.481	ug/L	2126002	35	0.653	1.244	1.244
Tm	169		ug/L	837166	843658			1.131
Tb	159		ug/L	850437	863889			78.676
Kr	83		mg/L	811	463			20.475
Y	89		ug/L	850908	902151			7.509
In	115		ug/L	738989	786386			4.944
Ho	165		mg/L	832587	831689			1944.153
Ar2	76		mg/L	189586	179121			17.132

Sample ID: GC8423DP X50

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:26:25
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	1437.966	ug/L	1288744	79994	18.973	1.319	1.319
Mg	26	254.378	ug/L	459386	451	0.742	0.292	0.292
Cl	35	0.519	mg/L	131592	91117	0.021	4.034	4.034
Na	23	1343.701	ug/L	27973223	13672	12.567	0.935	0.935
K	39	1284.052	ug/L	34282513	1890458	8.617	0.671	0.671
Ge	72		ug/L	211205	213980			0.380
Li	6		ug/L	161530	144792			0.527
Li	7		ug/L	13299	9938			7.124
Be	9	49.809	ug/L 99.6%	63527	85	0.873	1.752	1.752
B	10	54.767	ug/L	21217	224	1.169	2.134	2.134
B	11	54.818	ug/L	103697	824	1.233	2.249	2.249
Al	27	179.247	ug/L	3226200	5153	1.623	0.905	0.905
Ti	49	55.341	ug/L	101029	-83	0.448	0.810	0.810
V	51	49.965	ug/L	1525210	7152	1.650	3.301	3.301
Cr	53	60.300	ug/L	196174	366	4.680	7.761	7.761
Cr	52	58.433	ug/L	1587577	17444	0.718	1.229	1.229
Fe	56	299.282	ug/L	17462141	7064904	5.715	1.909	1.909
Fe	57	320.524	ug/L	292254	30783	4.431	1.382	1.382
Fe	54	332.185	ug/L	668956	-26061	9.162	2.758	2.758
Mn	55	50.250	ug/L	2190533	1095	0.796	1.583	1.583
Co	59	49.687	ug/L	1572585	238	0.497	1.000	1.000
Ni	62	49.354	ug/L	50583	242	0.670	1.358	1.358
Ni	60	50.121	ug/L	345228	161	1.185	2.365	2.365
Cu	63	49.382	ug/L	771867	312	0.633	1.283	1.283
Cu	65	49.258	ug/L	363082	311	0.406	0.823	0.823
Sc	45		ug/L	552517	488163			4.505
P	31	4.679	ug/L	4306	-1401	0.128	2.731	2.731
Zn	68	114.353	ug/L	341485	731	1.132	0.990	0.990
Zn	66	112.291	ug/L	487609	2257	1.402	1.249	1.249
As	75	48.408	ug/L	228942	165	0.072	0.149	0.149
Se	77	48.811	ug/L	18567	307	0.502	1.028	1.028
Se	78	46.666	ug/L	78292	22720	0.514	1.102	1.102
Se	82	47.612	ug/L	24350	482	0.363	0.762	0.762
Br	79	-0.018	mg/L	11692	29165	0.000	1.201	1.201
Ge-1	72		ug/L	211205	213980			0.380
Rh	103		ug/L	644865	698055			0.787
Sr	88	48.292	ug/L	2559336	424	0.581	1.203	1.203
Mo	97	25.295	ug/L	123841	154	0.232	0.916	0.916
Mo	98	25.196	ug/L	314946	125	0.211	0.838	0.838
Ag	107	24.645	ug/L	511691	130	0.476	1.932	1.932
Ag	109	24.539	ug/L	487690	110	0.501	2.043	2.043
Cd	111	24.622	ug/L	122564	670	0.337	1.367	1.367
Cd	114	24.585	ug/L	270021	62	0.389	1.584	1.584
Sn	118	24.502	ug/L	324223	182	0.496	2.023	2.023
Sn	120	24.682	ug/L	443973	221	0.333	1.350	1.350
Sb	121	9.996	ug/L	153198	67	0.052	0.522	0.522
Sb	123	9.992	ug/L	114900	46	0.040	0.402	0.402
Ba	135	49.731	ug/L	183262	74	0.932	1.875	1.875
Ba	137	49.569	ug/L	316636	83	1.052	2.121	2.121
Tl	203	51.965	ug/L	732774	61	1.984	3.817	3.817
Tl	205	53.200	ug/L	1740164	102	1.655	3.111	3.111
Pb	208	73.514	ug/L 104.2%	3265603	168	1.386	1.886	1.886
Bi	209	52.496	ug/L	1920155	211	0.763	1.454	1.454
U	238	53.613	ug/L	2188678	35	0.485	0.905	0.905
Tm	169		ug/L	843520	843658			2.708
Tb	159		ug/L	849652	863889			79.504
Kr	83		mg/L	685	463			24.347
Y	89		ug/L	847040	902151			18.208
In	115		ug/L	738764	786386			28.369
Ho	165		mg/L	825730	831689			111.042
Ar2	78		mg/L	187709	179121			8.499

Sample ID: GC8420 X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:34:27

Method File: C:\elandata\Method\6020scan7epGe-Sc.mth

Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	386.821	ug/L	384721	79994	12.187	3.151	3.151
Mg	26	5.825	ug/L	10421	451	0.091	1.568	1.568
Cl	35	-0.058	mg/L	81132	91117	0.007	12.282	12.282
Na	23	11.889	ug/L	248142	13672	0.590	4.960	4.960
K	39	4.937	ug/L	1893673	1890458	0.295	5.980	5.980
Ge	72		ug/L	200924	213980			0.524
Li	6		ug/L	159429	144792			0.821
Li	7		ug/L	10674	9938			64.356
Be	9	-0.018	ug/L	71	85	0.009	50.586	50.586
B	10	4.164	ug/L	1821	224	0.311	7.457	7.457
B	11	4.250	ug/L	8773	824	0.092	2.164	2.164
Al	27	27.854	ug/L	480990	5153	0.364	1.307	1.307
Ti	49	0.736	ug/L	1202	-83	0.026	3.536	3.536
V	51	-0.039	ug/L	5599	7152	0.045	117.691	117.691
Cr	53	0.320	ug/L	1332	366	0.005	1.573	1.573
Cr	52	0.256	ug/L 0.768	22915	17444	0.009	3.701	3.701
Fe	56	-16.507	ug/L	6083544	7064904	0.794	4.811	4.811
Fe	57	-7.511	ug/L	23068	30783	0.373	4.967	4.967
Fe	54	1.664	ug/L	-21159	-26061	0.105	6.286	6.286
Mn	55	0.210	ug/L	9726	1095	0.006	2.878	2.878
Co	59	0.007	ug/L	436	238	0.001	9.911	9.911
Ni	62	0.130	ug/L	353	242	0.014	10.754	10.754
Ni	60	0.110	ug/L	874	161	0.004	3.829	3.829
Cu	63	0.216	ug/L	3499	312	0.003	1.446	1.446
Cu	65	0.217	ug/L	1810	311	0.004	2.065	2.065
Sc	45		ug/L	729270	488163			1.014
P	31	4.427	ug/L	3805	-1401	0.094	2.115	2.115
Zn	68	3.198	ug/L	9753	731	0.069	2.146	2.146
Zn	66	2.082	ug/L	10679	2257	0.074	3.545	3.545
As	75	0.134	ug/L	756	165	0.010	7.631	7.631
Se	77	-0.002	ug/L	288	307	0.122	7961.503	7961.503
Se	78	-2.172	ug/L	18861	22720	0.130	5.982	5.982
Se	82	0.620	ug/L	749	482	0.134	21.545	21.545
Br	79	-0.020	mg/L	9731	29165	0.000	0.333	0.333
Ge-1	72		ug/L	200924	213980			0.524
Rh	103		ug/L	635104	698055			0.618
Sr	88	0.103	ug/L	5782	424	0.004	3.879	3.879
Mo	97	3.061	ug/L	14883	154	0.066	2.155	2.155
Mo	98	3.044	ug/L	37571	125	0.043	1.413	1.413
Ag	107	0.013	ug/L	388	130	0.001	7.404	7.404
Ag	109	0.013	ug/L	363	110	0.000	0.923	0.923
Cd	111	0.020	ug/L	705	670	0.004	19.783	19.783
Cd	114	0.007	ug/L	127	62	0.001	15.766	15.766
Sn	118	0.040	ug/L	681	182	0.004	9.851	9.851
Sn	120	0.040	ug/L	915	221	0.005	13.010	13.010
Sb	121	0.021	ug/L	376	67	0.006	31.011	31.011
Sb	123	0.022	ug/L	286	46	0.005	24.756	24.756
Ba	135	1.876	ug/L	6873	74	0.104	5.552	5.552
Ba	137	1.897	ug/L	12005	83	0.120	6.349	6.349
Tl	203	0.004	ug/L	114	61	0.001	30.355	30.355
Tl	205	0.004	ug/L	246	102	0.001	21.203	21.203
Pb	208	0.148	ug/L 0.444	6816	168	0.004	2.943	2.943
Bi	209	0.095	ug/L	3731	211	0.012	12.882	12.882
U	238	0.048	ug/L	2024	35	0.001	1.830	1.830
Tm	169		ug/L	851286	843658			1.890
Tb	159		ug/L	848323	863889			173.581
Kr	83		mg/L	1473	463			15.363
Y	89		ug/L	811969	902151			6.516
In	115		ug/L	717044	786386			5.264
Ho	165		mg/L	841444	831689			103.942
Ar2	76		mg/L	156708	179121			3.085

Sample ID: GC8424 X50

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:39:56
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	119.707	ug/L	179651	79994	2.237	1.869	1.869
Mg	26	12.901	ug/L	23719	451	0.071	0.549	0.549
Cl	35	0.168	mg/L	103368	91117	0.029	17.430	17.430
Na	23	158.568	ug/L	3312802	13672	1.100	0.693	0.693
K	39	40.548	ug/L	2889376	1890458	0.601	1.483	1.483
Ge	72		ug/L	211188	213980			0.135
Li	6		ug/L	162283	144792			0.162
Li	7		ug/L	14810	9938			3.328
Be	9	0.024	ug/L	125	85	0.010	40.963	40.963
B	10	4.937	ug/L	2150	224	0.123	2.498	2.498
B	11	4.911	ug/L	10174	824	0.085	1.741	1.741
Al	27	141.085	ug/L	2540163	5153	0.970	0.688	0.688
Ti	49	9.789	ug/L	17802	-83	0.151	1.544	1.544
V	51	0.624	ug/L	26037	7152	0.350	56.053	56.053
Cr	53	14.879	ug/L	48687	366	0.936	6.294	6.294
Cr	52	15.348	ug/L 230.22	429655	17444	0.102	0.667	0.667
Fe	56	83.486	ug/L	9898557	7064904	1.046	1.253	1.253
Fe	57	102.130	ug/L	113816	30783	0.542	0.530	0.530
Fe	54	112.082	ug/L	208653	-26061	0.934	0.833	0.833
Mn	55	1.418	ug/L	62859	1095	0.014	0.959	0.959
Co	59	0.132	ug/L	4423	238	0.002	1.871	1.871
Ni	62	2.318	ug/L	2603	242	0.082	3.533	3.533
Ni	60	2.423	ug/L	16842	161	0.014	0.565	0.565
Cu	63	1.091	ug/L	17355	312	0.002	0.200	0.200
Cu	65	1.109	ug/L	8475	311	0.017	1.568	1.568
Sc	45		ug/L	550321	488163			6.660
P	31	7.998	ug/L	8342	-1401	0.234	2.927	2.927
Zn	68	15.644	ug/L	47334	731	0.230	1.472	1.472
Zn	66	15.168	ug/L	67789	2257	0.182	1.201	1.201
As	75	0.551	ug/L	2764	165	0.011	2.022	2.022
Se	77	0.990	ug/L	674	307	0.038	3.807	3.807
Se	78	-1.304	ug/L	20863	22720	0.089	6.844	6.844
Se	82	1.179	ug/L	1067	482	0.083	7.053	7.053
Br	79	-0.019	mg/L	11074	29165	0.000	0.424	0.424
Ge-1	72		ug/L	211188	213980			0.135
Rh	103		ug/L	646855	698055			0.499
Sr	88	0.564	ug/L	30358	424	0.004	0.628	0.628
Mo	97	1.410	ug/L	7059	154	0.040	2.817	2.817
Mo	98	1.443	ug/L	18198	125	0.023	1.597	1.597
Ag	107	0.132	ug/L	2861	130	0.003	1.950	1.950
Ag	109	0.133	ug/L	2746	110	0.008	6.080	6.080
Cd	111	0.165	ug/L	1441	670	0.005	3.199	3.199
Cd	114	0.156	ug/L	1776	62	0.005	3.138	3.138
Sn	118	0.095	ug/L	1424	182	0.003	3.045	3.045
Sn	120	0.100	ug/L	2003	221	0.004	3.870	3.870
Sb	121	0.117	ug/L	1861	67	0.003	2.873	2.873
Sb	123	0.110	ug/L	1317	46	0.004	3.582	3.582
Ba	135	1.152	ug/L	4324	74	0.035	3.003	3.003
Ba	137	1.133	ug/L	7336	83	0.029	2.516	2.516
Tl	203	0.129	ug/L	1898	61	0.008	6.056	6.056
Tl	205	0.130	ug/L	4380	102	0.003	2.531	2.531
Pb	208	29.816	ug/L 447.24	1334296	168	1.105	3.708	3.708
Bi	209	0.028	ug/L	1246	211	0.002	6.530	6.530
U	238	0.087	ug/L	3602	35	0.002	1.770	1.770
Tm	169		ug/L	849689	843658			1.561
Tb	159		ug/L	852719	863889			90.766
Kr	83		mg/L	717	463			29.225
Y	89		ug/L	837457	902151			3.350
In	115		ug/L	734982	786386			7.919
Ho	165		mg/L	837662	831689			158.357
Ar2	76		mg/L	164365	179121			8.933

Sample ID: GC8425 X50

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:45:27
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	109.454	ug/L	169835	79994	1.320	1.206	1.206
Mg	26	9.743	ug/L	17896	451	0.086	0.886	0.886
Cl	35	0.141	mg/L	100516	91117	0.028	19.593	19.593
Na	23	138.836	ug/L	2882058	13672	0.456	0.328	0.328
K	39	31.321	ug/L	2637937	1890458	0.505	1.612	1.612
> Ge	72		ug/L	209721	213980			0.633
> Li	6		ug/L	162190	144792			1.094
Li	7		ug/L	14091	9938			2.205
Be	9	0.006	ug/L	103	85	0.002	40.511	40.511
B	10	4.511	ug/L	1985	224	0.434	9.624	9.624
B	11	4.371	ug/L	9155	824	0.226	5.163	5.163
Al	27	109.790	ug/L	1963978	5153	1.631	1.486	1.486
Ti	49	8.403	ug/L	15164	-83	0.415	4.937	4.937
V	51	0.768	ug/L	30177	7152	0.060	7.752	7.752
Cr	53	19.173	ug/L	62198	366	3.895	20.314	20.314
Cr	52	16.612	ug/L	460405	17444	0.320	1.926	1.926
Fe	56	70.403	ug/L	9374071	7064904	2.577	3.660	3.660
Fe	57	86.571	ug/L	100403	30783	0.709	0.819	0.819
Fe	54	97.172	ug/L	176228	-26061	1.551	1.596	1.596
Mn	55	0.830	ug/L	36999	1095	0.003	0.411	0.411
Co	59	0.113	ug/L	3772	238	0.003	2.400	2.400
Ni	62	1.958	ug/L	2220	242	0.048	2.459	2.459
Ni	60	1.964	ug/L	13584	161	0.026	1.338	1.338
Cu	63	0.816	ug/L	12968	312	0.015	1.828	1.828
Cu	65	0.830	ug/L	6372	311	0.010	1.236	1.236
Sc	45		ug/L	543275	488163			4.717
P	31	6.942	ug/L	7010	-1401	0.483	6.955	6.955
Zn	68	19.930	ug/L	59685	731	0.305	1.530	1.530
Zn	66	19.453	ug/L	85707	2257	0.181	0.931	0.931
As	75	0.560	ug/L	2791	165	0.010	1.846	1.846
Se	77	0.929	ug/L	646	307	0.032	3.403	3.403
Se	78	-1.196	ug/L	20845	22720	0.094	7.863	7.863
Se	82	1.193	ug/L	1066	482	0.103	8.646	8.646
Br	79	-0.018	mg/L	11891	29165	0.000	1.296	1.296
> Ge-1	72		ug/L	209721	213980			0.633
> Rh	103		ug/L	645414	698055			0.221
Sr	88	0.446	ug/L	24035	424	0.004	0.859	0.859
Mo	97	1.460	ug/L	7288	154	0.019	1.303	1.303
Mo	98	1.450	ug/L	18252	125	0.011	0.756	0.756
Ag	107	0.081	ug/L	1798	130	0.004	5.341	5.341
Ag	109	0.081	ug/L	1721	110	0.006	7.293	7.293
Cd	111	0.330	ug/L	2254	670	0.004	1.344	1.344
Cd	114	0.328	ug/L	3663	62	0.007	2.172	2.172
Sn	118	0.084	ug/L	1278	182	0.003	3.712	3.712
Sn	120	0.087	ug/L	1768	221	0.004	4.293	4.293
Sb	121	0.102	ug/L	1626	67	0.002	2.091	2.091
Sb	123	0.102	ug/L	1216	46	0.003	3.014	3.014
Ba	135	0.985	ug/L	3700	74	0.027	2.734	2.734
Ba	137	1.002	ug/L	6481	83	0.013	1.295	1.295
Tl	203	0.079	ug/L	1175	61	0.003	3.457	3.457
Tl	205	0.084	ug/L	2854	102	0.004	4.918	4.918
Pb	208	26.661	ug/L	1189594	168	1.163	4.364	4.364
Bi	209	0.024	ug/L	1095	211	0.002	9.952	9.952
U	238	0.075	ug/L	3093	35	0.005	7.054	7.054
> Tm	169		ug/L	847365	843658			2.055
Tb	159		ug/L	860229	863889			218.238
Kr	83		mg/L	745	463			8.521
Y	89		ug/L	835948	902151			10.638
In	115		ug/L	724441	786386			9.427
Ho	165		mg/L	830930	831689			1997.391
Ar2	76		mg/L	163718	179121			2.940

249.18
4.92
249.85

Sample ID: GC8425R X250

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:50:56
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit		Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	29.524	ug/L		103767	79994	0.992	3.359	3.359
Mg	26	2.239	ug/L		4484	451	0.038	1.691	1.691
Cl	35	-0.073	mg/L		84038	91117	0.021	28.759	28.759
Na	23	27.936	ug/L		594406	13672	2.060	7.374	7.374
K	39	2.507	ug/L		1928664	1890458	0.791	31.550	31.550
Ge	72		ug/L		211157	213980			0.881
Li	6		ug/L		161563	144792			0.869
Li	7		ug/L		11507	9938			59.115
Be	9	-0.009	ug/L		83	85	0.005	58.708	58.708
B	10	1.169	ug/L		698	224	0.107	9.132	9.132
B	11	1.824	ug/L		4335	824	0.688	37.707	37.707
Al	27	22.582	ug/L		410788	5153	0.105	0.466	0.466
Ti	49	1.691	ug/L		3007	-83	0.024	1.391	1.391
V	51	0.061	ug/L		8946	7152	0.321	526.483	526.483
Cr	53	3.286	ug/L		11026	366	0.300	9.117	9.117
Cr	52	3.252	ug/L	2.1 % RPD	104663	17444	0.756	23.242	23.242
Fe	56	-0.531	ug/L		6952686	7064904	1.868	351.603	351.603
Fe	57	8.901	ug/L		37649	30783	0.581	6.531	6.531
Fe	54	19.395	ug/L		14834	-26061	0.207	1.068	1.068
Mn	55	0.186	ug/L		9180	1095	0.001	0.536	0.536
Co	59	0.023	ug/L		972	238	0.001	2.862	2.862
Ni	62	0.373	ug/L		619	242	0.048	12.779	12.779
Ni	60	0.398	ug/L		2899	161	0.005	1.265	1.265
Cu	63	0.183	ug/L		3168	312	0.003	1.854	1.854
Cu	65	0.181	ug/L		1643	311	0.004	1.944	1.944
Sc	45		ug/L		511341	488163			15.141
P	31	3.604	ug/L		2992	-1401	0.860	23.864	23.864
Zn	68	4.293	ug/L		13511	731	0.042	0.981	0.981
Zn	66	4.190	ug/L		20334	2257	0.031	0.729	0.729
As	75	0.107	ug/L		668	165	0.001	1.079	1.079
Se	77	0.223	ug/L		386	307	0.007	3.308	3.308
Se	78	-1.664	ug/L		20427	22720	0.214	12.829	12.829
Se	82	0.119	ug/L		535	482	0.041	34.662	34.662
Br	79	-0.019	mg/L		10948	29165	0.000	1.118	1.118
Ge-1	72		ug/L		211157	213980			0.881
Rh	103		ug/L		660805	698055			0.482
Sr	88	0.098	ug/L		5740	424	0.002	2.493	2.493
Mo	97	0.291	ug/L		1603	154	0.009	2.956	2.956
Mo	98	0.293	ug/L		3876	125	0.001	0.434	0.434
Ag	107	0.017	ug/L		485	130	0.003	19.259	19.259
Ag	109	0.016	ug/L		436	110	0.002	10.577	10.577
Cd	111	0.053	ug/L		902	670	0.003	5.843	5.843
Cd	114	0.064	ug/L	2.4 % RPD	777	62	0.007	11.718	11.718
Sn	118	0.018	ug/L		413	182	0.001	6.937	6.937
Sn	120	0.016	ug/L		503	221	0.001	4.387	4.387
Sb	121	0.021	ug/L		391	67	0.002	7.225	7.225
Sb	123	0.020	ug/L		278	46	0.002	8.640	8.640
Ba	135	0.203	ug/L		836	74	0.014	7.003	7.003
Ba	137	0.220	ug/L		1516	83	0.009	4.026	4.026
Tl	203	0.016	ug/L		287	61	0.001	5.434	5.434
Tl	205	0.017	ug/L		683	102	0.001	3.565	3.565
Pb	208	5.138	ug/L	3.6 % RPD	231172	168	0.108	2.093	2.093
Bi	209	0.006	ug/L		416	211	0.002	31.117	31.117
U	238	0.015	ug/L		651	35	0.001	7.510	7.510
Tm	169		ug/L		853869	843658			2.528
Tb	159		ug/L		859733	863889			48.777
Kr	83		mg/L		433	463			91.382
Y	89		ug/L		845982	902151			6.787
In	115		ug/L		741497	786386			16.032
Ho	165		mg/L		843140	831689			21.803
Ar2	76		mg/L		167229	179121			2.648

Sample ID: GD7165 X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 13:56:56
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	738.610	ug/L	656501	79994	9.326	1.263	1.263
Mg	26	7.862	ug/L	13713	451	0.191	2.433	2.433
Cl	35	-0.163	mg/L	72075	91117	0.005	3.097	3.097
Na	23	28.030	ug/L	559397	13672	0.357	1.275	1.275
K	39	-1.756	ug/L	1707685	1890458	0.420	23.942	23.942
Ge	72		ug/L	197994	213980			0.932
Li	6		ug/L	157655	144792			0.627
Li	7		ug/L	10601	9938			37.942
Be	9	-0.011	ug/L	78	85	0.004	32.624	32.624
B	10	3.918	ug/L	1709	224	0.105	2.672	2.672
B	11	3.901	ug/L	8037	824	0.042	1.068	1.068
Al	27	47.470	ug/L	804424	5153	0.544	1.146	1.146
Ti	49	1.284	ug/L	2123	-83	0.060	4.635	4.635
V	51	-0.016	ug/L	6170	7152	0.009	59.928	59.928
Cr	53	0.611	ug/L	2198	366	0.017	2.704	2.704
Cr	52	0.506	ug/L	28892	17444	0.004	0.830	0.830
Fe	56	-19.982	ug/L	5880257	7064904	1.535	7.683	7.683
Fe	57	-5.818	ug/L	24026	30783	0.492	8.462	8.462
Fe	54	5.677	ug/L	-12986	-26061	0.515	9.068	9.068
Mn	55	0.324	ug/L	14246	1095	0.005	1.400	1.400
Co	59	0.007	ug/L	434	238	0.001	13.927	13.927
Ni	62	0.244	ug/L	458	242	0.015	6.064	6.064
Ni	60	0.218	ug/L	1553	161	0.006	2.623	2.623
Cu	63	0.126	ug/L	2129	312	0.005	3.996	3.996
Cu	65	0.116	ug/L	1087	311	0.002	1.478	1.478
Sc	45		ug/L	906593	488163			1.578
P	31	5.267	ug/L	4704	-1401	0.449	8.528	8.528
Zn	68	7.673	ug/L	22110	731	0.117	1.524	1.524
Zn	66	5.169	ug/L	23032	2257	0.025	0.491	0.491
As	75	0.011	ug/L	200	165	0.005	48.676	48.676
Se	77	-0.026	ug/L	275	307	0.046	179.780	179.780
Se	78	-2.504	ug/L	18211	22720	0.180	7.175	7.175
Se	82	1.157	ug/L	990	482	0.164	14.167	14.167
Br	79	-0.020	mg/L	9749	29165	0.000	0.577	0.577
Ge-1	72		ug/L	197994	213980			0.932
Rh	103		ug/L	616780	698055			1.071
Sr	88	0.181	ug/L	9528	424	0.007	3.863	3.863
Mo	97	3.922	ug/L	18479	154	0.076	1.949	1.949
Mo	98	3.902	ug/L	46750	125	0.048	1.219	1.219
Ag	107	0.003	ug/L	184	130	0.001	23.091	23.091
Ag	109	0.006	ug/L	211	110	0.001	8.705	8.705
Cd	111	0.047	ug/L	816	670	0.012	25.997	25.997
Cd	114	0.005	ug/L 0.015	109	62	0.001	16.865	16.865
Sn	118	0.023	ug/L	448	182	0.001	4.809	4.809
Sn	120	0.024	ug/L	614	221	0.001	5.557	5.557
Sb	121	0.022	ug/L	381	67	0.001	4.265	4.265
Sb	123	0.020	ug/L	264	46	0.003	14.350	14.350
Ba	135	4.778	ug/L	16897	74	0.112	2.340	2.340
Ba	137	4.806	ug/L	29428	83	0.111	2.311	2.311
Tl	203	0.001	ug/L	83	61	0.001	40.066	40.066
Tl	205	0.002	ug/L	173	102	0.000	19.336	19.336
Pb	208	0.234	ug/L 0.702	10897	168	0.006	2.496	2.496
Bi	209	0.013	ug/L	688	211	0.002	17.027	17.027
U	238	0.073	ug/L	3122	35	0.002	3.042	3.042
Tm	169		ug/L	868953	843658			1.918
Tb	159		ug/L	856540	863889			56.893
Kr	83		mg/L	2496	463			15.907
Y	89		ug/L	797207	902151			0.916
In	115		ug/L	694679	786386			4.100
Ho	165		mg/L	859302	831689			38.936
Ar2	76		mg/L	151693	179121			2.705

Sample ID: GD7181 X10

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 14:02:56
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description: TX300 WS2183342

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	743.608	ug/L	669620	79994	32.534	4.375	4.375
Mg	26	7.582	ug/L	13423	451	0.077	1.019	1.019
Cl	35	0.295	mg/L	107938	91117	0.029	9.904	9.904
Na	23	26.338	ug/L	533668	13672	0.174	0.662	0.662
K	39	-2.252	ug/L	1719227	1890458	0.846	37.593	37.593
Ge	72		ug/L	200716	213980			0.457
Li	6		ug/L	156359	144792			1.119
Li	7		ug/L	10521	9938			22.324
Be	9	9.799	ug/L	12171	85	0.106	1.077	1.077
B	10	4.734	ug/L	1996	224	0.445	9.409	9.409
B	11	4.480	ug/L	9022	824	0.044	0.977	0.977
Al	27	47.872	ug/L	822360	5153	0.319	0.666	0.666
Ti	49	1.239	ug/L	2072	-83	0.090	7.255	7.255
V	51	-0.193	ug/L	1155	7152	0.059	30.719	30.719
Cr	53	22.457	ug/L	69658	366	0.160	0.711	0.711
Cr	52	22.845	ug/L	599831	17444	0.067	0.295	0.295
Fe	56	-23.023	ug/L	5860119	7064904	0.253	1.097	1.097
Fe	57	-6.635	ug/L	23723	30783	0.592	8.919	8.919
Fe	54	5.419	ug/L	-13674	-26061	0.483	8.920	8.920
Mn	55	17.190	ug/L	712800	1095	0.328	1.910	1.910
Co	59	7.088	ug/L	213390	238	0.079	1.111	1.111
Ni	62	36.899	ug/L	35998	242	0.277	0.752	0.752
Ni	60	37.190	ug/L	243481	161	0.160	0.430	0.430
Cu	63	10.784	ug/L	160426	312	0.074	0.684	0.684
Cu	65	10.834	ug/L	76116	311	0.091	0.839	0.839
Sc	45		ug/L	916419	488163			2.886
P	31	5.481	ug/L	5020	-1401	0.560	10.219	10.219
Zn	68	27.547	ug/L	78695	731	0.228	0.829	0.829
Zn	66	24.705	ug/L	103598	2257	0.617	2.498	2.498
As	75	22.851	ug/L	102786	165	0.186	0.816	0.816
Se	77	14.593	ug/L	5477	307	0.207	1.418	1.418
Se	78	11.932	ug/L	34887	22720	0.053	0.446	0.446
Se	82	15.631	ug/L	7901	482	0.075	0.479	0.479
Br	79	-0.020	mg/L	9769	29165	0.000	0.177	0.177
Ge-I	72		ug/L	200716	213980			0.457
Rh	103		ug/L	629244	698055			0.745
Sr	88	0.189	ug/L	10146	424	0.003	1.416	1.416
Mo	97	3.977	ug/L	19118	154	0.021	0.530	0.530
Mo	98	3.918	ug/L	47880	125	0.014	0.349	0.349
Ag	107	10.227	ug/L	207290	130	0.067	0.659	0.659
Ag	109	10.177	ug/L	197448	110	0.165	1.618	1.618
Cd	111	15.620	ug/L	76092	670	0.098	0.624	0.624
Cd	114	15.751	ug/L 47.253	168825	62	0.227	1.443	1.443
Sn	118	0.022	ug/L	448	182	0.002	8.200	8.200
Sn	120	0.024	ug/L	627	221	0.004	14.655	14.655
Sb	121	14.394	ug/L	215228	67	0.171	1.187	1.187
Sb	123	14.401	ug/L	161557	46	0.173	1.204	1.204
Ba	135	15.451	ug/L	55603	74	0.173	1.118	1.118
Ba	137	15.579	ug/L	97146	83	0.379	2.432	2.432
Tl	203	12.205	ug/L	174861	61	0.205	1.681	1.681
Tl	205	12.392	ug/L	411773	102	0.288	2.325	2.325
Pb	208	140.020	ug/L 420.06	6315619	168	3.441	2.457	2.457
Bi	209	0.011	ug/L	621	211	0.001	8.884	8.884
U	238	0.076	ug/L	3165	35	0.002	2.049	2.049
Tm	169		ug/L	856277	843658			0.163
Tb	159		ug/L	858262	863889			136.104
Kr	83		mg/L	2877	463			11.244
Y	89		ug/L	801462	902151			0.664
In	115		ug/L	699304	786386			5.409
Ho	165		mg/L	848563	831689			62.362
Ar2	76		mg/L	158434	179121			1.266

Sample ID: CCV

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 14:10:56
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	1323.798	ug/L	1186448	79994	14.482	1.094	1.094
	Mg	26	240.401	ug/L	431910	451	2.211	0.920	0.920
	Cl	35	-0.164	mg/L	76391	91117	0.019	11.830	11.830
	Na	23	1209.902	ug/L	25057797	13672	18.252	1.509	1.509
	K	39	1233.105	ug/L	32823909	1890458	22.103	1.792	1.792
>	Ge	72		ug/L	210111	213980			0.758
>	Li	6		ug/L	156442	144792			0.552
	Li	7		ug/L	10640	9938			272.091
	Be	9	49.779	ug/L	61487	85	0.712	1.430	1.430
	B	10	48.507	ug/L	18228	224	0.574	1.182	1.182
	B	11	49.350	ug/L	90505	824	0.525	1.065	1.065
	Al	27	97.036	ug/L	1739764	5153	0.744	0.767	0.767
	Ti	49	49.288	ug/L	89502	-83	0.296	0.600	0.600
	V	51	50.230	ug/L	1525485	7152	0.213	0.424	0.424
	Cr	53	49.154	ug/L	159172	366	0.450	0.916	0.916
	Cr	52	50.164	ug/L	1358308	17444	0.535	1.067	1.067
	Fe	56	229.348	ug/L	14933286	7064904	2.359	1.029	1.029
	Fe	57	246.720	ug/L	230746	30783	2.353	0.954	0.954
	Fe	54	256.040	ug/L	507072	-26061	3.065	1.197	1.197
	Mn	55	49.076	ug/L	2128334	1095	0.298	0.608	0.608
	Co	59	49.826	ug/L	1568801	238	0.333	0.669	0.669
	Ni	62	48.470	ug/L	49425	242	0.213	0.438	0.438
	Ni	60	48.864	ug/L	334826	161	0.371	0.760	0.760
	Cu	63	49.446	ug/L	768895	312	0.419	0.846	0.846
	Cu	65	49.614	ug/L	363810	311	0.506	1.021	1.021
	Sc	45		ug/L	500120	488163			28.659
	P	31	96.323	ug/L	115124	-1401	0.872	0.906	0.906
	Zn	68	103.077	ug/L	306298	731	0.937	0.909	0.909
	Zn	66	101.236	ug/L	437564	2257	0.630	0.622	0.622
	As	75	48.337	ug/L	227427	165	0.268	0.554	0.554
	Se	77	47.113	ug/L	17839	307	0.119	0.252	0.252
	Se	78	45.344	ug/L	76311	22720	0.733	1.617	1.617
	Se	82	46.860	ug/L	23848	482	0.779	1.663	1.663
	Br	79	-0.025	mg/L	5769	29165	0.000	0.324	0.324
>	Ge-1	72		ug/L	210111	213980			0.758
>	Rh	103		ug/L	656214	698055			1.270
	Sr	88	46.732	ug/L	2520349	424	0.456	0.976	0.976
	Mo	97	23.751	ug/L	118329	154	0.403	1.696	1.696
	Mo	98	23.872	ug/L	303649	125	0.156	0.652	0.652
	Ag	107	24.233	ug/L	511991	130	0.287	1.185	1.185
	Ag	109	23.897	ug/L	483282	110	0.242	1.011	1.011
	Cd	111	23.750	ug/L	120320	670	0.348	1.467	1.467
	Cd	114	24.084	ug/L	269172	62	0.303	1.259	1.259
	Sn	118	23.415	ug/L	315301	182	0.363	1.552	1.552
	Sn	120	23.224	ug/L	425145	221	0.260	1.120	1.120
	Sb	121	9.259	ug/L	144404	67	0.064	0.686	0.686
	Sb	123	9.258	ug/L	108336	46	0.063	0.681	0.681
	Ba	135	48.237	ug/L	180898	74	0.391	0.812	0.812
	Ba	137	48.344	ug/L	314276	83	0.906	1.874	1.874
	Tl	203	51.139	ug/L	727650	61	0.900	1.760	1.760
	Tl	205	52.414	ug/L	1728576	102	1.678	3.201	3.201
	Pb	208	52.073	ug/L	2333272	168	0.910	1.748	1.748
	Bi	209	51.649	ug/L	1904435	211	0.512	0.991	0.991
	U	238	51.509	ug/L	2119207	35	0.994	1.930	1.930
>	Tm	169		ug/L	850462	843658			2.702
	Tb	159		ug/L	856248	863889			194.511
	Kr	83		mg/L	427	463			102.385
	Y	89		ug/L	837417	902151			16.450
	In	115		ug/L	738541	786386			7.863
	Ho	165		mg/L	824035	831689			470.265
	Ar2	78		mg/L	185332	179121			49.407

Sample ID: CCB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 14:18:57
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

	Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
	Ca	44	7.898	ug/L	86005	79994	0.924	11.694	11.694
	Mg	26	0.107	ug/L	642	451	0.009	7.928	7.928
	Cl	35	-0.168	mg/L	76791	91117	0.015	8.960	8.960
	Na	23	1.514	ug/L	45245	13672	1.326	87.547	87.547
	K	39	-2.837	ug/L	1802789	1890458	0.419	14.785	14.785
>	Ge	72		ug/L	212206	213980			0.392
>	Li	6		ug/L	153769	144792			1.222
	Li	7		ug/L	10393	9938			38.949
	Be	9	-0.009	ug/L	79	85	0.008	87.743	87.743
	B	10	0.853	ug/L	549	224	0.295	34.603	34.603
	B	11	0.738	ug/L	2193	824	0.110	14.900	14.900
	Al	27	0.701	ug/L	17771	5153	0.051	7.245	7.245
	Ti	49	0.035	ug/L	-18	-83	0.011	30.281	30.281
	V	51	-0.010	ug/L	6794	7152	0.005	51.545	51.545
	Cr	53	-0.017	ug/L	306	366	0.004	24.390	24.390
	Cr	52	-0.068	ug/L	15469	17444	0.012	17.809	17.809
	Fe	56	-17.190	ug/L	6400937	7064904	0.876	5.097	5.097
	Fe	57	-12.224	ug/L	20493	30783	0.240	1.959	1.959
	Fe	54	1.580	ug/L	-22524	-26061	0.223	14.138	14.138
	Mn	55	0.018	ug/L	1885	1095	0.001	4.819	4.819
	Co	59	0.003	ug/L	317	238	0.001	56.686	56.686
	Ni	62	-0.036	ug/L	203	242	0.020	55.631	55.631
	Ni	60	0.006	ug/L	202	161	0.004	58.646	58.646
	Cu	63	0.007	ug/L	421	312	0.001	13.367	13.367
	Cu	65	0.004	ug/L	339	311	0.002	57.420	57.420
	Sc	45		ug/L	505023	488163			41.857
	P	31	2.220	ug/L	1321	-1401	0.635	28.623	28.623
	Zn	68	0.135	ug/L	1129	731	0.016	11.540	11.540
	Zn	66	0.109	ug/L	2713	2257	0.023	21.443	21.443
	As	75	0.007	ug/L	198	165	0.000	2.077	2.077
	Se	77	-0.009	ug/L	301	307	0.038	436.854	436.854
	Se	78	-1.597	ug/L	20611	22720	0.088	5.485	5.485
	Se	82	-0.073	ug/L	441	482	0.022	29.941	29.941
	Br	79	-0.020	mg/L	9938	29165	0.000	0.930	0.930
>	Ge-1	72		ug/L	212206	213980			0.392
>	Rh	103		ug/L	670057	698055			1.207
	Sr	88	0.013	ug/L	1137	424	0.001	5.120	5.120
	Mo	97	0.005	ug/L	171	154	0.001	26.546	26.546
	Mo	98	0.007	ug/L	215	125	0.002	21.319	21.319
	Ag	107	0.010	ug/L	348	130	0.001	10.059	10.059
	Ag	109	0.009	ug/L	293	110	0.001	11.198	11.198
	Cd	111	-0.018	ug/L	551	670	0.001	7.233	7.233
	Cd	114	0.001	ug/L	69	62	0.000	58.193	58.193
	Sn	118	0.019	ug/L	432	182	0.002	11.639	11.639
	Sn	120	0.019	ug/L	571	221	0.001	5.016	5.016
	Sb	121	0.015	ug/L	303	67	0.001	8.618	8.618
	Sb	123	0.014	ug/L	209	46	0.002	13.544	13.544
	Ba	135	0.017	ug/L	136	74	0.010	58.172	58.172
	Ba	137	0.015	ug/L	177	83	0.002	12.483	12.483
	Tl	203	0.003	ug/L	103	61	0.000	6.493	6.493
	Tl	205	0.002	ug/L	173	102	0.001	30.898	30.898
	Pb	208	0.004	ug/L	359	168	0.001	17.873	17.873
	Bi	209	0.015	ug/L	761	211	0.003	17.189	17.189
	U	238	0.002	ug/L	127	35	0.001	35.452	35.452
>	Tm	169		ug/L	832643	843658			1.079
	Tb	159		ug/L	847517	863889			86.942
	Kr	83		mg/L	396	463			28.335
	Y	89		ug/L	857450	902151			1.698
	In	115		ug/L	741173	786386			10.302
	Ho	165		mg/L	811735	831689			35.061
	Ar2	76		mg/L	169420	179121			15.637

Sample ID: ICSA

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 21:27:02
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	23639.355	ug/L	18125802	79994	788.780	3.337	3.337
Mg	26	23375.854	ug/L	38295401	451	255.825	1.094	1.094
Cl	35	171.698	mg/L	12584677	91117	7.048	4.105	4.105
Na	23	S	ug/L	S	13672	S	S	S
K	39	S	ug/L	S	1890458	S	S	S
Ge	72		ug/L	191804	213980			1.819
Li	6		ug/L	125597	144792			1.481
Li	7		ug/L	9048	9938			62.156
Be	9	0.006	ug/L	80	85	0.012	190.448	190.448
B	10	0.968	ug/L	483	224	0.061	6.255	6.255
B	11	1.065	ug/L	2267	824	0.224	21.053	21.053
Al	27	23706.259	ug/L	386819363	5153	334.757	1.412	1.412
Ti	49	480.961	ug/L	797853	-83	6.535	1.359	1.359
V	51	-0.034	ug/L	5478	7152	0.006	18.012	18.012
Cr	53	0.216	ug/L	965	366	0.146	67.430	67.430
Cr	52	0.228	ug/L	21191	17444	0.028	12.347	12.347
Fe	56	S	ug/L	S	7064904	S	S	S
Fe	57	24478.375	ug/L	18187547	30783	388.744	1.588	1.588
Fe	54	24246.376	ug/L	46018735	-26061	253.846	1.047	1.047
Mn	55	0.346	ug/L	14659	1095	0.005	1.547	1.547
Co	59	0.376	ug/L	11007	238	0.009	2.471	2.471
Ni	62	0.414	ug/L	600	242	0.090	21.649	21.649
Ni	60	0.050	ug/L	458	161	0.023	45.935	45.935
Cu	63	0.016	ug/L	500	312	0.006	37.346	37.346
Cu	65	0.013	ug/L	362	311	0.027	210.119	210.119
Sc	45		ug/L	429431	488163			69.198
P	31	23257.034	ug/L	25673974	-1401	274.605	1.181	1.181
Zn	68	0.741	ug/L	2660	731	0.027	3.619	3.619
Zn	66	0.235	ug/L	2942	2257	0.032	13.832	13.832
As	75	-0.062	ug/L	-120	165	0.010	15.684	15.684
Se	77	-0.513	ug/L	101	307	0.088	17.243	17.243
Se	78	-0.210	ug/L	20129	22720	0.671	320.114	320.114
Se	82	0.105	ug/L	479	482	0.116	111.223	111.223
Br	79	-0.019	mg/L	10061	29165	0.001	2.681	2.681
Ge-1	72		ug/L	191804	213980			1.819
Rh	103		ug/L	594099	698055			1.389
Sr	88	0.272	ug/L	13640	424	0.011	4.176	4.176
Mo	97	505.529	ug/L	2277457	154	8.593	1.700	1.700
Mo	98	505.554	ug/L	5819229	125	11.595	2.294	2.294
Ag	107	0.013	ug/L	359	130	0.002	14.542	14.542
Ag	109	0.016	ug/L	382	110	0.003	16.077	16.077
Cd	111	0.118	ug/L	1108	670	0.055	46.853	46.853
Cd	114	0.659	ug/L	6717	62	0.022	3.271	3.271
Sn	118	0.010	ug/L	272	182	0.001	14.100	14.100
Sn	120	0.008	ug/L	327	221	0.002	21.683	21.683
Sb	121	0.034	ug/L	532	67	0.003	7.682	7.682
Sb	123	0.031	ug/L	364	46	0.001	2.387	2.387
Ba	135	0.117	ug/L	459	74	0.005	4.394	4.394
Ba	137	0.123	ug/L	792	83	0.004	3.322	3.322
Tl	203	0.011	ug/L	191	61	0.001	13.739	13.739
Tl	205	0.010	ug/L	392	102	0.001	14.365	14.365
Pb	208	0.127	ug/L	5209	168	0.003	2.488	2.488
Bi	209	0.022	ug/L	920	211	0.001	6.710	6.710
U	238	0.000	ug/L	46	35	0.000	82.896	82.896
Tm	169		ug/L	759045	843658			0.704
Tb	159		ug/L	786040	863889			6.100
Kr	83		mg/L	522	463			83.714
Y	89		ug/L	787396	902151			3.282
In	115		ug/L	710481	786386			5.401
Ho	165		mg/L	770924	831689			2.311
Ar2	40		mg/L	158783	179121			4.478

Sample ID: ICSAB

Elan 9000 AJ0100580602(v3.3) Sample Date/Time: Wednesday, June 23, 2010 21:32:04
Method File: C:\elandata\Method\6020scan7epGe-Sc.mth
Sample Description:

Analyte	Mass	Conc. Mean	Sample Unit	Meas. Intens. Mean	Blank Intensity	Conc. SD	Conc. RSD	Net Intens. RSD
Ca	44	23284.481	ug/L	17698535	79994	1056.962	4.539	4.539
Mg	26	23504.102	ug/L	38171563	451	199.224	0.848	0.848
Cl	35	176.174	mg/L	12801851	91117	2.452	1.392	1.392
Na	23	23355.705	ug/L	437483329	13672	316.913	1.357	1.357
K	39	S	ug/L	S	1890458	S	S	S
Ge	72		ug/L	190123	213980			1.256
Li	6		ug/L	123711	144792			0.976
Li	7		ug/L	8714	9938			96.246
Be	9	0.004	ug/L	76	85	0.008	197.336	197.336
B	10	1.195	ug/L	542	224	0.372	31.102	31.102
B	11	1.096	ug/L	2279	824	0.033	3.017	3.017
Al	27	24280.759	ug/L	392715703	5153	453.518	1.868	1.868
Ti	49	481.934	ug/L	792542	-83	3.025	0.628	0.628
V	51	9.846	ug/L	275623	7152	0.296	3.010	3.010
Cr	53	10.042	ug/L	29686	366	0.038	0.376	0.376
Cr	52	9.901	ug/L	254969	17444	0.296	2.987	2.987
Fe	56	S	ug/L	S	7064904	S	S	S
Fe	57	24286.647	ug/L	17888019	30783	185.021	0.762	0.762
Fe	54	23933.500	ug/L	45028215	-26061	226.212	0.945	0.945
Mn	55	9.813	ug/L	385889	1095	0.204	2.075	2.075
Co	59	9.702	ug/L	276596	238	0.144	1.486	1.486
Ni	62	9.472	ug/L	8912	242	0.168	1.771	1.771
Ni	60	9.083	ug/L	56436	161	0.044	0.487	0.487
Cu	63	8.987	ug/L	126671	312	0.133	1.483	1.483
Cu	65	9.060	ug/L	60335	311	0.120	1.323	1.323
Sc	45		ug/L	421660	488163			74.086
P	31	23611.346	ug/L	25838253	-1401	244.947	1.037	1.037
Zn	68	10.099	ug/L	27736	731	0.162	1.601	1.601
Zn	66	9.691	ug/L	39718	2257	0.100	1.029	1.029
As	75	9.914	ug/L	42331	165	0.177	1.781	1.781
Se	77	10.305	ug/L	3744	307	0.401	3.889	3.889
Se	78	10.385	ug/L	31378	22720	0.161	1.554	1.554
Se	82	10.290	ug/L	5073	482	0.096	0.930	0.930
Br	79	-0.017	mg/L	12084	29165	0.000	1.560	1.560
Ge-1	72		ug/L	190123	213980			1.256
Rh	103		ug/L	601009	698055			0.801
Sr	88	0.275	ug/L	13924	424	0.019	6.888	6.888
Mo	97	508.254	ug/L	2316681	154	3.229	0.635	0.635
Mo	98	504.767	ug/L	5878799	125	2.866	0.568	0.568
Ag	107	9.593	ug/L	185703	130	0.206	2.150	2.150
Ag	109	9.653	ug/L	178856	110	0.115	1.196	1.196
Cd	111	5.026	ug/L	23773	670	0.126	2.514	2.514
Cd	114	5.761	ug/L	59015	62	0.070	1.217	1.217
Sn	118	0.010	ug/L	281	182	0.001	14.547	14.547
Sn	120	0.010	ug/L	362	221	0.001	11.710	11.710
Sb	121	0.048	ug/L	742	67	0.002	3.880	3.880
Sb	123	0.049	ug/L	567	46	0.003	5.164	5.164
Ba	135	0.117	ug/L	465	74	0.007	5.751	5.751
Ba	137	0.121	ug/L	789	83	0.003	2.165	2.165
Tl	203	0.012	ug/L	211	61	0.002	14.942	14.942
Tl	205	0.012	ug/L	437	102	0.002	17.158	17.158
Pb	208	0.034	ug/L	1512	168	0.001	4.020	4.020
Bi	209	0.013	ug/L	627	211	0.001	4.759	4.759
U	238	0.001	ug/L	58	35	0.000	60.662	60.662
Tm	169		ug/L	762002	843658			0.878
Tb	159		ug/L	794219	863889			7.874
Kr	83		mg/L	531	463			30.186
Y	89		ug/L	786432	902151			11.082
In	115		ug/L	714180	786386			6.551
Ho	165		mg/L	763059	831689			26.757
Ar2	76		mg/L	163179	179121			5.023

Maxxam Analytics

Driven by Service and Science

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Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Solid and Liquid Feed/Process Waste Streams

Your Project #: 2010-0071-001
Site: FUTURE FUEL

Attention: CHRIS LEMAY
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/08/25
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B077949
Received: 2010/06/16, 23:45

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Total Metals Analysis by ICPMS	6	N/A	2010/06/30	CAM SOP-00447	EPA 6020
Volatile Organic Compounds in Water	5	N/A	2010/06/29	CAM SOP 00226	EPA 8260 modified
Volatile Organic Compounds in Water	1	N/A	2010/06/30	CAM SOP 00226	EPA 8260 modified

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Clayton Johnson
25 Aug 2010 12:12:06 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CLAYTON JOHNSON, Project Manager
Email: Clayton.Johnson@maxxamanalytics.com
Phone# (905) 817-5769

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B077949
Report Date: 2010/08/25

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		GF0115	GF0116	GF0117	GF0118	GF0119	GF0120		
Sampling Date		2010/06/02	2010/06/02	2010/06/02	2010/06/03	2010/06/03	2010/06/04		
	Units	COND 1- RUN 1- CL/METALS	COND 1- RUN 2- CL/METALS	COND 1- RUN 3- CL/METALS	COND 2- RUN 1- CL/METALS	COND 2- RUN 2- CL/METALS	COND 2- RUN 3- CL/METALS	RDL	QC Batch
Total Arsenic (As)	ug/L	<50	<50	<50	<50	<50	<50	50	2193962
Total Beryllium (Be)	ug/L	<30	<30	<30	<30	<30	<30	30	2193962
Total Cadmium (Cd)	ug/L	<5	<5	<5	<5	<5	<5	5	2193962
Total Chromium (Cr)	ug/L	19000	19000	19000	18000	18000	17000	300	2193962
Total Lead (Pb)	ug/L	<30	<30	<30	<30	<30	<30	30	2193962

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B077949
Report Date: 2010/08/25

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GF0109	GF0110	GF0111	GF0112	GF0113	GF0114		
Sampling Date		2010/06/02	2010/06/02	2010/06/02	2010/06/03	2010/06/03	2010/06/04		
	Units	**COND 1- RUN 1-CB**	**COND 1- RUN 2-CB**	**COND 1- RUN 3-CB**	**COND 2- RUN 1-CB**	**COND 2- RUN 2-CB**	**COND 2- RUN 3-CB**	**RDL**	**QC Batch**
Chlorobenzene	ug/L	50000000	52000000	51000000	46000000	50000000	51000000	100000	2184635

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B077949
Report Date: 2010/08/25

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GF0109 **Collected** 2010/06/02
Sample ID COND 1- RUN 1-CB **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organic Compounds in Water	P&T/MS	2184635	N/A	2010/06/29	DRA

Maxxam ID GF0110 **Collected** 2010/06/02
Sample ID COND 1- RUN 2-CB **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organic Compounds in Water	P&T/MS	2184635	N/A	2010/06/29	DRA

Maxxam ID GF0111 **Collected** 2010/06/02
Sample ID COND 1- RUN 3-CB **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organic Compounds in Water	P&T/MS	2184635	N/A	2010/06/29	DRA

Maxxam ID GF0112 **Collected** 2010/06/03
Sample ID COND 2- RUN 1-CB **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organic Compounds in Water	P&T/MS	2184635	N/A	2010/06/30	DRA

Maxxam ID GF0113 **Collected** 2010/06/03
Sample ID COND 2- RUN 2-CB **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organic Compounds in Water	P&T/MS	2184635	N/A	2010/06/29	DRA

Maxxam ID GF0114 **Collected** 2010/06/04
Sample ID COND 2- RUN 3-CB **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Volatile Organic Compounds in Water	P&T/MS	2184635	N/A	2010/06/29	DRA

Maxxam ID GF0115 **Collected** 2010/06/02
Sample ID COND 1- RUN 1- CL/METALS **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	2193962	N/A	2010/06/30	HRE

Maxxam Job #: B077949
Report Date: 2010/08/25

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GF0116 **Collected** 2010/06/02
Sample ID COND 1- RUN 2- CL/METALS **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	2193962	N/A	2010/06/30	HRE

Maxxam ID GF0117 **Collected** 2010/06/02
Sample ID COND 1- RUN 3- CL/METALS **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	2193962	N/A	2010/06/30	HRE

Maxxam ID GF0118 **Collected** 2010/06/03
Sample ID COND 2- RUN 1- CL/METALS **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	2193962	N/A	2010/06/30	HRE

Maxxam ID GF0119 **Collected** 2010/06/03
Sample ID COND 2- RUN 2- CL/METALS **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	2193962	N/A	2010/06/30	HRE

Maxxam ID GF0120 **Collected** 2010/06/04
Sample ID COND 2- RUN 3- CL/METALS **Shipped**
Matrix Water **Received** 2010/06/16

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	2193962	N/A	2010/06/30	HRE

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B077949
Report Date: 2010/08/25

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

GENERAL COMMENTS

Anions Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

VOC Analysis: The samples were analyzed after the 14 day holding time specified by the method had expired. Due to high concentrations of target analytes, samples required dilution. Detection limits were adjusted accordingly.

Sample GF0115-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample GF0116-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample GF0117-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample GF0118-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample GF0119-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample GF0120-01: Metal analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Alliance Source Testing, LLC
Attention: CHRIS LEMAY
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report

Maxxam Job Number: GB077949

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2184635 DRA	Spiked Blank	Chlorobenzene	2010/06/29		108	%	70 - 130
	Method Blank	Chlorobenzene	2010/06/29	<0.2		ug/L	
2193962 HRE	Matrix Spike	Total Arsenic (As)	2010/06/30		108	%	80 - 120
		Total Beryllium (Be)	2010/06/30		105	%	80 - 120
		Total Cadmium (Cd)	2010/06/30		105	%	80 - 120
		Total Chromium (Cr)	2010/06/30		103	%	80 - 120
		Total Lead (Pb)	2010/06/30		102	%	80 - 120
	Spiked Blank	Total Arsenic (As)	2010/06/30		108	%	85 - 115
		Total Beryllium (Be)	2010/06/30		105	%	85 - 115
		Total Cadmium (Cd)	2010/06/30		106	%	85 - 116
		Total Chromium (Cr)	2010/06/30		107	%	85 - 115
		Total Lead (Pb)	2010/06/30		104	%	85 - 115
	Method Blank	Total Arsenic (As)	2010/06/30	<1		ug/L	
		Total Beryllium (Be)	2010/06/30	<0.5		ug/L	
		Total Cadmium (Cd)	2010/06/30	<0.1		ug/L	
		Total Chromium (Cr)	2010/06/30	<5		ug/L	
		Total Lead (Pb)	2010/06/30	<0.5		ug/L	
	RPD - Sample/Sample Dup	Total Arsenic (As)	2010/06/30	NC		%	25
		Total Beryllium (Be)	2010/06/30	NC		%	25
		Total Cadmium (Cd)	2010/06/30	NC		%	25
		Total Chromium (Cr)	2010/06/30	NC		%	25
		Total Lead (Pb)	2010/06/30	NC		%	25

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B077949

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

CRISTINA CARRIERE, Scientific Services

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Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, ON L5N 2L8 Tel (905) 817-5700 Toll-Free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

Your Project #: 2010-0071-001
Site: FUTURE FUEL

Attention: Chris Lemay
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/07/20
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B091999
Received: 2010/07/13, 16:39

Sample Matrix: Chemical Material
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Anions in Chemical Material	3	2010/07/19	2010/07/20	BRL SOP-00105	ASTM E776 / 9056
Mercury in Chemical Material	3	2010/07/15	2010/07/16	BRL SOP-00104	ASTM D3684-01

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.

Encryption Key
Clayton Johnson
20 Jul 2010 16:00:00 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CLAYTON JOHNSON, Project Manager
Email: Clayton.Johnson@maxxamanalytics.com
Phone# (905) 817-5769

==========

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Total cover pages: 1

Maxxam Job #: B091999
Report Date: 2010/07/20

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

RESULTS OF ANALYSES OF CHEMICAL MATERIAL

Maxxam ID		GM0867	GM0867	GM0880	GM0881		
Sampling Date							
	Units	**COND 2-RUN 1- HG**	**COND 2- RUN 1- HG Lab-Dup**	**COND 2-RUN 2- HG**	**COND 2-RUN 3- HG**	**RDL**	**QC Batch**
Chloride (Cl)	%	5.4	5.4	5.4	5.5	0.5	2210594

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B091999
Report Date: 2010/07/20

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

ELEMENTS BY ATOMIC SPECTROSCOPY (CHEMICAL MATERIAL)

Maxxam ID		GM0867	GM0867	GM0880	GM0881		
Sampling Date							
	Units	**COND 2-RUN 1- HG**	**COND 2- RUN 1- HG Lab-Dup**	**COND 2-RUN 2- HG**	**COND 2-RUN 3- HG**	**RDL**	**QC Batch**
Total Mercury (Hg)	ug/g	0.004 J	0.002 J	0.002 J	0.003 J	0.005	2207535

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B091999
Report Date: 2010/07/20

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GM0867 **Collected**
Sample ID COND 2- RUN 1- HG **Shipped**
Matrix Chemical Material **Received** 2010/07/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2210594	2010/07/19	2010/07/20	LLE
Mercury in Chemical Material	CVAA	2207535	2010/07/15	2010/07/16	FFS

Maxxam ID GM0867 Dup **Collected**
Sample ID COND 2- RUN 1- HG **Shipped**
Matrix Chemical Material **Received** 2010/07/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2210594	2010/07/19	2010/07/20	LLE
Mercury in Chemical Material	CVAA	2207535	2010/07/15	2010/07/16	FFS

Maxxam ID GM0880 **Collected**
Sample ID COND 2- RUN 2- HG **Shipped**
Matrix Chemical Material **Received** 2010/07/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2210594	2010/07/19	2010/07/20	LLE
Mercury in Chemical Material	CVAA	2207535	2010/07/15	2010/07/16	FFS

Maxxam ID GM0881 **Collected**
Sample ID COND 2- RUN 3- HG **Shipped**
Matrix Chemical Material **Received** 2010/07/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2210594	2010/07/19	2010/07/20	LLE
Mercury in Chemical Material	CVAA	2207535	2010/07/15	2010/07/16	FFS

Maxxam Job #: B091999
Report Date: 2010/07/20

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel. (905) 817-5700 Toll-Free: 800-563-6266 Fax. (905) 817-5777 www.maxxam.ca

Alliance Source Testing, LLC
Attention: Chris Lemay
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report

Maxxam Job Number: GB091999

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2207535 FFS	QC Standard	Total Mercury (Hg)	2010/07/16		79	%	N/A
	QC Standard DUP	Total Mercury (Hg)	2010/07/16		92	%	N/A
	RPD	Total Mercury (Hg)	2010/07/16	15.4		%	35
	Method Blank	Total Mercury (Hg)	2010/07/16	0.001 U, MDL=0.001		ug/g	
	RPD - Sample/Sample Dup	Total Mercury (Hg)	2010/07/16	NC		%	35
2210594 LLE	QC Standard	Chloride (Cl)	2010/07/20		95	%	90 - 110
	Spiked Blank	Chloride (Cl)	2010/07/20		100	%	80 - 120
	Method Blank	Chloride (Cl)	2010/07/20	0.007, MDL=0.001		%	
	RPD - Sample/Sample Dup	Chloride (Cl)	2010/07/20	0.2		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B091999

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

FRANK MO, B.Sc., Inorganic Lab. Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Republic Environmental Systems (Pennsylvania), LLC

2869 Sandstone Dr. Hatfield Pa. 19440

(tel)215-822-8995 (fax)215-822-1293

Certificate of Analytical Results

Date: *29-Jun-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10060050

Project: Alliance Source Testing

Analyses	Result	PQL	Units	Method	Date	Analyst
Condition 1 Run 1 Composite						
Lab ID: R10060050-01A						
Date Sampled: 06/02/2010 11:27 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
GRAVITY						
Density	8.464	0.001	lbs/gal	D1298	22-Jun-10	VJO
Specific Gravity	1.036					
HEATING VALUE BTU/LB						
Heating Value	6,460	50	Btu/lb	D240	16-Jun-10	NTHP
Condition 1 Run 2 Composite						
Lab ID: R10060050-02A						
Date Sampled: 06/02/2010 15:03 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
GRAVITY						
Density	8.613	0.001	lbs/gal	D1298	22-Jun-10	VJO
Specific Gravity	1.032					
HEATING VALUE BTU/LB						
Heating Value	6,482	50	Btu/lb	D240	16-Jun-10	NTHP
Condition 1 Run 3 Composite						
Lab ID: R10060050-03A						
Date Sampled: 06/02/2010 18:35 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
GRAVITY						
Density	8.713	0.001	lbs/gal	D1298	22-Jun-10	VJO
Specific Gravity	1.044					
HEATING VALUE BTU/LB						
Heating Value	6,622	50	Btu/lb	D240	16-Jun-10	NTHP

< Indicates less than the limit of quantitation

H - Hold Time excedance

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

Republic Environmental Systems (Pennsylvania), LLC

2869 Sandstone Dr. Hatfield Pa. 19440

(tel)215-822-8995 (fax)215-822-1293

Certificate of Analytical Results

Date: *29-Jun-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10060050

Project: Alliance Source Testing

Analyses	Result	PQL	Units	Method	Date	Analyst
Condition 2 Run 1 Composite						
Lab ID: R10060050-04A						
Date Sampled: 06/03/2010 13:04 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
GRAVITY						
Density	8.779	0.001	lbs/gal	D1298	22-Jun-10	VJO
Specific Gravity	1.052					
HEATING VALUE BTU/LB						
Heating Value	6,254	50	Btu/lb	D240	16-Jun-10	NTHP
Condition 2 Run 1 Composite DUP						
Lab ID: R10060050-05A						
Date Sampled: 06/03/2010 13:04 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
GRAVITY						
Density	8.846	0.001	lbs/gal	D1298	22-Jun-10	VJO
Specific Gravity	1.060					
HEATING VALUE BTU/LB						
Heating Value	6,253	50	Btu/lb	D240	16-Jun-10	NTHP
Condition 2 Run 2 Composite						
Lab ID: R10060050-06A						
Date Sampled: 06/03/2010 17:13 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
GRAVITY						
Density	8.813	0.001	lbs/gal	D1298	22-Jun-10	VJO
Specific Gravity	1.056					
HEATING VALUE BTU/LB						
Heating Value	6,319	50	Btu/lb	D240	16-Jun-10	NTHP

< Indicates less than the limit of quantitation

H - Hold Time excedance

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

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Certificate of Analytical Results

Date: *29-Jun-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10060050

Project: Alliance Source Testing

Analyses	Result	PQL	Units	Method	Date	Analyst
Condition 2 Run 3 Composite						
Lab ID: R10060050-07A						
Date Sampled: 06/04/2010 10:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
GRAVITY						
Density	8.779	0.001	lbs/gal	D1298	22-Jun-10	VJO
Specific Gravity	1.052					
HEATING VALUE BTU/LB						
Heating Value	6,333	50	Btu/lb	D240	16-Jun-10	NTHP

< Indicates less than the limit of quantitation

H - Hold Time excedance

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

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Certificate of Analytical Results

Date: *09-Aug-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10080002

Project: Alliance Source Testing

Analyses	Result	PQL	Units	Method	Date	Analyst
Condition 1 Run 1 Composite						
Lab ID: R10080002-01A						
Date Sampled: 06/02/2010 0:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
ASH, OIL						
Ash	0.0300	0.01	%	D482	04-Aug-10	VJO
Condition 1 Run 2 Composite						
Lab ID: R10080002-02A						
Date Sampled: 06/02/2010 0:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
ASH, OIL						
Ash	0.0300	0.01	%	D482	04-Aug-10	VJO
Condition 1 Run 3 Composite						
Lab ID: R10080002-03A						
Date Sampled: 06/02/2010 0:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
ASH, OIL						
Ash	0.0200	0.01	%	D482	04-Aug-10	VJO
Condition 2 Run 1 Composite						
Lab ID: R10080002-04A						
Date Sampled: 06/03/2010 0:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
ASH, OIL						
Ash	0.0400	0.01	%	D482	04-Aug-10	VJO
Condition 2 Run 1 Composite Dup						
Lab ID: R10080002-05A						
Date Sampled: 06/03/2010 0:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
ASH, OIL						
Ash	0.0200	0.01	%	D482	04-Aug-10	VJO

< Indicates less than the limit of quantitation

H - Hold Time excedance

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Certificate of Analytical Results

Date: *09-Aug-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10080002

Project: Alliance Source Testing

Analyses	Result	PQL	Units	Method	Date	Analyst
Condition 2 Run 2 Composite						
Lab ID: R10080002-06A						
Date Sampled: 06/03/2010 0:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
ASH, OIL						
Ash	0.0300	0.01	%	D482	04-Aug-10	VJO
Condition 2 Run 3 Composite						
Lab ID: R10080002-07A						
Date Sampled: 06/04/2010 0:00 **Date Received:** 06/14/2010 **Matrix:** AQUEOUS						
ASH, OIL						
Ash	0.0100	0.01	%	D482	04-Aug-10	VJO

< Indicates less than the limit of quantitation

H - Hold Time excedance

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

Your Project #: 2010-0071-001
Site: FUTURE FUEL

Attention: Chris Lemay
Alliance Source Testing, LLC
214 Central Circle SW
Decatur, AL
USA 35603

Report Date: 2010/08/26
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0A7640
Received: 2010/08/10, 12:30

Sample Matrix: Chemical Material
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Anions in Chemical Material	3	2010/08/25	2010/08/26	BRL SOP-00105	ASTM E776 / 9056
Mercury in Chemical Material	12	2010/08/13	2010/08/13	BRL SOP-00104	ASTM D3684-01

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key
Clayton Johnson
26 Aug 2010 15:04:02 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CLAYTON JOHNSON, Project Manager
Email: Clayton.Johnson@maxxamanalytics.com
Phone# (905) 817-5769

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B0A7640
Report Date: 2010/08/26

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

RESULTS OF ANALYSES OF CHEMICAL MATERIAL

Maxxam ID		GU0185	GU0185	GU0187	GU0188		
Sampling Date		2010/06/03 04:50	2010/06/03 04:50	2010/06/03 04:50	2010/06/04 04:31		
	Units	**COND 2- RUN 1&2 - COAL**	**COND 2- RUN 1&2 - COAL Lab-Dup**	**COND 2- RUN 1&2 DUP - COAL**	**COND 2- RUN 3 - COAL**	**RDL**	**QC Batch**
Chloride (Cl)	%	0.07	0.08	0.08	0.07	0.01	2245484

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B0A7640
Report Date: 2010/08/26

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

ELEMENTS BY ATOMIC SPECTROSCOPY (CHEMICAL MATERIAL)

Maxxam ID		GU0163	GU0163	GU0183	GU0184		
Sampling Date		2010/06/02 11:25	2010/06/02 11:25	2010/06/02 11:25	2010/06/02 18:35		
	Units	**COND 1- RUN 1- COAL**	**COND 1- RUN 1- COAL Lab-Dup**	**COND 1- RUN 2 - COAL**	**COND 1- RUN 3 - COAL**	**RDL**	**QC Batch**
Total Mercury (Hg)	ug/g	0.063	0.061	0.037	0.042	0.005	2234448

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GU0185		GU0187	GU0188		GU0189		
Sampling Date		2010/06/03 04:50		2010/06/03 04:50	2010/06/04 04:31		2010/06/03 04:50		
	Units	**COND 2- RUN 1&2 - COAL**	**RDL**	**COND 2- RUN 1&2 DUP - COAL**	**COND 2- RUN 3 - COAL**	**RDL**	**COND 2- RUN 1&2- PALLET 1**	**RDL**	**QC Batch**
Total Mercury (Hg)	ug/g	0.039	0.006	0.048	0.040	0.005	<0.006	0.006	2234448

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GU0191	GU0192		GU0194	GU0195		
Sampling Date		2010/06/03 04:50	2010/06/03 04:50		2010/06/04 04:31	2010/06/04 04:31		
	Units	**COND 2- RUN 1&2- PALLET 2**	**COND 2- RUN 1&2- PALLET 3**	**RDL**	**COND 2- RUN 3- PALLET 1**	**COND 2- RUN 3- PALLET 2**	**RDL**	**QC Batch**
Total Mercury (Hg)	ug/g	<0.005	<0.005	0.005	<0.006	<0.006	0.006	2234448

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GU0196		
Sampling Date		2010/06/04 04:31		
	Units	**COND 2- RUN 3- PALLET 3**	**RDL**	**QC Batch**
Total Mercury (Hg)	ug/g	<0.006	0.006	2234448

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B0A7640
Report Date: 2010/08/26

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GU0163 **Collected** 2010/06/02
Sample ID COND 1- RUN 1- COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0163 Dup **Collected** 2010/06/02
Sample ID COND 1- RUN 1- COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0183 **Collected** 2010/06/02
Sample ID COND 1- RUN 2 - COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0184 **Collected** 2010/06/02
Sample ID COND 1- RUN 3 - COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0185 **Collected** 2010/06/03
Sample ID COND 2- RUN 1&2 - COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2245484	2010/08/25	2010/08/26	LLE
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0185 Dup **Collected** 2010/06/03
Sample ID COND 2- RUN 1&2 - COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2245484	2010/08/26	2010/08/26	LLE

Maxxam ID GU0187 **Collected** 2010/06/03
Sample ID COND 2- RUN 1&2 DUP - COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2245484	2010/08/25	2010/08/26	LLE
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam Job #: B0A7640
Report Date: 2010/08/26

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

Test Summary

Maxxam ID GU0188 **Collected** 2010/06/04
Sample ID COND 2- RUN 3 - COAL **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Anions in Chemical Material	IC	2245484	2010/08/25	2010/08/26	LLE
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0189 **Collected** 2010/06/03
Sample ID COND 2- RUN 1&2- PALLET 1 **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0191 **Collected** 2010/06/03
Sample ID COND 2- RUN 1&2- PALLET 2 **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0192 **Collected** 2010/06/03
Sample ID COND 2- RUN 1&2- PALLET 3 **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0194 **Collected** 2010/06/04
Sample ID COND 2- RUN 3- PALLET 1 **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0195 **Collected** 2010/06/04
Sample ID COND 2- RUN 3- PALLET 2 **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam ID GU0196 **Collected** 2010/06/04
Sample ID COND 2- RUN 3- PALLET 3 **Shipped**
Matrix Chemical Material **Received** 2010/08/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Mercury in Chemical Material	CVAA	2234448	2010/08/13	2010/08/13	FFS

Maxxam Job #: B0A7640
Report Date: 2010/08/26

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

GENERAL COMMENTS

Results relate only to the items tested.

Alliance Source Testing, LLC
Attention: Chris Lemay
Client Project #: 2010-0071-001
P.O. #:
Project name: FUTURE FUEL

Quality Assurance Report

Maxxam Job Number: GB0A7640

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	%Recovery	Units	QC Limits
2234448 FFS	QC Standard	Total Mercury (Hg)	2010/08/13		83	%	N/A
	Method Blank	Total Mercury (Hg)	2010/08/13	<0.005		ug/g	
	RPD - Sample/Sample Dup	Total Mercury (Hg)	2010/08/13	2.9		%	35
2245484 LLE	QC Standard	Chloride (Cl)	2010/08/26		96	%	83 - 103
	Spiked Blank	Chloride (Cl)	2010/08/26		99	%	80 - 120
	Method Blank	Chloride (Cl)	2010/08/26	<0.005		%	
	RPD - Sample/Sample Dup	Chloride (Cl)	2010/08/26	3.7		%	20

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burlington:5555 North Service Road, Burlington, Ontario L7L 5H7 Telephone(905) 332-8788 Fax(905) 332-9169

Validation Signature Page

Maxxam Job #: B0A7640

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

FRANK MO, B.Sc., Inorganic Lab. Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Republic Environmental Systems (Pennsylvania), LLC

2869 Sandstone Dr. Hatfield Pa. 19440

(tel)215-822-8995 (fax)215-822-1293

Certificate of Analytical Results

Date: *14-Jul-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10070020

Project: Alliance Source Testing

Lab ID: R10070020-01 **Date Received:** 07/12/2010 **Date Sampled:** 06/03/2010 4:50

Client Sample ID: Condition 2 Run 1 & 2 **Matrix:** COAL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, TOTAL		**SW6010B**				Analyst: **CBP**
Arsenic	1.33	1.00		mg/Kg	1	7/13/2010
Beryllium	0.933	0.500		mg/Kg	1	7/13/2010
Cadmium	1.01	0.500		mg/Kg	1	7/13/2010
Chromium	21.4	0.500		mg/Kg	1	7/13/2010
Lead	3.97	0.500		mg/Kg	1	7/13/2010

Lab ID: R10070020-02 **Date Received:** 07/12/2010 **Date Sampled:** 06/03/2010 4:50

Client Sample ID: Condition 2 Run 1 & 2 Dup **Matrix:** COAL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, TOTAL		**SW6010B**				Analyst: **CBP**
Arsenic	1.22	1.00		mg/Kg	1	7/13/2010
Beryllium	0.900	0.500		mg/Kg	1	7/13/2010
Cadmium	1.37	0.500		mg/Kg	1	7/13/2010
Chromium	22.5	0.500		mg/Kg	1	7/13/2010
Lead	4.69	0.500		mg/Kg	1	7/13/2010

Lab ID: R10070020-03 **Date Received:** 07/12/2010 **Date Sampled:** 06/04/2010 4:31

Client Sample ID: Condition 2 Run 3 **Matrix:** COAL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, TOTAL		**SW6010B**				Analyst: **CBP**
Arsenic	1.40	1.00		mg/Kg	1	7/13/2010
Beryllium	0.832	0.500		mg/Kg	1	7/13/2010
Cadmium	1.28	0.500		mg/Kg	1	7/13/2010
Chromium	20.2	0.500		mg/Kg	1	7/13/2010
Lead	3.81	0.500		mg/Kg	1	7/13/2010

Qualifiers:

BRL - Below Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
N - Tentatively identified compound based on mass spectral library search
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Hold Time excedance

Republic Environmental Systems (Pennsylvania), LLC

2869 Sandstone Dr. Hatfield Pa. 19440

(tel)215-822-8995 (fax)215-822-1293

Certificate of Analytical Results

Date: *29-Jun-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10060047

Project: Alliance Source Testing

Analyses	As Received Basis	Dry Basis	Units	Method	Date	Analyst
Condition 1 Run 1						
Lab ID: R10060047-01A						
Date Sampled: 06/02/2010	**Date Received:** 06/14/2010			**Matrix:** COAL		
MOISTURE, D3302						
Moisture, Total	13.7		%	D3302	15-Jun-10	AMJR
ASH, COAL						
Ash	10.4	12.1	%	D3174	21-Jun-10	VJO
HEATING VALUE, COAL						
Heating Value	10890	12,620	Btu/lb	D5865	25-Jun-10	JCW
Condition 1 Run 2						
Lab ID: R10060047-02A						
Date Sampled: 06/02/2010	**Date Received:** 06/14/2010			**Matrix:** COAL		
MOISTURE, D3302						
Moisture, Total	13.2		%	D3302	15-Jun-10	AMJR
ASH, COAL						
Ash	8.45	9.74	%	D3174	21-Jun-10	VJO
HEATING VALUE, COAL						
Heating Value	11090	12,780	Btu/lb	D5865	25-Jun-10	JCW

< Indicates less than the limit of quantitation

H - Hold Time excedance

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

Republic Environmental Systems (Pennsylvania), LLC

2869 Sandstone Dr. Hatfield Pa. 19440

(tel)215-822-8995 (fax)215-822-1293

Certificate of Analytical Results

Date: *29-Jun-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10060047

Project: Alliance Source Testing

Analyses	As Received Basis	Dry Basis	Units	Method	Date	Analyst
Condition 1 Run 3						
Lab ID: R10060047-03A						
Date Sampled: 06/02/2010	**Date Received:** 06/14/2010			**Matrix:** COAL		
MOISTURE, D3302						
Moisture, Total	14.5		%	D3302	15-Jun-10	AMJR
ASH, COAL						
Ash	8.44	9.87	%	D3174	21-Jun-10	VJO
HEATING VALUE, COAL						
Heating Value	11070	12,950	Btu/lb	D5865	25-Jun-10	JCW
Condition 2 Run 1&2						
Lab ID: R10060047-04A						
Date Sampled: 06/03/2010	**Date Received:** 06/14/2010			**Matrix:** COAL		
MOISTURE, D3302						
Moisture, Total	15.1		%	D3302	15-Jun-10	AMJR
ASH, COAL						
Ash	8.83	10.4	%	D3174	21-Jun-10	VJO
HEATING VALUE, COAL						
Heating Value	10630	12,520	Btu/lb	D5865	25-Jun-10	JCW

< Indicates less than the limit of quantitation

H - Hold Time excedance

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

Republic Environmental Systems (Pennsylvania), LLC

2869 Sandstone Dr. Hatfield Pa. 19440

(tel)215-822-8995 (fax)215-822-1293

Certificate of Analytical Results

Date: *29-Jun-10*

CLIENT: **Maxxam Analytical Services**
6740 Campobello Road
Mississauga, Ontario L5N 2L8

Lab Order: R10060047

Project: Alliance Source Testing

Analyses	As Received Basis	Dry Basis	Units	Method	Date	Analyst
Condition 2 Run 1&2 DUP						
Lab ID: R10060047-05A						
Date Sampled: 06/03/2010	**Date Received:** 06/14/2010			**Matrix:** COAL		
MOISTURE, D3302						
Moisture, Total	14.3		%	D3302	15-Jun-10	AMJR
ASH, COAL						
Ash	9.26	10.8	%	D3174	21-Jun-10	VJO
HEATING VALUE, COAL						
Heating Value	10830	12,640	Btu/lb	D5865	25-Jun-10	JCW
Condition 2 Run 3						
Lab ID: R10060047-06A						
Date Sampled: 06/04/2010	**Date Received:** 06/14/2010			**Matrix:** COAL		
MOISTURE, D3302						
Moisture, Total	15.7		%	D3302	15-Jun-10	AMJR
ASH, COAL						
Ash	9.79	11.6	%	D3174	21-Jun-10	VJO
HEATING VALUE, COAL						
Heating Value	10600	12,570	Btu/lb	D5865	25-Jun-10	JCW

< Indicates less than the limit of quantitation

H - Hold Time exceedance

4418 POTTSVILLE PIKE, READING, PENNSYLVANIA 19605 610-921-8833 FAX 610-921-9667

R10060050

Chain of Custody Form

Condition 1 / Run 1 / POHC / Liquid Waste / Fuel

Maxxam analytics inc
5555 N. Service Road
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www.maxxamanalytics.com
Toll Free: 1-800-668-0639
Phone: (905) 332-8788
Fax: (905) 332-9169

Page 1 of 1

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	ASTM D-2502 HHV BTU ASTM D-1248 Specific Gravity (4 oz)	SW846 8270C Chlorobenzene (40 mL)	ASTM D-3174 ASH	ASTM D-5865 HHV BTU						
	Condition 1 - Run 1a	2	6-2-10	8:04 AM		1	1								
	Condition 1 - Run 1b	2	6-2-10	8:34 AM		1	1								
	Condition 1 - Run 1c	2	6-2-10	9:04 AM		1	1								
	Condition 1 - Run 1d	2	6-2-10	9:34 AM		1	1								
	Condition 1 - Run 1e	2	6-2-10	10:04 AM		1	1								
	Condition 1 - Run 1f	2	6-2-10	10:34 AM		1	1								
	Condition 1 - Run 1g	2	6-2-10	11:04 AM		1	1								
	Condition 1 - Run 1h	2	6-2-10	11:34 AM		1	1								
	Condition 1 - Coal Run 1	1	6-2-10	7:05 to 11:25 AM				✓	✓						

Composite all samples and perform analyses on composite

4 oz = 1 composite
40 mL = 1 composite

CEM

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑

** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TO9A
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

2

R10080050

Chain of Custody Form

Condition 1 / Run 2 / Liquid Waste/Fuel

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Fax: (905) 332-9169

Page ____ of ____

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	ASTM D-2810-02 HHV BTU (4 oz)	ASTM D-1298 Specific Gravity	SW846 8270 C (40 mL)	Chlorobenzene	ASTM D3174 Ash	ASTM D-5865 HHV BTU						
	Condition 1 - Run 2a	2	6/2/10	12:03	-	1	1										
	Condition 1 - Run 2b	2	6/2/10	12:33		1	1					Composite all samples and					
	Condition 1 - Run 2c	2	6/2/10	13:03		1	1					perform analyses on					
	Condition 1 - Run 2d	2	6/2/10	13:33		1	1					composite					
	Condition 1 - Run 2e	2	6/2/10	14:03		1	1					c2in					
	Condition 1 - Run 2f	2	6/2/10	14:33		1	1					4 ~~40~~ oz = 1 composite					
	Condition 1 - Run 2g	2	6/2/10	15:03		1	1					40 mL = 1 composite					
	Condition 1 - Run 2 - Coal	1	6/2/10	12:03 - 15:03					X	X							

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-2-2010

Method 23 / TO9A
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

06/08/2010 TUE 13:03 FAX 2563510151 ☑003/015

3

R10080050

Chain of Custody Form

Condition 1 / Run 3 / Liquid waste / fuel

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Page ____ of ____

CLIENT INFORMATION SECTION

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Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	ASTM D-240-02 HHV BTU ASTM D-1298 Specific Gravity (4 oz)	Sw846 8270C Chlorobenzene (40 mL)	ASTM D3174 Ash	ASTM D5865 HHV, BTU						
	Condition 1 - Run 3a	2	6-2-10	15:35		1	1								
	Condition 1 - Run 3b	2	6-2-10	16:05		1	1								
	Condition 1 - Run 3c	2	6-2-10	16:35		1	1		Composite all samples and perform analyses on composite						
	Condition 1 - Run 3d	2	6-2-10	17:05		1	1								
	Condition 1 - Run 3e	2	6-2-10	17:35		1	1								
	Condition 1 - Run 3f	2	6-2-10	18:05		1	1								
	Condition 1 - Run 3g	2	6-2-10	18:35		1	1		4 oz = 1 composite						
	Condition 1 - Run 3 (cont)	1	6-2-10	15:35 - 18:35				X	X 40 mL = 1 composite						

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑

** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TOSA

- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

06/08/2010 TUE 13:04 FAX 2563510151

004/015

4

R1006050

Chain of Custody Form Condition 2/Run 1/POHC/Liquid waste

Maxxam Analytics Inc
5555 N. Service Road
Burlington, Ontario L7L 5H7
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Toll Free: 1-800-668-0639
Phone: (905) 332-8788
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Page 1 of 1

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW, Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	ASTM D1298 - Spec. Grav.	SW846 5050/9056 Chlorine	ASTM D482 - ASH	ASTM D240-02 HHV	SW846 3052/6020 Cd, Pb, Be, As, Cr	SW - 7471A Hg	SW846 - 8270C Chlorobenzene				
						4 oz	→					40 mL				
	Condition 2/Run 1a	2	6-3-10	10:10		1	1	1	1	1	1	1	Composite all samples and perform analyses on composite			
	Condition 2/Run 1b	2	6-3-10	10:34		1	1	1	1	1	1	1				
	Condition 2/Run 1c	2	6-3-10	11:04		1	1	1	1	1	1	1				
	Condition 2/Run 1d	2	6-3-10	11:34		1	1	1	1	1	1	1				
	Condition 2/Run 1e	2	6-3-10	12:04		1	1	1	1	1	1	1				
	Condition 2/Run 1f	2	6-3-10	12:34		1	1	1	1	1	1	1				
	Condition 2/Run 1g	2	6-3-10	13:04		1	1	1	1	1	1	1				
	Condition 2/Run 1a/Dup	2	6-3-10	10:10		1	1	1	1	1	1	1	4 oz = 1 composite			
	Condition 2/Run 1b/Dup	2	6-3-10	10:34		1	1	1	1	1	1	1				
	Condition 2/Run 1c/Dup	2	6-3-10	11:04		1	1	1	1	1	1	1				
	Condition 2/Run 1d/Dup	2	6-3-10	11:34		1	1	1	1	1	1	1	40 mL = 1 composite			
	Condition 2/Run 1e/Dup	2	6-3-10	12:04		1	1	1	1	1	1	1				
	Condition 2/Run 1f/Dup	2	6-3-10	12:34		1	1	1	1	1	1	1				
	Condition 2/Run 1g/Dup	2	6-3-10	13:04		1	1	1	1	1	1	1				

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package:** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature: [signature]
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by: [signature]
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TO9A
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

- TEF x DL ☐
- TEF x 0 DL ☐
- TEF x 0.5 DL ☐

06/08/2010 TUE 13:05 FAX 2563510151 005/015

5

R1006005

Chain of Custody Form

Condition 2 / Run 2 / POHC / Liquid Waste

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CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	ASTM D1298 Spec. Grav.	SW846 5050/9056 Chloride	ASTM D4982 - Ash	ASTM D240 - DL HHV	SW846 3052/6020 Cd, Pb, Be, As, Cr	SW-7471A Hg	SW846 - 8270C Chlorobenzene			
						4 oz	→					40 mL			
	Condition 2/ Run 2a	2	6-3-10	14:10		1	1	1	1	1	1	1	Composite		
	Condition 2/ Run 2b	2	6-3-10	14:43		1	1	1	1	1	1	1	all samples		
	Condition 2 / Run 2c	2	6-3-10	15:13		1	1	1	1	1	1	1	and perform		
	Condition 2/ Run 2d	2	6-3-10	15:43		1	1	1	1	1	1	1	analyses on		
	Condition 2/ Run 2e	2	6-3-10	16:13		1	1	1	1	1	1	1	Composite		
	Condition 2/ Run 2f	2	6-3-10	16:43		1	1	1	1	1	1	1			
	Condition 2/ Run 2g	2	6-3-10	17:13		1	1	1	1	1	1	1			
													4 oz =		
													1 Composite		
													40 mL —		
													1 Composite		

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑

** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 9:00

Method 23 / TO9A

- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

TEF x DL ☐
TEF x 0 DL ☐
TEF x 0.5 DL ☐

06/08/2010 TUE 13:06 FAX 2563510151 006/015

R10060050

Chain of Custody Form

Condition 2 / Run 3 / POHC / Liquid Waste

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Phone: (905) 332-8788
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Page ____ of ____

CLIENT INFORMATION SECTION

Company Name: Alliance Source Testing
Project Manager: Chris LeMay
e-mail: chris.lemay@stacktest.com
Address: 214 Central Circle SW
Decatur, AL 35603
Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	ASTM D1298 Spec. Grav.	SW846 5050/9056 Chlorine	ASTM D482 - Ash	ASTM D240 - D2 HHV	SW846 3052/6020 Cd, Pb, Be, As, Cr	SW - 7471D Hg	SW846 - 8270C Chlorobenzene				
						4 OZ	→					40 ml				
	Condition 2 / Run 3a	2	6-4-10	7:00		1	1	1	1	1	1	1				
	Condition 2 / Run 3b	2	6-4-10	7:30		1	1	1	1	1	1	1				
	Condition 2 / Run 3c	2	6-4-10	8:00		1	1	1	1	1	1	1				
	Condition 2 / Run 3d	2	6-4-10	8:30		1	1	1	1	1	1	1				
	Condition 2 / Run 3e	2	6-4-10	9:00		1	1	1	1	1	1	1				
	Condition 2 / Run 3f	2	6-4-10	9:30		1	1	1	1	1	1	1				
	Condition 2 / Run 3g	2	6-4-10	10:00		1	1	1	1	1	1	1				

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION

Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS

- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑
- ** additional cost may apply

PROJECT SPECIFIC COMMENTS

* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature: [signature]
Affiliation: AST
Date/Time: 10/7/2010 / 9:00

Received by: [signature]
Affiliation:
Date/Time: 6-7-2010 7:00

Method 23 / TO9A

- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

- TEF x DL ☐
- TEF x 0 DL ☐
- TEF x 0.5 DL ☐

Chain of Custody Form

Maxxam Analytics Inc
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Page 1 of 1

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Phone: (256) 260-3973 Fax: (256) 351-0151
Sampled by: J. Hutchens

ANALYSIS REQUESTED

MAXXAM use only	Field Sample ID	# Bottles	Collection Date	Collection Time	Initial Impinger Charge Volumes (mL)*	ASTM D3174 - Ash	SW846 6020 Cd, Pb, Be, As, Cr	ASTM D5865 - HHV	SW846 6020 Cd, Pb, Be, As, Cr	EPA SW-7471A Hg						
	Condition 2/Run 1&2/Coal	1	6/3/10	4:05-4:50		✓	✓	✓	✓	✓						
	Cond. 2/Run 1&2/Coal/Dup	1	6/3/10	4:05-4:50		✓	✓	✓	✓	✓						
	Cond. 2/Run 3/Coal	1	6/4/10	4:05-4:31		✓	✓	✓	✓	✓						
	Cond. 2/Run 1&2/Pallet 1	1	6/3/10	4:05-4:50					✓	✓	* Hold, do not analyze					
	Cond. 2/Run 1&2/Pallet 2	1	6/3/10	4:05-4:50					✓	✓	* Hold, do not analyze					
	Cond. 2/Run 1&2/Pallet 3	1	6/3/10	4:05-4:50					✓	✓	* Hold do not analyze					
	Cond. 2/Run 3/Pallet 1	1	6/4/10	4:05-4:31					✓	✓	* Hold do not analyze					
	Cond. 2/Run 3/Pallet 2	1	6/4/10	4:05-4:31					✓	✓	* Hold do not analyze					
	Cond. 2/Run 3/Pallet 3	1	6/4/10	4:05-4:31					✓	✓	* Hold do not analyze					

TAT Requirement
- STD 10 Business day ☑
- Rush 5 Business day ☐
- Rush 2 Business day ☐
- Rush 1 Business day ☐
- Other (specify):

PROJECT INFORMATION
Project #: 2010-0071-001
Name: FutureFuel
PO #:
Maxxam Quote #:
Maxxam Contact: Clayton Johnson

REPORTING REQUIREMENTS
- Summary Report only ☐
- Summary Report & Raw Data Package ** ☑

** additional cost may apply

PROJECT SPECIFIC COMMENTS
* Initial Impinger charge volumes are required before the following analysis can be started: Method 26, CTM-027 & Method 8

Client Signature:
Affiliation: AST
Date/Time: 6/7/2010 / 9:00

Received by:
Affiliation:
Date/Time: 6-7-2010 - 9:00

Method 23 / TO9A
- 2005 WHO ☐
- 1989 NATO TEF ☐
- 1998 WHO ☐

TEF x DL ☐
TEF x 0.DL ☐
TEF x 0.5 DL ☐

Audit Sample Reports

Alliance
SOURCE TESTING

July 1, 2010

Ms. Esther Coleman
U.S. EPA – Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

RE: VOST Audit Sample Results
FutureFuel Chemical Company

Dear Ms. Coleman,

Alliance Source Testing, LLC (AST) has completed the audit sample provided by the U.S. EPA for the comprehensive performance test conducted at FutureFuel Chemical Company in Batesville, Arkansas. The audit sample – RZ2-R06003.01-OC-021 concentration was found to be 179.93 micrograms per cubic meter (ug/m3). The sample field form, summary table and laboratory data are provided as attachments.

If you have any questions, please contact me at (256) 260-3974.

Sincerely,
Alliance Source Testing, LLC

Jeremy Hutchens, QSTI
Senior Project Manager

cc: Harry Shah, EPA
Thomas Floyd, FFCC
Chris LeMay, AST

phone [illegible] *fax* [illegible] *website* [illegible]
address [illegible]
Source Testing Offices [illegible]

Alliance SOURCE TESTING

Emisson Calculations

Location:
FutureFuel Chemical Company

Source: **Audit - RZ2-R06003.01-OC-021**
Project No.: **10-0071**

Trap Set Number	1	2	3	Condensate	Run Totals
Date	6/4/10	6/4/10	6/4/10	6/4/10	-
Start Time	1:03 PM	1:22 PM	1:42 PM	1:03 PM	-
Stop Time	1:13 PM	1:32 PM	1:52 PM	1:52 PM	-
Input Data					
Standard Meter Volume, dsL	9.426	9.517	9.472	28.415	-
Chlorobenzene, ug	1.23	2.48	1.40	*0.009*	-
Calculated Data					
Chlorobenzene Concentration, ug/dscm	130.49	260.59	147.81	0.30	179.93

Note: The condensate sample was reported as BDL. The detection limit was used for calculating the condenstate concentration and the run total.

Location: FutureFuel Chemical Company

Source: Audit - RZ2-R06003.01-OC-021
Project No.: 10-0071

Meter Correction Factor (Y): 0.992 Meter ID: 080903-B

Trap Set No.	1			2			3					
Date	6/4/10			6/4/10			6/4/10			6/4/10		
Start Time	1:03 PM			1:22 PM			1:42 PM					
End Time	1:13 PM			1:32 PM			1:52 PM					
Run Time (θ), min	10			10			10					
Max Vacuum, in. Hg	8.0			8.0			8.0					
Pre Leak Check, L (at > 10 in WC)	0.00			0.00			0.00					
Post Leak Check, L (at max vac.)	0.00			0.00			0.00					
Meter Volume, L	Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM			Flow Rate Setting, LPM		
Time												
0	0.00			0.00			0.00					
5	4.92			4.99			4.95					
10	9.86			9.96			9.92					
15												
20												
25												
30												
35												
40												
Total Meter Volume (Vm), L	9.86			9.96			9.92			--		
Temperatures, °F												
Time	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap	DGM	Probe	Trap
0	78.0	273.0	60.0	79.0	273.0	61.0	79.0	274.0	62.0			
5	78.0	266.0	59.0	79.0	271.0	62.0	79.0	284.0	60.0			
10	79.0	270.0	60.0	79.0	269.0	61.0	80.0	284.0	60.0			
15												
20												
25												
30												
35												
40												
Average Meter Temperature (Tm), °F	78.3			79.0			79.3			--		
Average Meter Temperature (Tm), °R	538.3			539.0			539.3			--		
Barometeric Pressure (Pb), in. Hg	29.38			29.38			29.38					
Meter Orifice Pressure (ΔH), in. WC	0.500			0.500			0.500					
Meter Pressure (Pm), in. Hg	29.42			29.42			29.42			--		
Standard Meter Volume (Vmstd), dsL	9.426			9.517			9.473			--		

Jeremy Hutchens
QA/QC Reviewer

DE DF
FL RPO

Maxxam Job #: B073313
Report Date: 2010/06/22

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

VOLATILE ORGANICS BY GC/MS (AIR)

Maxxam ID		GC8385			GC8397		GC8401		
Sampling Date		2010/06/04 09:11			2010/06/04 13:13		2010/06/04 13:32		
COC Number		N/A			N/A		N/A		
	Units	**R3-CONDITION 2-TRAP23**	**RDL**	**QC Batch**	**RUN 1-AUDIT-TRAP1**	**QC Batch**	**RUN 2-AUDIT-TRAP2**	**RDL**	**QC Batch**
Chlorobenzene	ug	[illegible]	0.2	2177204	1.23	2176427	2.48	0.01	2175592
Surrogate Recovery (%)									
Bromofluorobenzene	%	[illegible]		2177204	91	2176427	89		2175592
D10-Ethylbenzene (FS)	%	[illegible]		2177204	89	2176427	111		2175592
D4-1,2-Dichloroethane	%	[illegible]		2177204	112	2176427	130 (1)		2175592
D8-Toluene	%	[illegible]		2177204	103	2176427	92		2175592

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam ID		GC8402		
Sampling Date		2010/06/04 13:52		
COC Number		N/A		
	Units	**RUN 3-AUDIT-TRAP3**	**RDL**	**QC Batch**
Chlorobenzene	ug	1.4	0.1	2177204
Surrogate Recovery (%)				
Bromofluorobenzene	%	76		2177204
D10-Ethylbenzene (FS)	%	108		2177204
D4-1,2-Dichloroethane	%	106		2177204
D8-Toluene	%	110		2177204

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B073313
Report Date: 2010/06/22

Alliance Source Testing, LLC
Client Project #: 2010-0071-001
Project name: FUTURE FUEL

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GC8387	GC8388	GC8389	GC8390	GC8391		
Sampling Date		2010/06/02 11:27	2010/06/02 14:59	2010/06/02 18:39	2010/06/03 13:21	2010/06/03 17:12		
COC Number		N/A	N/A	N/A	N/A	N/A		
	Units	**RUN 1- CONDITION 1-CON**	**RUN 2- CONDITION 1-CON**	**RUN 3- CONDITION 1-CON**	**RUN 1- CONDITION 2-CON**	**RUN 2- CONDITION 2-CON**	**RDL**	**QC Batch**
Chlorobenzene	ug/L	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	1.0	2175128
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]		2175128
D4-1,2-Dichloroethane	%	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]		2175128
D8-Toluene	%	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]		2175128

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GC8392	GC8403		
Sampling Date		2010/06/04 09:57	2010/06/04 13:52		
COC Number		N/A	N/A		
	Units	**RUN 3- CONDITION 2-CON**	**AUDIT CONDENSATE**	**RDL**	**QC Batch**
Chlorobenzene	ug/L	[redacted]	0.20 U	1.0	2175128
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	[redacted]	95		2175128
D4-1,2-Dichloroethane	%	[redacted]	98		2175128
D8-Toluene	%	[redacted]	99		2175128

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

www.erg.com

May 25, 2010

Requestor: Eshter Coleman
US EPA - Region 6
1445 Ross Avenue, 12th Floor, Suite 1200
(214) 665-8517

Dear Esther Coleman:

Eastern Research Group (ERG) have been directed by the U.S. EPA to provide the following audit materials for a **Method 29 Metals audit; Numbers M29-4583-01a and -01b.** These audit samples are for an upcoming audit at **FuturFuel Chemical Co.** and are being sent directly to **Thomas L. Floyd of FutureFuel Chemical Company in Batesville, AR** per your **automated database** request.

Please note: requests for Method 29 mercury have **NEW Instructions associated with these samples,** effective October 2004.

Method 29
request M29-4583-01a:
- one each spiked **Method 29 aqueous metals** sample; **Sample No. AM - 1628**

request M29-4583-01b:
- one each spiked **Method 29 aqueous mercury** sample; **Sample No. HG - 6087**

Please note that each sample is individually labeled and shipped with an instruction sheet and an example REPORTING FORM for reporting the laboratory audit results. All results are to be reported to the automated computerized database.

You are urged to instruct the laboratory to analyze the audit samples along with the designated field samples. The audit sample should be analyzed as a routine field sample according to the specifications of the Test Method and using the supplied instructions. The audit results are to be reported to you, the requestor, by the analyst, using the example Reporting Form, in the units specified in the instructions. You then will use the automated database to enter the results into the SSAP database.

We would like to thank you for your participation in the Stationary Source Audit Program. If you have any questions concerning the audit or the database, please contact either Thomas Mckenzie (919) 468-7920 or myself at 468-7887. My fax number is (919) 468-7803.

Sincerely,

Julie Swift for Ray Merrill

Ray Merrill
CC: sent with audit samples

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560, Telephone: (919) 468-7800, Fax (919) 468-7803
Arlington, VA · Atlanta, GA · Austin, TX · Boston, MA · Chantilly, VA · Chicago, IL · Fairfield, CT
Harrisburg, PA · Kansas City, KS · Lexington, MA · Nashua, NH · Research Triangle Park, Morrisville, NC · Sacramento, CA
Equal Opportunity Employer

www.erg.com

May 25, 2010

Requestor: Eshter Coleman
US EPA - Region 6
1445 Ross Avenue, 12th Floor, Suite 1200
(214) 665-8517

Dear Esther Coleman:

Eastern Research Group (ERG) has been directed by the U.S. EPA to provide the following audit materials for a **Method 29 Metals audit; Number M29-4584-01.** This audit sample is for an upcoming audit at **FuturFuel Chemical Co.** and is being sent directly to **Thomas L. Floyd of FutureFuel Chemical Company in Batesville, AR** per your **automated database** request.

Please note: requests for Method 29 mercury have **NEW Instructions associated with these samples,** effective October 2004.

Method 29
request M29-4584-01:

- one each spiked **Method 29 spiked metals filter** sample; **Sample No. Fil - 6142**

One blank filter

Please note that each sample is individually labeled and shipped with an instruction sheet and an example REPORTING FORM for reporting the laboratory audit results. All results are to be reported to the automated computerized database.

You are urged to instruct the laboratory to analyze the audit samples along with the designated field samples. The audit sample should be analyzed as a routine field sample according to the specifications of the Test Method and using the supplied instructions. The audit results are to be reported to you, the requestor, by the analyst, using the example Reporting Form, in the units specified in the instructions. You then will use the automated database to enter the results into the SSAP database.

We would like to thank you for your participation in the Stationary Source Audit Program. If you have any questions concerning the audit or the database, please contact either Thomas Mckenzie (919) 468-7920 or myself at 468-7887. My fax number is (919) 468-7803.

Sincerely,
Gwen L. Swift for

Ray Merrill
CC: sent with audit samples

601 Keystone Park Drive, Suite 700, Morrisville, NC 27560, Telephone: (919) 468-7800, Fax (919) 468-7803
Arlington, VA · Atlanta, GA · Austin, TX · Boston, MA · Chantilly, VA · Chicago, IL · Fairfield, CT
Harrisburg, PA · Kansas City, KS · Lexington, MA · Nashua, NH · Research Triangle Park, Morrisville, NC · Sacramento, CA
Equal Opportunity Employer

Method 29 Audit Material
(Multi-Metals Spiked Solution)

REPORTING FORM: To be completed by laboratory

Request Number/Sample Number: M29-4583-01a/AM-1628 Date Issued: 05/25/10

Auditee:

Company: Maxxam Analytics International Inc.

Address: 6740 Campobello Road, Mississauga, Ontario, L5N 2L8

Attention: Clay Johnson Phone: 1-800-668-0639

Requestor:

Agency: US EPA Region 6

Address: 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202-6444

Attention : Esther Coleman Phone: 1-214-665-8517

Project Name: Future Fuel Chemical Co.

Audit Results (Results in ug/mL)

Compound	Result
Chromium (Cr)	0.266
Lead (Pb)	1.66

Method 29 Compliance Audit Material
(Mercury Acidified Aqueous Solution)

REPORTING FORM: To be completed by laboratory

Request Number/Sample Number: M29-4583-01b/HG-6087 Date issued: 05/25/10

Auditee:

Company: Maxxam Analytics International Inc.

Address: 6740 Campobello Road, Mississauga, Ontario, L5N 2L8

Attention: Clay Johnson Phone: 1-905-817-5700

Requestor:

Agency: US EPA Region 6

Address: 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202-6444

Attention : Esther Coleman Phone: 1-214-665-8517

Project Name: Future Fuels Chemical Co.

Audit Results (Results in ug)

Compound	Result
Mercury	16.6

Method 29 Compliance Audit Material
(Multi-Metals Spiked Filter)

REPORTING FORM: To be completed by laboratory

Request Number/Sample Number: M29-4584-01/Fil-6142 Date Issued: 05/25/10

Auditee:

Company: Maxxam Analytics International Inc.

Address: 6740 Campobello Road, Mississauga, Ontario, L5N 2L8

Attention: Clay Johnson Phone: 1-800-668-0639

Requestor:

Agency: US EPA Region 6

Address: 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202-6444

Attention : Esther Coleman Phone: 1-214-665-8517

Project Name: Future Fuel Chemical Co.

Audit Results (Results in ug)

Compound	Result	Blank Filter Result
Lead (Pb)	420	0.70

Appendix D

Appendix D – Table of Contents

QA/QC Documentation ..... **632 - 642**
Pretest Dry Gas Meter Calibrations ..... 632 - 634
DGM Thermocouple Sensor Calibrations 635
Pitot Inspection, Stack Thermocouple Sensor and Nozzle Calibrations ..... 636 - 637
O2/CO2 Analyzer Calibrations ..... 638 - 640
EPA Protocol Gas Certificates ..... 641 - 642

DRY GAS METER CALIBRATION USING LOW FLOW CRITICAL ORIFICES

ENVIRONMENTAL SUPPLY COMPANY

Quality - Service - Reliability

1) Select the orifice closest to the expected operating flow rate and insert in meterbox inlet.
2) For pretest calibration, leak check the system. Leak checking is not necessary for post-test calibrations.
3) Set vacuum as close as possible to the Orifice Calibration Report tested vacuum.
4) Observe the DGM dial, start timing as the needle passes the zero reference. Allow a minimum of 5 revolutions (pretest) or 3 revolutions (post-test) and stop timing again at the zero reference.
5) Record readings in outlined boxes below, other columns are automatically calculated.

DATE: 5/28/2010

METER PART #:

METER SERIAL #: 1576

CRITICAL ORIFICE SET SERIAL #: 2644

Bar. Pressure (in Hg.)	INITIAL	FINAL	AVG (P_{bar})
	29.3	29.3	29.3

Each Y must be ± 2.0% from the average (pretest) or ± 5.0% from the average (post-test).

ORIFICE NOMINAL FLOW (LPM)	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (Liters) INITIAL	DGM READINGS (Liters) FINAL	NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME θ (Min.00)	DGM PRESSURE P_m (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION
0.57	1	0.4424	22.5	2,373.40	2,379.110	5.710	70	70	70	73	73	71.5	12.00	0.4	5.5615	6.7585	1.2152	-0.30
	2	0.4424	22.5	2,379.50	2,385.230	5.730	70	70	70	73	73	71.5	12.00	0.4	5.5809	6.7585	1.2110	-0.64
	3	0.4424	22.5	2,385.0	2,391.640	5.640	70	70	70	73	73	71.5	12.00	0.4	5.4933	6.7585	1.2303	0.94
															AVG Y @ 0.57 LPM =		1.2189	
1.10	1	0.7988	18.5	2,392.50	2,399.90	7.40	71	71	71	73	73	72	7.00	0.8	7.2079	7.1119	0.9867	0.36
	2	0.7988	18.5	2,400.50	2,407.920	7.420	71	71	71	73	73	72	7.00	0.8	7.2274	7.1119	0.9840	0.09
	3	0.7988	18.5	2,408.50	2,415.960	7.460	71	71	71	73	73	72	7.00	0.8	7.2664	7.1119	0.9787	-0.45
															AVG Y @ 1.10 LPM =		0.9831	
2.00	1	1.5456	14.5	2,416.0	2,426.970	10.970	71	72	72	75	75	73.5	5.00	2.2	10.6926	9.8291	0.9192	-0.06
	2	1.5456	14.5	2,427.50	2,438.410	10.910	71	72	72	75	75	73.5	5.00	2.2	10.6341	9.8291	0.9243	0.49
	3	1.5456	14.5	2,439.0	2,450.010	11.010	71	72	72	75	75	73.5	5.00	2.2	10.7316	9.8291	0.9159	-0.43
															AVG Y @ 2.00 LPM =		0.9198	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:

The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

(1) $V_m\,(std) = K_1\, V_m \dfrac{P_{bar} + (P_m/13.6)}{T_m}$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

(2) $V_{cr}\,(std) = K' \sqrt{\dfrac{P_{bar}\,\theta}{T_{amb}}}$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $Y = \dfrac{V_{cr}\,(std)}{V_m\,(std)}$ = DGM calibration factor

5/28/2010

Low Flow Cal Spreadsheet

Page 62 of 64

DRY GAS METER CALIBRATION USING LOW FLOW CRITICAL ORIFICES

ES Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

1) Select the orifice closest to the expected operating flow rate and insert in meterbox inlet.
2) For pretest calibration, leak check the system. Leak checking is not necessary for post-test calibrations.
3) Set vacuum as close as possible to the Orifice Calibration Report tested vacuum.
4) Observe the DGM dial, start timing as the needle passes the zero reference. Allow a minimum of 5 revolutions (pretest) or 3 revolutions (post-test) and stop timing again at the zero reference.
5) Record readings in outlined boxes below, other columns are automatically calculated.

DATE: 5/24/2010

METER PART #:

METER SERIAL #: 0809030-B

CRITICAL ORIFICE SET SERIAL #: 2644

	INITIAL	FINAL	AVG (P_{bar})
Bar. Pressure (in Hg.)	29.52	29.52	29.52

Each Y must be ± 2.0% from the average (pretest) or ± 5.0% from the average (post-test).

ORIFICE NOMINAL FLOW (LPM)	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (Liters) INITIAL	DGM READINGS (Liters) FINAL	DGM READINGS (Liters) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME θ (Min.00)	DGM PRESSURE P_m (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION
0.57	1	0.4424	22	.0	5.720	5.720	70	70	70	73	73	71.5	10.00	0.2	5.6102	5.6744	1.0114	0.17
	2	0.4424	22	.0	5.730	5.730	70	70	70	73	73	71.5	10.00	0.2	5.620	5.6744	1.0097	0.00
	3	0.4424	22	.0	5.740	5.740	70	70	70	73	73	71.5	10.00	0.2	5.6298	5.6744	1.0079	-0.17
															AVG Y @ 0.57 LPM =		1.0097	
1.10	1	0.7988	19	.0	7.350	7.350	71	71	71	73	73	72	7.00	0.5	7.2075	7.1653	0.9941	0.24
	2	0.7988	19	.0	7.305	7.305	71	71	71	73	73	72	7.00	0.5	7.1634	7.1653	1.0003	0.86
	3	0.7988	19	.0	7.450	7.450	71	71	71	73	73	72	7.00	0.5	7.3056	7.1653	0.9808	-1.10
															AVG Y @ 1.10 LPM =		0.9917	
2.00	1	1.5456	16	.0	10.030	10.030	71	72	72	73	73	72.5	5.00	1.5	9.8507	9.9029	1.0053	0.02
	2	1.5456	16	.0	10.040	10.040	71	72	72	73	73	72.5	5.00	1.5	9.8606	9.9029	1.0043	-0.08
	3	1.5456	16	.0	10.025	10.025	71	72	72	73	73	72.5	5.00	1.5	9.8458	9.9029	1.0058	0.07
															AVG Y @ 2.00 LPM =		1.0051	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:

The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

(1) $V_m\,(std) = K_1\, V_m \dfrac{P_{bar} + (P_m/13.6)}{T_m}$ = Net volume of gas sample passed through DGM, corrected to standard conditions

K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)

T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

(2) $V_{cr}\,(std) = K' \sqrt{\dfrac{P_{bar}\,\theta}{T_{amb}}}$ = Volume of gas sample passed through the critical orifice, corrected to standard conditions

T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)

K' = Average K' factor from Critical Orifice Calibration

(3) $Y = \dfrac{V_{cr}\,(std)}{V_m\,(std)}$ = DGM calibration factor

5/24/10

Low Flow Cal Spreadsheet

APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING WET-TEST METER #11AE6
5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	XC-563
Console Serial Number	-0912005
DGM Model Number	AP25
DGM Serial Number	1900818

Calibration Conditions				
Date	Time	3-Dec-09	1:00	
Barometric Pressure		29.5	in Hg	
Calibration Technician		EW	Scale Factor,	0.1377
Calibration Meter Gamma		1.0026	Scale Factor$_2$	0.1302

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

Calibration Data

Run Time	Metering Console						Calibration Meter				
Elapsed	DGM Orifice ΔH	Volume Initial	Volume Final	Sample Volume	Outlet Temp Initial	Outlet Temp Final	Volume Initial	Volume Final	Sample Volume	Outlet Temp Initial	Outlet Temp Final
(θ)	(P_m)	(V_{mi})	(V_{mf})	(V_m)	(t_{mi})	(t_{mf})	(Vw_i)	(Vw_f)	(V_w)	(t_{wi})	(t_{wf})
min	in H_2O	cubic feet	cubic feet	cubic feet	°F	°F	cubic feet	cubic feet	cubic feet	°F	°F
5.00	5.0	0.000	6.592	6.592	88	89	517.275	523.415	6.140	74.0	74.0
6.00	3.0	6.592	12.732	6.140	89	89	523.415	529.100	5.685	74.0	74.0
7.00	2.0	12.732	18.567	5.835	89	88	529.100	534.470	5.370	74.0	74.0
10.00	1.0	18.567	24.359	5.792	82	82	534.470	539.860	5.390	74.0	74.0
15.00	0.5	24.359	30.354	5.995	82	80	539.860	545.440	5.580	74.0	74.0

Results

Standardized Data				Dry Gas Meter				
Totalizer Initial		Calibration Meter		Calibration Factor		Flowrate	ΔH @	
				Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($VW_{(std)}$)	($QW_{(std)}$)	(Y)	(ΔY)	($Q_{m(std)(corr)}$)	(ΔH@)	(ΔΔH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
6.335	1.267	6.001	1.200	1.0000	0.001	1.267	1.706	-0.036
5.866	0.978	5.557	0.926	0.9999	0.001	0.978	1.701	-0.041
5.566	0.795	5.249	0.750	0.9970	-0.002	0.793	1.718	-0.025
5.577	0.558	5.268	0.527	0.9990	0.000	0.557	1.751	0.008
5.776	0.385	5.454	0.364	0.9989	0.000	0.385	1.835	0.093
				0.9990	Y Average		1.742	ΔH@ Average

APEX SOURCE TESTING EQUIPMENT INSTRUMENTS

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02

Note: For $\Delta H_@$, orifice pressure differential that equates to 0.75cfm (0.0212m^3/min) at standard temperature and pressure, acceptable tolerance of individual values from the average is +-0.2inches (5.1mm) H_2O.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR 40 Part 60, using the Precision Wet Test Meter # 11AE6, which in turn was calibrated using the American Bell Prover # 157, certified 05/26/2006 using Pi Tape S/N 20700139, which is traceable to the National Bureau of Standards (N.I.S.T.).

Signature [signature] Date 12/3/09

Date: 1/21/2010
Meter Box ID: 912005
Sensor Make/Model: Extech Model 42312
Reference Calibrator Serial No.: 55000154

Reference Temp.		Display Temp.		Difference	Accuracy	Result
°F	°R	°F	°R	°F	%	Pass/Fail
0	460	0	460	0	0.0	Pass
68	528	66	526	2	0.4	Pass
100	560	99	559	1	0.2	Pass
223	683	223	683	0	0.0	Pass
248	708	249	709	1	-0.1	Pass
273	733	274	734	1	-0.1	Pass
300	760	300	760	0	0.0	Pass
400	860	401	861	1	-0.1	Pass
500	960	501	961	1	-0.1	Pass
600	1060	602	1062	2	-0.2	Pass
700	1160	703	1163	3	-0.3	Pass
800	1260	805	1265	5	-0.4	Pass
900	1360	907	1367	7	-0.5	Pass
1000	1460	1008	1468	8	-0.5	Pass
1100	1560	1109	1569	9	-0.6	Pass
1200	1660	1209	1669	9	-0.5	Pass

Accuracy Requirements:

0-100°F = +/- 2°F
223-273°F = +/- 5.4°F
>300°F = 1.5% absolute (°R)

$$°R = °F + 460$$

$$\text{Accuracy} = \frac{\text{Reference Temp } (°R) - \text{Display Temp } (°R)}{\text{Reference Temp } (°R)} \times 100$$

Completed by: Aaron Pate

Alliance SOURCE TESTING

Calibration Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - Condition 1
Project No.: 2010-0071

PITOT TUBE INSPECTION						
Date	Run No.	Inspected By: (initials)	Pitot ID	Any evidence of damage or mis-alignment?	Does this pitot tube meet the alignment criteria?	Calibration/ Repair required?
6/2/10	Runs 1-3	DAB	PT-301-A	No	Yes	No

Each 'S'-Type pitot tube is constructed and maintained according to the alignment criteria outlined in U.S. EPA Rerference Test Method 2. According to Method 2, pitots constructed in this manner may be assigned a coefficient of 0.84. Damaged pitots are recalibrated and either repaired or replaced whenever the coefficient of 0.84 cannot be applied. Standard pitots are also constructed and maintained according with the criteria outlined in Method 2. Standard pitots are assigned a coefficient of 0.99.

STACK THERMOCOUPLE SENSOR CALIBRATION						
Pitot ID	Reference Temperature		Indicated Temperature		Difference Temperature	Difference
	(°F)	(°R)	(°F)	(°R)	(°R)	%
PT-301-A	404.0	864.0	398.0	858.0	6.0	0.7%

Thermocouple sensors are checked during (or after) each field use with a NIST traceable reference thermometer at a temperature within 10% of the average absolute stack temperature.
Test data is considered valid if the sensor and reference thermometer agree within 1.5%.

NOTES	AST does not record unique equipment ID's for Reagent Boxes, Umbilical cords, Tedlar Bags, Orsat Pumps or Sample Boxes.

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

Alliance SOURCE TESTING

Calibration Data

Location: FutureFuel Chemical Company

Source: Boiler 3 Stack - C2, PM/Metals
Project No.: 2010-0071

NOZZLE CALIBRATIONS								
Date	Run No.	Calibrated By: (initials)	Nozzle ID	Nozzle Diameter			Max Difference [1]	Average D
				D1	D2	D3		
				inches	inches	inches	inches	inches
6/3/10	Run 1	DF	G-402A	0.242	0.243	0.242	0.001	0.242
6/3/10	Run 2	DF	G-402A	0.242	0.242	0.242	0.000	0.242
6/4/10	Run 3	DF	G-402A	0.242	0.242	0.242	0.000	0.242
							--	--
							--	--
							--	--

[1] The maximum acceptability criteria is 0.004 inches between any two diameter measurements.
Nozzle calibrations are conducted prior to each test run.

PITOT TUBE INSPECTION						
Date	Run No.	Inspected By: (initials)	Probe / Pitot ID	Any evidence of damage or mis-alignment?	Does this pitot tube meet the alignment criteria?	Calibration/ Repair required?
6/3/10	Run 1	DF	PR-302A	No	Yes	No
6/3/10	Run 2	DF	PR-302A	No	Yes	No
6/4/10	Run 3	DF	PR-302A	No	Yes	No

Each 'S'-Type pitot tube is constructed and maintained according to the alignment criteria outlined in U.S. EPA Rerference Test Method 2. According to Method 2, pitots constructed in this manner may be assigned a coefficient of 0.84. Damaged pitots are recalibrated and either repaired or replaced whenever the coefficient of 0.84 cannot be applied. Standard pitots are also constructed and maintained according with the criteria outlined in Method 2. Standard pitots are assigned a coefficient of 0.99.

STACK THERMOCOUPLE SENSOR CALIBRATION						
Probe/Pitot ID	Reference Temperature		Indicated Temperature		Difference Temperature	Difference
	(°F)	(°R)	(°F)	(°R)	(°R)	%
PR-302A	450.0	910.0	447.0	907.0	3.0	0.3%

Thermocouple sensors are checked during (or after) each field use with a NIST traceable reference thermometer at a temperature within 10% of the average absolute stack temperature. Test data is considered valid if the sensor and reference thermometer agree within 1.5%.

NOTES	AST does not record unique equipment ID's for Reagent Boxes, Umbilical cords, Tedlar Bags, Orsat Pumps or Sample Boxes.

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

v2010.0

Alliance SOURCE TESTING

Method 3A Data

Location: FutureFuel Chemical Company
Date: 6/2/10
Source: Boiler 3 Outlet - Condition 1
Project No.: 2010-0071

CO_2 Concentration Span, % 20.1
CO_2 Response Time :05
O_2 Concentration Span, % 20.0
O_2 Response Time :04

CO_2 CALIBRATION ACCURACY				
Date	Gas Type	Cylinder No.	Actual Concentration, %	Analyzer Concentration, %
6/2/10	ZERO	N/A	0.0	0.0
Time	HIGH	EB0017988	20.1	20.1
7:35 AM	MID	CC7940	10.2	10.2
			Required Accuracy, ± 2% of span	0.4%

O_2 CALIBRATION ACCURACY				
Date	Gas Type	Cylinder No.	Actual Concentration, %	Analyzer Concentration, %
6/2/10	ZERO	N/A	0.0	0.0
Time	HIGH	EB0017988	20.0	20.0
7:35 AM	MID	CC7940	9.9	9.9
			Required Accuracy, ± 2% of span	0.4%

NOTES	

Ryan O'Dea
QA/QC Reviewer

DE: RPO
TL: JDH

v2010.0

Alliance SOURCE TESTING

Method 3A Data

Location: FutureFuel Chemical Company
Date: 6/3/10
Source: Boiler 3 Stack - C2, PM/Metals
Project No.: 2010-0071

CO_2 Concentration Span, % 20.1
CO_2 Response Time :05
O_2 Concentration Span, % 20.0
O_2 Response Time :05

CO_2 CALIBRATION ACCURACY				
Date	Gas Type	Cylinder No.	Actual Concentration, %	Analyzer Concentration, %
6/3/10	ZERO	N/A	0.0	0.0
Time	HIGH	EB0017988	20.1	20.1
11:10 AM	MID	CC7940	10.2	10.1
			Required Accuracy, ± 2% of span	0.4%

O_2 CALIBRATION ACCURACY				
Date	Gas Type	Cylinder No.	Actual Concentration, %	Analyzer Concentration, %
6/3/10	ZERO	N/A	0.0	0.0
Time	HIGH	EB0017988	20.0	20.0
11:10 AM	MID	CC7940	9.9	9.9
			Required Accuracy, ± 2% of span	0.4%

NOTES	

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

v2010.0

Alliance SOURCE TESTING

Method 3A Data

Location: FutureFuel Chemical Company
Date: 6/4/10

Source: Boiler 3 Stack - C2, PM/Metals
Project No.: 2010-0071

CO_2 Concentration Span, % 20.1
CO_2 Response Time :05

O_2 Concentration Span, % 20.0
O_2 Response Time :05

CO_2 CALIBRATION ACCURACY				
Date	Gas Type	Cylinder No.	Actual Concentration, %	Analyzer Concentration, %
6/4/10	ZERO	N/A	0.0	0.0
Time	HIGH	EB0017988	20.1	20.1
7:05 AM	MID	CC7940	10.2	10.2
			Required Accuracy, ± 2% of span	0.4%

O_2 CALIBRATION ACCURACY				
Date	Gas Type	Cylinder No.	Actual Concentration, %	Analyzer Concentration, %
6/4/10	ZERO	N/A	0.0	0.0
Time	HIGH	EB0017988	20.0	20.0
7:05 AM	MID	CC7940	9.9	9.9
			Required Accuracy, ± 2% of span	0.4%

NOTES	

Ryan O'Dea
QA/QC Reviewer

DE: DF
TL: JDH

v2010.0

RED BALL
TECHNICAL GAS SERVICES

Assay Laboratory: Red Ball TGS
555 Fontenac ST
Shreveport, LA 71107
800-551-8150

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	EB0017988	Certification Date:	3/18/2010
Product ID Number:	124240	Expiration Date:	3/17/2013
Cylinder Pressure:	1900 PSIG	MFG Facility:	RBTGS-Shreveport-LA
COA #	GC1003120834-0	Lot Number:	GC1003120834
Customer PO. NO.:		Tracking Number:	040342753
Customer	Stock Item	Previous Certification Dates:	

This calibration standard has been certified per the 1997 EPA Traceability Protocol, Document EPA-600/97/121, using procedure G1 and/or G2. All values certified to be +/-1% NIST Traceable.

Do Not Use This Cylinder Below 150 psig (1.0 Megapascal).

Certified Concentration(s)

Component	Concentration	Analytical Principle	Accuracy
Oxygen	**20.0%**	Magnetic Pressure Analysis	+/- 1% NIST
Carbon Dioxide	**20.1%**	Non Dispersive Infrared Absorptiometry	+/- 1% NIST
Nitrogen	Balance		

Reference Standard(s)

Type	Component	Balance Gas	Concentration	Cylinder Number	Expiration	NIST Reference
GMIS	Oxygen	Nitrogen	22.29%	EB0010824	10/14/2010	NTRM 071001
GMIS	Carbon Dioxide	Nitrogen	19.860%	EB0005778	7/3/2011	PRM 3220368-01

Analytical Information

Component		Oxygen	
Analysis Date:		3/17/2010	
Z 0.1148	S 88.7426	C 79.8689	Conc. 20.0%
S 89.0207	C 79.951	Z 0.1134	Conc. 20.1%
C 79.9639	Z 0.0941	S 88.839	Conc. 20.1%

Component		Carbon Dioxide	
Analysis Date:		3/18/2010	
Z	S	C 72.6499	Conc. 20.1%
S	C 72.6586	Z	Conc. 20.1%
C 72.6586	Z	S	Conc. 20.1%

Z= Zero Gas S= Span Gas C= Candidate Gas

Fred Holt

Fred Holt, CHMM
Quality Control

Red Ball Technical Gas Service
Information and Ordering
800-551-8150
Fax (318-425-6309)

GTS-WELCO
A PRAXAIR JOINT VENTURE

145 Shimersville Road • Bethlehem, PA 18015 • Phone: 610.317.1608 • Fax: 610.758.8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:
NEXAIR GAS TECH LLC
1259 N MCLEAN BLVD
MEMPHIS TN 38108

Doc Number: 00000000327
Order Number: 106434200 - 3
Customer P. O. Number: 716460
Customer Reference Number: AE344

Fill Date: 4/5/2008
Part Number: EV NICDOXE103AS
Lot Number: N/A
Cylinder Style & Outlet: AS 590
Cylinder Pressure & Volume: 2000 psi 140 cu ft

Certified Concentration:

Expiration Date: 4/15/2011
Cylinder Number: CC7940

			Analytical Uncertainty:
9.94	%	OXYGEN	± 1 %
10.20	%	CARBON DIOXIDE	± 1 %

NOx ppm = N/A (NOX Values for Reference Only)

Certification Information: Certification Date: 4/15/2008 Term. 36 Months Expiration Date: 4/15/2011

1 This cylinder was certified according to the 1997 EPA Traceability Protocol, document #EPA-600/R-97/121, using procedure G1
2 Do not use this standard if pressure is less than 150 PSIG.

Analytical Data: (R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: OXYGEN

Requested Concentration: 10 %
Certified Concentration: 9.94 %
Instrument Used: Siemens Oxymat 5E S/N F1-111
Analytical Method: Paramagnetic
Last Multipoint Calibration: 3/28/2008

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC154663
Ref. Std. Conc. 22.98 %
Ref. Std. Traceable to SRM # 2659a

First Analysis Data: Date: 4/14/2008

Z:	0	R:	23.22	C:	10.04	Conc:	9.94				
R:	23.22	Z:	0	C:	10.04	Conc:	9.94				
Z:	0	C:	10.04	R:	23.22	Conc:	9.94				

UOM: Mean Test Assay: 9.94

Second Analysis Data: Date:

Z:	0	R:	0	C:	0	Conc:	0				
R:	0	Z:	0	C:	0	Conc:	0				
Z:	0	C:	0	R:	0	Conc:	0				

UOM: Mean Test Assay: 0

2. Component: CARBON DIOXIDE

Requested Concentration: 10 %
Certified Concentration: 10.2 %
Instrument Used: SIEMENS ULTRAMAT 5E SN: D2-412
Analytical Method: NON-DISPERSIVE INFRARED
Last Multipoint Calibration: 3/17/2008

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC139223
Ref. Std. Conc: 10.13 %
Ref. Std. Traceable to SRM # : 2745

First Analysis Data: Date: 4/15/2008

Z:	0	R:	10.26	C:	10.34	Conc:	10.2				
R:	10.26	Z:	0	C:	10.34	Conc:	10.2				
Z:	0	C:	10.34	R:	10.28	Conc:	10.2				

UOM: % Mean Test Assay: 10.2 %

Second Analysis Data: Date: 4/17/2008

Z:	0	R:	0	C:	0	Conc:	0				
R:	0	Z:	0	C:	0	Conc:	0				
Z:	0	C:	0	R:	0	Conc:	0				

UOM: % Mean Test Assay: 0 %

Analyzed by: Michelle Kostik

Certified by: JB 4/17/08

Information contained herein has been prepared at your request by qualified experts within GTS-Welco, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of GTS-Welco, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

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Attachment B

Quality Assurance Project Plan

APPENDIX E

Comprehensive Performance Test Quality Assurance Project Plan for FutureFuel Chemical Company Coal-Fired Boilers

Prepared by:

FUTUREFUEL CHEMICAL COMPANY
P.O. Box 2357
Batesville, AR 72503
ARD089234884

RISK MANAGEMENT & ENGINEERING, LTD.
705 W. Avenue B, Suite 400
Garland, TX 75040

Revision 2

April 11, 2008
Revised February 13, 2009
Revised May 15, 2009
Revised May 14, 2010

SIGNATURE PAGE

Project Approvals and Distribution:

Project: CPT for FutureFuel Chemical Company, Coal-Fired Boilers

Expected Test Dates: **June 1, 2010 – June 4, 2010**

Signature _____ 5/24/10
Thomas L. Floyd, CPT Manager — Date

Signature _____ 5/12/2010
Jeremy Hutchens, Stack Sampling Project Director — Date

Signature _____ 5/12/10
Ryan O'Dea, Stack Sampling Field Supervisor — Date

Signature _____ 5/24/2010
David A. Weeks, P.E., Project QA/QC Coordinator — Date

Signature _____ MAY 17 2010
Michael D. Challis, Laboratory QA/QC Manager — Date

Note 1) The individuals listed above have received, read, and agreed to the appropriate information pertaining to their project responsibilities listed and provided in this QAPP.

Note 2) The individuals listed above agree that no testing methods have been modified.

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ATTACHMENTS

Resumes of Key Personnel

1 Project Description

FutureFuel Chemical Company (FFCC) owns and operates an organic chemical manufacturing plant located southeast of Batesville, Arkansas. As part of plant operations, FFCC (EPA ID# ARD089234884) generates wastes regulated under the Resource Conservation and Recovery Act (RCRA) and burns some of this waste in its three coal-fired boilers for energy recovery. FFCC is currently operating these boilers under Arkansas Department of Environmental Quality (ADEQ) Waste Permit Number 11H-RN1-M005. FFCC also destroys waste in its on-site incinerator currently operating under its Title V Permit.

In order to complete the renewal of the permit and demonstrate compliance with the MACT standards, FFCC will be conducting a comprehensive performance test (CPT) **in accordance with the SUMMARYOF PLANNED CPT TESTS provided at the end of this section.** FFCC will be conducting the CPT on one of its three identical boilers. Previous testing demonstrated that the boilers are in compliance with the emission requirements under the NESHAPS: Final Standards for Hazardous Air Pollutants for Waste Combustors; Final Rule, effective October 12, 2005.

FFCC will conduct the comprehensive performance test (CPT) and use the results of the test to submit a notice of compliance (NOC) to the EPA and ADEQ, at which time FFCC will begin complying with the operational parameters and limits established within that NOC. As the overall schedule in Table-1.1 lists, FFCC's goal is to complete this process by April 12, 2009 within 6-months of the MACT deadline of October 14, 2008. If the NOC is not in place by the October 14, 2008 compliance date, FFCC will comply with a certified Documentation of Compliance (DOC). The DOC will certify that the boilers are designed and will be operated in a manner that ensures compliance with the emission standards of 40 CFR 63, Subpart EEE. FFCC's projected schedule can be reviewed in Table 1.0. **The completion date of the CPT is 6 months after the MACT**

deadline of October 14, 2008.

SUMMARY OF PLANNED CPT TESTS

Unit Name[1]	Regulatory Requirements MACT, RCRA etc. [2] (Specify Reg. No.)	Standard to be Met[3]	Sampling and Analytical Parameters/ Method Numbers	MTEC (Yes or No)	Date in Lieu of (Yes or No)	Test Condition: 1[4] (39.75 MM BTU/hr)	Test Condition: 2[4] (96.3 MM BTU/hr)	Test Location: Waste Feed (WF) Stack Gas (SG)	Purpose of Testing / Comments Any AMAs? (Yes or No) Any Risk Testing ? (Yes or No)
BLR 1	see BLR 3	See BLR 3	see BLR 3	see BLR 3	See BLR 3	See BLR 3	See BLR 3	See BLR 3	AMA – Yes (BLR 3 data to be used for BLR 1) Risk - No
BLR 2	see BLR 3	See BLR 3	see BLR 3	see BLR 3	See BLR 3	See BLR 3	See BLR 3	See BLR 3	AMA – Yes (BLR 3 data to be used for BLR 1) Risk - No
BLR 3 Liquid Organic Waste	NA	NA	Specific Gravity	No	No	X -	X -	WF	No, No
	1207(f)(1)(A)	TBD	Ash/ASTM D-482	No	No		X	WF	No, No
	1207(f)(1)(A)	145.6 lb/hr including coal	Chlorine/ SW-846 9076	Yes	No		X	WF	No, No
	1207(f)(1)(A)	NA	Heat Value/ASTM D-240	No	No	X	X	WF	No, No
	1207(f)(1)(A)	TBD	SVM/ICP AES 200.7 or 200.8	No	No		X	WF	No, No
	1207(f)(1)(A)	TBD	LVM/ICP AES 200.7 or	No	No		X	WF	No, No

Unit Name[1]	Regulatory Requirements MACT, RCRA etc. [2] (Specify Reg. No.)	Standard to be Met[3]	Sampling and Analytical Parameters/ Method Numbers	MTEC (Yes or No)	Date in Lieu of (Yes or No)	Test Condition: 1[4] (39.75 MM BTU/hr)	Test Condition: 2[4] (96.3 MM BTU/hr)	Test Location: Waste Feed (WF) Stack Gas (SG)	Purpose of Testing / Comments Any AMAs? (Yes or No) Any Risk Testing ? (Yes or No)
			200.8						
	1207(f)(1)(A)	TBD	Mercury/EPA Method SW-846 7470A	No	No		X	WF	No, No
BLR 3 Liquid Organic Waste Cont.	1207(f)(1)(A)	TBD	POHC/SW-846 5050b, 8260b	No	No	X	X	WF	No, No
BLR 3 Coal	1207(f)(1)(A)	TBD	Ash/ASTM D-482	No	No		X	WF	No, No
	1207(f)(1)(A)	145.6 lb/hr including waste	Chlorine/ SW-846 9076	Yes	No		X	WF	No, No
	1207(f)(1)(A)	NA	Heat Value/ASTM D-240	No	No	X	X	WF	No, No
	1207(f)(1)(A)	TBD	SVM/ICP AES 200.7 or 200.8	No	No		X	WF	No, No
	1207(f)(1)(A)	TBD	LVM/ICP AES 200.7 or 200.8	No	No		X	WF	No, No
	1207(f)(1)(A)	TBD	Mercury/EPA Method SW-846 7470A	No	No		X	WF	No, No
BLR 3 Stack	1207(f)(1)(4)	PRT: 68 mg/dscm	Particulate, SVM, LVM,	No	No		X	SG	No, No

Unit Name[1]	Regulatory Requirements MACT, RCRA etc. [2] (Specify Reg. No.)	Standard to be Met[3]	Sampling and Analytical Parameters/ Method Numbers	MTEC (Yes or No)	Date in Lieu of (Yes or No)	Test Condition: 1[4] (39.75 MM BTU/hr)	Test Condition: 2[4] (96.3 MM BTU/hr)	Test Location: Waste Feed (WF) Stack Gas (SG)	Purpose of Testing / Comments Any AMAs? (Yes or No) Any Risk Testing ? (Yes or No)
Gas		SVM: 180 ug/dscm LVM: 380 ug/dscm Hg: 11 ug/dscm	Hg/Combined EPA Method 5 and Method 29						
	1207(f)(1)(4)	HCl Equivalent ER ≤ 1,886.8 lb/hr	Chlorine/ No Stack Test	Yes	No			SG	No, No
	1207(f)(1)(4)	DRE ≥ 99.99%	POHC/SW-846 Method 0030	No	No	X	X	SG	No, No
	1207(f)(1)(4)	THC ≤ 10 ppmv	PCDD/PCDF / No Stack Test	No	Yes		X	SG	No, No
	1207(f)(1)(4)	THC ≤ 10 ppmv	THC/EPA Method 25A	No	No	X	X	SG	No, No
	1207(f)(1)(4)	TBD	Stack Velocity and Flowrate/ EPA Method 2	No	No	X	X	SG	No, No
	1207(f)(1)(4)	NA	Stack Gas Molecular Weight/EPA Method 3	No	No	X	X	SG	No, No
	1207(f)(1)(4)	NA	Stack Gas Moisture/EP	No	No	X	X	SG	No, No

Unit Name[1]	Regulatory Requirements MACT, RCRA etc. [2] (Specify Reg. No.)	Standard to be Met[3]	Sampling and Analytical Parameters/ Method Numbers	MTEC (Yes or No)	Date in Lieu of (Yes or No)	Test Condition: 1[4] (39.75 MM BTU/hr)	Test Condition: 2[4] (96.3 MM BTU/hr)	Test Location: Waste Feed (WF) Stack Gas (SG)	Purpose of Testing / Comments Any AMAs? (Yes or No) Any Risk Testing ? (Yes or No)
			A Method 4						

Key: Place an "X" in the designated proposed testing condition or conditions

[1] Specify name of boiler/industrial boiler/incinerator which will be used during the CPT.
[2] Testing Requirement. Test relation to Permit Limits stated in Table 6 of the CPT.
[3] Standard to be Met. Concentration Limit for Stack Gas, Feed Rate Limit for MTEC. Feed Rate Limits for Non-MTEC Parameters to be Determined from CPT data (TBD). Chlorine Feed Rate Limit and HCL Equivalent Emission Rate Limit Based on Alternative Chlorine Standard, See Attachment D to CPT Plan.
[4] Test Condition 1 will be a low temperature or maximum residence time test. Test Condition 2 will be a high temperature or minimum residence time test. (See Section E of the Boiler CPT).

1.1 Location Description

Stack gas sampling for this test program will be conducted on a temporary exhaust stack isolating Boiler #3. One organic waste feed stream, and one solid-fuel (coal) feed stream will be sampled.

1.2 Laboratory Subcontractors

The stack sampling firm will only use laboratories that meet all QA/QC requirements, are certified by the ADEQ, and that are approved by FFCC.

Table 1-1. Laboratories Performing Analyses

Parameter	Stream	Laboratory
Viscosity, Specific Gravity, Heating Value, Ash, Chlorine	Process	Commercial Lab
Metals	Process	Commercial Lab
Volatile Organics	Process	Commercial Lab
Chlorine	Process	Commercial Lab
Volatile Organics	Stack Gas	Commercial Lab
Metals and Particulate	Stack Gas	Stack Sampling Firm and Commercial Lab
Moisture, Temperature, Flow Rate, Molecular Weight.	Stack Gas	Stack Sampling Firm Field
Total Hydrocarbons	Stack Gas	On-site CEMS

2 Organization of Personnel, Responsibilities, and Qualifications

FFCC and the stack sampling team have specific unique duties in the implementation of the CPT project. These duties are summarized as follows.

FFCC will:

- Report all feed rates and boiler system process parameters;
- Operate the boiler system, and;
- Procure and prepare waste feeds, including spiking of POHCs and metals.
- Obtain samples of the waste and solid fuel feeds

Stack Test Firm will:

- Perform emission measurements;
- Implement the QA program for the emissions testing;
- Provide custody of stack samples and process samples generated by the test efforts; Transportation of the samples to the laboratories for analysis; and
- Prepare the stack and process sampling report and supporting documentation.

Independent QA Auditor will:

- Verify the authenticity of the waste POHC, metals emulsion, and spiking system;
- Observe the operation of the boiler system and process parameter collection;
- Observe metals spiking;
- Observe emissions testing;
- Observe collection of stack samples and process samples;
- Verify that CPT is conducted according to the CPT plan

2.1 FFCC CPT Manager

The comprehensive performance test manager will be Mr. Thomas L. Floyd. Mr. Floyd is an FFCC employee and will be responsible for implementing and coordinating all aspects of the comprehensive performance test. **The Manager's resume is appended to this Plan.**

2.2 FFCC Boiler Operations Supervisor

The boiler operations supervisor will be Mr. Eddie Brown. Mr. Brown is an FFCC employee, and will be responsible for the overall operation boiler during the comprehensive performance test.

2.3 FFCC Process/Spiking Coordinator

The process sampling and spiking coordinator will be Mr. Mike Gillihan. Mr. Gillihan is an FFCC employee, and will be responsible for the coordination of process sampling and spiking during the comprehensive performance test.

2.4 RME Quality Assurance Coordinator

Mr. David Weeks, P. E., an employee of the Risk Management & Engineering, L.L.C., will serve as an independent third-party quality assurance auditor independent of FFCC and Stack Test Firm **and will coordinate QA/QC efforts between the facility personnel, stack testing personnel, and laboratory personnel**. **The QA/QC Coordinator's resume is appended to this Plan. It is QA Coordinator's responsibility to confirm that there is not any invalid or unusable data stated in the CPT Report.**

2.5 Stack Test Firm Project Director

The stack test firm is E. Roberts Alley & Associates, Inc. The stack test firm's Project Director **(Mr. Jeremy Hutchens)** for the FFCC CPT will provide oversight and review of all project activities. The project director will participate in and review project planning, project meetings, and all technical elements of the project. **The Director's resume is appended to this Plan.**

2.6 Stack Test Firm Field Supervisor

The stack test firm field supervisor **(Mr. Ryan O'Dea)** will be responsible for the overall stack test team on site. This person will coordinate and supervise the stack sampling activities during the CPT, and will contribute significantly to the completion of the final stack sampling report.

2.7 Stack Test Firm Sampling and Analysis Laboratory Coordinator

The stack test firm sampling and analysis laboratory coordinator **(Mr. Jeremy Hutchens)** will act as liaison between the field CPT field sampling and the commercial laboratory. This person will coordinate the collection of the stack samples and will be responsible for labeling and shipping all samples from the CPT. They will manage the chain of custody and preservation of the samples, and will contribute significantly to the completion of the final stack sampling report.

2.8 Stack Test Firm Reporting Coordinator

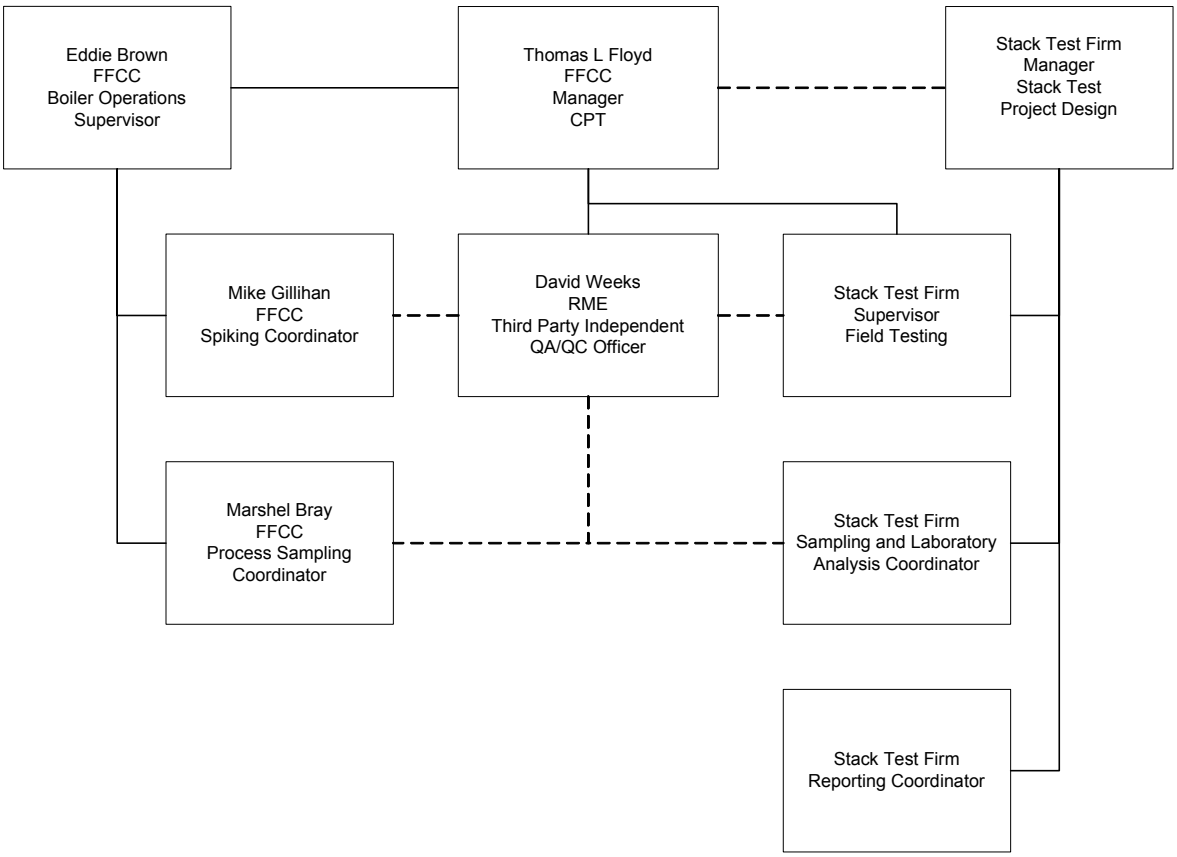
The stack test firm reporting coordinator **(Ms. Brandy Hughes)** will be responsible for writing the stack and process sampling report. This person will prepare the stack test team report and supply this report to FFCC in a timely manner.

2.9 Commercial Laboratory

Commercial Lab analytical programs include analyses of water, soil, sludge, oil, ash, air, and industrial waste materials from samples collected in support of RCRA, Superfund, Safe Drinking Water Act, National Pollutant Discharge and Elimination System (NPDES), Clean Air Act and other regulatory or industrial programs. The commercial lab support methods include: EPA published methods, Standard Method protocols, National Institute of Occupational Safety and Health methods, ASTM Methods, and Association of Official Analytical Chemists methods. The lab must be certified by the ADEQ. **The analytical laboratory is Maxxam Analytics, Inc. The laboratory QA/QC Officer is Mr. Michael D. Challis. Mr. Challis's resume is appended to this Plan.**

Figure 2.2

CPT Organization



As the laboratory QA/QC Officer, Mr. Challis will sign-off on the case narrative report. The case narrative will state whether or not all the QA/QC expectations for the analysis were met. If all the QA/QC expectations were not met, it will be the responsibility of the Quality Assurance Coordinator to make an assessment of the data and the impact of the QA/QC issues on the use of the data. Such and assessment will be provided in the Quality Assurance Coordinators independent report.

3 Data Quality Objectives

The overall measurement objective of this CPT is to determine the effectiveness of the solid fuel fired boilers in achieving thermal destruction and removal of the hazardous constituents in the combustion gas and wastes. FFCC is committed to ensuring that the data generated during this project are scientifically valid, defensible, complete, and of known precision and accuracy. These objectives can be best achieved by applying the requirements of EPA-accepted methodology as well as the more specific recommendations and guidelines specific to trial burns. To ensure the consistency and adequacy of plans, reports, and overall data quality, guidance from the following documents have been integrated into the approaches and philosophies in this QAPP:

- *Test Methods for Evaluating Solid Waste*, SW-846, Chapter One, 3rd edition, July 1992 (most recent revision December 1996);
- *QA/QC Procedures for Hazardous Waste Incineration*, EPA/625/6-89/023, January 1990, henceforth referred to as the "QA/QC Handbook;" and
- 40 CFR Part 60, Appendix A.

This section presents project-specific data quality objectives for this CPT. These represent the level of data quality that would be considered acceptable for valid decision-making, as measured in a manner which best reflects performance in the actual project matrices.

These data quality objectives are distinguished from the method performance criteria (in SW-846 and other references), which are required to ensure that the analytical methods are performed correctly but do not necessarily address project-specific objectives. Most analytical methods contain specified QA/QC acceptance criteria for method performance. These acceptance criteria and approaches are the results of years of multi-laboratory studies that have proven scientific validity and defensibility, although the matrix-specific criteria are not developed specifically for combustion off-gas or process samples. Although the QA/QC procedures included in the QA/QC Handbook lack the statistical approach in establishing acceptance criteria for the specified methodology, this document does provide specific guidance for trial burns. It is important that these objectives be defined in terms of project requirements, not in terms of the capabilities of the test methods used, per se. In this context, QA objectives should not only be attainable by the chosen methods of sampling, sample preparation, and analysis, but should indicate the quality necessary to draw valid conclusions regarding the achievement of the objectives of the program, such as provided in the QA/QC Handbook. Key measures of successful achievement, which apply to all environmental measurement programs, include the objectives for precision, accuracy, representativeness, completeness, and comparability (commonly referred to as PARCC parameters).

Another important performance requirement is the adherence to method identified target detection limits. The spiking feed rates and stack gas sampling times identified in this document are based on the laboratory's ability to meet the detection limits identified for the method. Work has been coordinated with the laboratories such they fully understand what detection limits are appropriate and how analytical results found to be at or below detection limits are to be reported. No data results will be reported as ND with a referenced determined detection limit also stated on the analytical report.

3.1 Quality Control Parameters

3.1.1 Precision

Precision is a measure of the reproducibility of results under a given set of conditions. It is expressed in terms of the distribution, or scatter, of replicate measurement results, calculated as the relative standard deviation (RSD) or, for duplicates, as relative percent difference (RPD).

3.1.2 Accuracy

Accuracy is a measure of the difference between an analysis result and the "true" or expected value. Accuracy is expressed in terms of percent recovery (e.g., for surrogates, spikes, and reference material).

Table 3-1 provides the project specific QC procedures for assessing accuracy and precision measurements for critical measurement parameters. Critical parameters are those that directly relate to the demonstration of regulatory compliance. These tables list the parameter of analysis, QC parameter, QC procedure, frequency at which accuracy and precision are determined, and objective.

3.1.3 Representativeness

Representativeness is defined as the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, process condition, or an environmental condition. An appropriate sampling strategy that addresses collection of representative samples in time and space is crucial to subsequent decision-making and defensibility of the data. The selection of suitable locations and sampling strategies, as described in this QAPP, and adherence to sample collection protocols, is the basis for ensuring representativeness.

3.1.4 Comparability

Comparability is defined as expressing the confidence with which one data set can be compared to another. A representative sample whose results are comparable to other data sets is ensured primarily through the use of standard reference sampling and analytical methods. Reported in common units, the results generated should thus be comparable to those obtained from other trial burns and allow for consistent decision making.

Table 3-1 Quality Control Objectives for Stack Gas Samples

Analytical Parameters	QC Parameters	QC Procedure	Frequency	Objective[1]
Volatile Organic Compounds (Method 8260B)	Accuracy	Surrogate Recovery: toluene-d8	Every sample	50-150% recovery
	Precision	Surrogate Recovery: toluene-d8	Calculate RSD (overall for the CPT)	<35% RSD of recovery
Metals (Method 6020)	Accuracy	Matrix Spike	1 per CPT	70-130% recovery
	Precision	MS/MSD	1 per CPT	<25% RPD of recovery

1. QA/QC Procedures for Hazardous Waste Incineration (EPA/625/6-89/023).

3.1.5 Completeness

Completeness is defined as "the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under optimal normal conditions". As stated in the QA/QC Handbook:

> "For the permit to be written, completeness should be 100% in that three valid test runs are needed for each test condition. Acceptable results must be obtained for all three trial burn runs. However, when individual tasks and problems are considered, completeness is not so easily defined. For example, in VOST tube analyses four samples are often collected, and three are analyzed unless there are problems. Although only three of four samples have been analyzed, a valid result for a test run was obtained; the test is 'complete'. The concept of completeness as defined for a QAPP is probably more pertinent to an entire monitoring project, where a certain amount of data is needed to complete the statistical design."

In the overall project context, the target is 100% completeness, which for a valid test condition, is defined as consisting of three valid test runs. A valid test run is one in which sufficient valid data is presented to make any necessary demonstrations and to enable the permit writer/reviewer to write appropriate permit conditions or to be confident about demonstration of compliance with a current permit.

A run can be valid even though the completeness objective of 100% for the data package is not achieved. Given the possibility of human error (and other unpredictable problems) and the unfeasibility of collecting additional samples after a trial burn is completed, the impact of achieving less than 100% completeness must be assessed in the specific situation, rather than arbitrarily rejecting all the useable scientific information for the run without such consideration. For example, satisfying the completeness objective for a single piece of analytical data includes providing documentation that an acceptable number of sub-samples were collected and composited, compositing procedures were followed, the sample collection log was completed, that shipping documents and laboratory instructions were prepared and followed, that the correct analytical procedures were followed, any necessary modifications to methodology were documented and justified, and approved laboratory records were complete, proper data reduction procedures were followed, and analytical instrument printouts were included. Clearly, the failure of a sampler to note the time a sub-sample was taken (where the previous and following sample times are noted) has less impact on the validity and acceptability of a data package than a failure by the laboratory to demonstrate that the analytical instrument was properly calibrated.

Any such errors or omissions in a data package will therefore be identified and accompanied by a discussion of potential impact on the validity of the data package, the conclusions of the report, and the demonstration of performance standards for the consideration and approval of the regulatory agency.

3.2 Discussion

As noted above, there are QC measures inherent in the analytical methods, such as instrument calibration, reagent blank analyses, ongoing calibration verification, drift checks, retention time window checks, laboratory control sample analyses, etc. These are designed to monitor and control system performances and are used to initiate corrective action, as required, to meet the performance criteria of the methods. For example, recovery of laboratory control sample (LCS) for POHC analysis of waste needs to be within the method control limits; otherwise, the analyses must stop and the LCS re-analyzed until it is within control limits. Once the LCS has met the QA/QC criteria, analyses may be resumed.

The QC objectives for this program are based upon measures of data quality that, unlike the analytical method QC checks discussed in Section 8, address the measurement precision and accuracy as they reflect actual sample matrices. These are designed to assess, rather than control, data quality. In this assessment, the results for the performance indicators obtained during the CPT will be compared with the QC objectives and the impact of not meeting any objectives evaluated in light of the significance of the particular measurement. For example, a low recovery of POHC in a waste feed (as indicated, for example by low matrix spike recoveries) does not require reanalysis, but assessment of the results. In this case, the result is a conservative (i.e., low) estimate of DRE.

4 Sampling Procedures

The following are descriptions of the process and stack sampling procedures to be performed during the CPT.

4.1 Waste Feed and Process Sample Collection Procedures

The waste feed and process samples will be collected by FFCC personnel according to the Summary of Sampling and Analysis Program outlined in the CPT plan Table 5.0.

4.2 Stack Gas Sampling Procedures

The gas sampling protocols will be EPA Methods 1, 2, 3, 4, 5, 25A, and 29 published in Title 40 CFR Part 60, Appendix A and the SW-846 Method 0030. The most recent versions of these methods will be used. Pretest and post-test leak checks will be performed for each sampling train, as required in the respective test methods. Leak checks will also be performed at port changes. Table 4-1 summarizes the sampling procedures and frequencies to be used during the CPT for collection of samples of stack gas. QA/QC sampling procedures and frequencies are found in Section 8.0.

4.2.1 Sampling Point Determination – EPA Method 1

The number and location of the gas sampling points will be determined according to the procedures outlined in EPA Method 1. Verification of absence of cyclonic flow will be conducted prior to testing by following the procedure described in EPA Method 1.

4.2.2 Flue Gas Velocity and Volumetric Flow Rate–EPA Method 2

The flue gas velocity and volumetric flow rate will be determined according to the procedures outlined in EPA Method 2. Velocity measurements will be made using Type S pitot tubes conforming to the geometric specifications outlined in EPA Method 2. Each pitot tube is calibrated in a wind tunnel and a specific calibration coefficient is calculated. Differential pressures will be measured with fluid manometers. Effluent gas temperatures will be measured with thermocouples equipped with digital readouts.

4.2.3 Flue Gas Composition and Molecular Weight – EPA Method 3A

The composition of the bulk gas and the gas molecular weight at the stack (concentration of carbon dioxide and oxygen) will be collected using EPA Method 3. An integrated sample of gas will be extracted from a single point and collected in a Tedlar bag for each run. The sample will be analyzed for carbon dioxide and oxygen using an Orsat analyzer. The calculated molecular weight will be used for all isokinetic calculations and corresponding emissions corrected to 7% oxygen.

Table 4-1. Sampling Summary for Stack

Sampling Train and Analyses Performed	Sampling Method Reference(s)	Sampling Frequency and Details	Samples Collected at the Stack
Flow Rate	40 CFR Part 60, Appendix A, Methods 1-4	1 per run , > 21 dscf	3
VOST Chlorobenzene, Volatile Organics	SW-846 Method 0030	4 tube pairs per run, 30 minutes per tube pair Analyze 3; 4th is backup	3 complete sets
Multi-Metals and Particulate Train	40 CFR Part 60, Appendix A, Method 29	1 per run >45 dscf >120 min	3
Orsat O_2 and CO_2	40 CFR 60, Appendix A, Method 3A	1 per run 120 minutes	3
CEM (facility analyzer) O_2	N/A	Continuous	Continuous
CEM (*facility* analyzer) THC	N/A	Continuous	Continuous

4.2.4 Flue Gas Moisture Content–EPA Method 4

The flue gas moisture content will be determined in conjunction with each isokinetic train and according to the sampling and analytical procedures outlined in EPA Method 4. The impingers will be connected in series and will contain reagents as described in the following sections. The impingers will be contained in an ice bath to assure condensation of the moisture from the flue gas stream. Any moisture that is not condensed in the impingers is captured in the silica gel; therefore, moisture can be weighed and entered into moisture content calculations.

4.2.5 Monochlorobenzene (MCB) – SW-846 Method 0030 (VOST)

SW-846, 3rd edition, Method 0030 Volatile Organic Sampling Train (VOST) will be used to sample stack emissions for determination of MCB. The VOST system draws effluent stack gas through a series of sorbent traps. The first trap will contain Tenax™ resin, and the second will contain a section of Tenax followed by a section of activated charcoal. A water-cooled condenser arranged so that condensate will drain vertically through the traps will precede the traps. New Teflon sample transfer lines will be used, and the sampling train will use greaseless fittings and connectors.

The laboratory provides GC quality Tenax and generally uses it without any post-purchase cleanup. This material is cleaned by the manufacturer and is tested on a lot basis to ensure that it meets the QA requirements of <10 ng per tube of any target compound. The tubes are stored at 4°C over charcoal prior to conditioning. Each tube is conditioned for greater than 4 hours at 235°C with a flow of ultra high purity nitrogen at a rate of >100 ml N_2/min. The tubes meet the "blank" criteria and are consistent with the requirements of the method: "The actual conditioning period may be determined based on adequacy of the resulting blank checks."

Sampling will take place for 120 minutes per test run; three test runs will be performed per test condition. Sampled gas will be passed through each pair of traps for 30 minutes; 4 pairs of traps will be collected per run, 12 pairs per condition. One sample of condensate will be collected for the total VOST sampling run (four pairs). Three of the four pairs of VOST tubes will be analyzed for each run to represent a 2-hour test run. The fourth will be held for backup and analyzed if any of the first three cannot be analyzed. The VOST probe will be kept at or above 130°C during sampling. The VOST will be operated at a sampling rate of approximately 0.67 L/min (20 L per sample). VOST sampling procedures will strictly adhere to SW-846, 3rd edition, Method 0030.

Analyses of VOST samples will follow Method 5041A from SW-846, 3rd edition. Each pair of traps and the condensates will be analyzed and reported separately and the total reported for each test run. The organic contents of a sample will be thermally desorbed into water using a carrier gas. The desorbed compounds will then be purged from the water and collected on an analytical trap containing Tenax and charcoal. The compounds are then desorbed off the trap into the gas chromatograph/mass spectrometer (GC/MS).

Each pair of traps will be analyzed separately to measure VOST breakthrough. Breakthrough is present if the catch on the second tube exceeds 30% of the first tube and is above 75 ng.

Extra sorbent cartridges will be taken to the sampling site to serve as field and trip blanks. One pair of VOST tubes, designated as a field blank, will be exposed to the ambient air at the sampling location. The exposure time will correspond to the amount of time required to load and unload a pair of VOST tubes onto the sampling train. The tubes will be collected and recovered for each run. The field blank will be capped and stored for transport in the same manner as the sample-exposed cartridges. The field blanks will be analyzed by the same method as the actual samples. An additional pair of tubes, designated as a trip blank, will be transported to and from the field and

otherwise treated as the other cartridges, except that the caps will not be removed. The trip blank will not be analyzed unless the field blanks suggest possible contamination.

VOST media, reagents, and samples are kept separate from all other samples and material to minimize potential contamination. The impact of this contamination is assessed by the blank protocols described above.

A VOST audit will be performed on the VOST audit cylinder supplied by EPA (if provided). If a cylinder of audit gas is provided, the target QA objective for comparison with the analytical results will be ± 50% from the certified concentration of the audit gas.

4.2.6 Metals–EPA Method 29

Stack samples for determination of metals and particulate will be collected according to the sampling method specified in EPA Method 29. This method is operated in the same manner as a regular EPA Method 5 sampling train. Pretest preparations, preliminary determinations, and leak check procedures will be those outlined in EPA Method 5. Borosilicate glass or quartz probe liners and nozzles will be used to avoid possible contamination.

The average sampling rate for each run will be within ± 10% of isokinetic conditions. Each test run will be a minimum of 120 minutes in duration and will sample a minimum of 45 dscf.

The train is configured as a typical Method 5 train; i.e., glass nozzle, heated glass probe, filter, and impingers. In accordance with the recommendation of the method, the filter will be quartz fiber.

The configuration of the impinger train will be as follows:

- Impinger 1: Empty modified Greenburg-Smith to serve as a knockout;
- Impinger 2: Modified Greenburg-Smith containing 100 mL of 5% nitric acid (HNO_3) and 10% hydrogen peroxide (H_2O_2);
- Impinger 3: Greenburg-Smith containing 100 mL of 5% HNO_3 and 10% H_2O_2
- Impinger 4: Empty modified Greenburg-Smith;
- Impingers 5 and 6: Modified Greenburg-Smith containing 100 mL each of 4% potassium permanganate ($KMnO_4$) and 10% sulfuric acid (H_2SO_4); and
- Impinger 7: Modified Greenburg-Smith containing silica gel.

The front half of the sampling train will be rinsed with 0.1 N nitric acid to recover the metals. After impinger adsorbing solution recovery, the filter backhalf and the first three impingers will be recovered with 0.1 N nitric acid. The fourth impinger will be recovered separately with 0.1 N nitric acid.

Impingers five and six are rinsed with permanganate impinger solution and deionized water. These rinses are combined with the collected impinger catch from these two impingers. The impingers are then rinsed with 8N hydrochloric acid; this rinse is kept separate.

The probe and nozzle rinse, filter, and contents and rinses from impingers 1 through 3 are analyzed for all the analytes of interest. The contents and rinses from impingers 4, 5, and 6 are analyzed for mercury only.

The condensate catch determination will be performed according to EPA Method 4 procedures. SW-846 Method 6020 Inductively Coupled Plasma (ICP) will be used to determine the concentration of all metals except mercury. SW-846 Method 7470A utilizing CVAA will be used to determine mercury emissions. Particulate sample results will be developed in accordance with EPA Method 5.

4.2.7 Facility Continuous Emission Monitors

The concentration of oxygen (O_2) and total hydrocarbon (THC) will be continuously monitored by the facility's CEM system.

4.2.8 Total Hydrocarbon Monitor (THC)—EPA Method 25A

The total gaseous hydrocarbon concentration (THC) will be determined in accordance with the procedures outlined in EPA Method 25A. A continuous sample of the flue gas will be delivered to a J.U.M. Model VE-7 through a heated sample line. A single opening stainless steel probe will be used to collect the sample. The probe will be located in the 10% central area of the stack cross-section as described in 40 CFR Part 60, Method 25A, Section 3.2.

This instrument operates on the principle of flame ionization, a phenomena in which combustion of hydrocarbons results in the generation of carbon ions. This process yields a current directly proportional to the carbon content of the molecules in the gas stream. The current is converted to a voltage output and recorded continuously on a strip chart, as well as a computerized data acquisition system.

The THC analyzers will be operated at the appropriate range. The instrument is calibrated using EPA Protocol Number 1, National Institute of Standards and Technology (NIST) concentrations of propane in Nitrogen (N_2). Sample gas to the THC analyzer will pass through an in-stack filtering system to remove particulate matter. The wet-basis concentration of THC is then reported in ppmv as propane. To ensure accuracy of the J.U.M. THC Analyzer, a set of four calibration gases will be injected through the reference Method 25A sampling system before the compliance testing to demonstrate the linearity of the analyzer. These four gases will consist of purified zero air, propane at 25%-35% of span (low), propane at 45%-55% of span (mid), and propane at 80%-90% of span (high).

Calibration and linearity checks are performed throughout the entire sampling system before and after each test period. "Zero drift" checks are made after each run to adjust the concentration bias due to drift. All parts of the sample extraction system and analyzer are heated to a temperature of at least 250°F.

5 Sample Custody

Sample custody procedures for this program are based on procedures from the QA/QC Handbook, and SW-846, Chapter 1. The procedures that will be used are discussed below.

5.1 Field Sampling Operations

The stack sampling firm will be responsible for ensuring that custody and sample tracking documentation procedures are followed for the field sampling and field analytical efforts. Documentation of all sample collection activities will be recorded on the chain of custody forms. Documentation of field activities will include, at a minimum, the following:

- Sample ID Log. The log, when completed, will indicate:
  - List of all samples taken,
  - Time and date of sampling,
  - Description of sample, and
  - Unique identifier for each sample;

- Sample data forms for stack samples, waste samples, and process samples. When completed, each form will indicate:
  - Sampler's name,
  - Date and time of sample collection,
  - Sampling technique,
  - Compositing technique,
  - Sample identifier, and
  - Sampling location;

- Sample transfer forms. When samples are shipped, shipment will be accompanied by a sample tracking and custody form indicating:
  - Every sample shipped (by identifier),
  - Sample preservation requirements,
  - Analysis and preparation procedures required,
  - Special requirements [e.g., matrix spike/matrix spike duplicate (MS/MSD)], and
  - Signature of individual relinquishing sample custody;

- Upon receipt by the laboratory, the following will be recorded on the sample tracking and custody form or an attachment to the form:
  - Condition of samples received,
  - Temperature of samples upon receipt,
  - Any discrepancy between information on form and sample labels, and
  - Signature of person receiving samples.

Every record pertaining to sample collection activities, including, but not limited to, stack sampling data sheets, process sample data sheets, sample tracking forms, sample ID log, sampling equipment calibration forms, balance calibration forms, and reagent preparation shall be submitted with the report to provide evidence that the samples were handled properly, taken at the correct time and in the correct manner, assigned a unique identifier, received intact by the laboratory, and that sample preservation was appropriate. If samples are not traceable or not properly handled, explicit justification for data acceptance will be provided.

Samples will be collected, transported, and stored in clean containers that are constructed of materials inert to the analytical matrix, such as glass jars. Only containers that allow airtight seals will be used. Amber glass will be employed when needed.

Stack sampling data, including information regarding sampling times, locations, and any specific considerations associated with sample acquisition will be recorded on preformatted data sheets.

The sample ID log and sample labels will be numbered in advance. Unique sample identification numbers will be recorded on each sample bottle label, in the sample ID log, and on the sample tracking forms.

Waste feed and process samples that are collected will be packed by the stack sampling firm for transfer or shipment to the appropriate laboratories. Sample tracking and custody forms, which include sample identification and analysis request, will be enclosed in the sample shipment container.

5.2 Stack Sampling Firm Field Laboratory Operations

The stack sampling firm will provide an on-site laboratory trailer for sample train assembly, recovery, documentation, and record keeping activities. Sample tracking documentation, shipping records, reagent and standards traceability, and all sampling activity records will be maintained in the stack sampling firm's trailer.

Documentation of on-site analysis activities, such as calibration, standards traceability, sample preparation steps, and raw measurement results will be also be maintained on site.

6 Calibration Procedures and Frequency

This section presents a brief discussion of calibration procedures to be used for sampling equipment as well as the frequency of calibration. Analytical calibration is not addressed in this section. Rather, calibration is discussed in detail within the methods themselves.

6.1 Sampling Equipment

All sampling equipment will be provided by the stack sampling firm. The equipment will be calibrated by the stack sampling firm prior to arrival. The equipment will also be calibrated after all testing has been completed.

The sampling equipment calibration requirements and acceptance limits are listed in Table 6.1.

The equipment is calibrated according to the criteria specified in the reference method being employed. In addition, the stack sampling firm will follow the guidelines set forth in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods (EPA-600/4-77-027b), and Methods Manual for Compliance with the BIF Regulations – Burning Hazardous Waste in Boilers and Industrial Furnaces (EPA/530-SW-91-010). Dry gas meters, orifices, nozzles, and pitot tubes are calibrated in accordance with these documents. The range of the calibration is specified for all environmental measurements to encompass the range of probable experimental values. This approach ensures that all results are based upon interpolative analyses rather than extrapolative analyses. Calibrations are designed to include, where practical, at least four measurement points evenly spaced over the range. This practice minimizes the probability that false assumptions of calibration linearity will be made. In addition, it is common practice to select, when practical, at least one calibration value that approximates the levels anticipated in the actual measurement.

Following the test program, calibrations are checked on all relevant items of sampling equipment to ensure the validity of data collected in the field according to the procedures outlined in Section 6.

Calibrations are conducted in a manner that meets or exceeds U.S. EPA specifications. The stack sampling firm should follow the calibration procedures outlined in the EPA Methods and those recommended within the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III September 1994, U.S. EPA. When these methods are inapplicable, the stack sampling firm will use methods such as those prescribed by the American Society for Testing Materials (ASTM).

Data obtained during calibrations are recorded on standardized forms, which are checked for completeness and accuracy by the Quality Assurance Director or the Quality Assurance Manager. Data reduction and subsequent calculations are performed using by the stack sampling firm. Calculations are checked at least twice for accuracy. Copies of calibration forms are included in the test or project reports.

6.1.1 Pitot Tubes

Each pitot tube is inspected in accordance with the geometry standards contained in EPA Method 2. All Type S pitot tubes are calibrated over an eight-point range with a wind tunnel. A calibration coefficient is calculated for each pitot tube.

6.1.2 Differential Pressure Gauges

Fluid manometers do not require calibration other than leak checks. Manometers are leak-checked in the field prior to each test series and again upon completion of testing.

6.1.3 Digital Temperature Indicator

One digital temperature indicator is used to determine the flue gas temperature, probe temperature, oven temperature, “train temperature,” and dry gas meter temperature. The digital temperature

indicator is calibrated over a seven-point range (32°F-450°F) using an ASTM mercury-in-glass thermometer as a reference. The calibration is acceptable if the agreement is within ±1.5% in °R in the temperature range of 50°F-180°F.

6.1.4 Dry Gas Meter and Orifice

A calibrated Wet Test Meter is used to calibrate the Dry Gas Meter and orifice. The full calibration procedure is used to obtain the calibration factor of the Dry Gas Meter. Full calibrations are performed using a Wet Test Meter as a reference standard.

- Dry Gas Meter – Each metering system receives a full calibration prior to testing

- Orifice – An orifice calibration factor is calculated for each of the eighteen flow settings during a full calibration. The arithmetic average of the values obtained during the calibration is used.

6.1.5 Barometer

The stack sampling firm's personnel will calibrate the barometer prior to arrival on site against a National Weather Service Station.

6.1.6 Nozzle

Glass nozzles will be calibrated on site using a micrometer. Eight reading will be taken at quarter turns, followed by two measurements at random. The arithmetic average of the values obtained during the calibration is used.

Table 6-1. Sampling Equipment Calibration Requirements for Test

Stack Gas Parameter	Quality Parameter	Method of Determination	Frequency	Criteria[1]
Gas Flow	Pitot tube angle and dimensions	Measurements with a vernier micrometer and angle indicator	Pre-test Post-test	To specifications in EPA Method 2
	Barometer	Calibrated vs. National Weather Service Station	Pre-test Post-test	Within 0.1 in. Hg
	Stack gas thermocouple	Calibrated vs. ASTM Hg-in-glass thermometer	Pre-test Post-test	Within 1.5% as °R
Isokinetic Sampling Trains	Dry Gas Meter	Calibrated against a reference wet test meter	Pre-test Post-test	Y within 0.05 of pretest Y; H@ within 0.15 of pretest
	Probe Nozzle [1]	Measurements with a vernier micrometer to 0.001 in.	Pre-test	Maximum difference in any two dimensions within 0.004 in.
	Dry gas meter thermocouples	Calibrated vs. ASTM Hg-in-glass thermometer	Pre-test Post-test	Within 1.5% as °R
	Trip balance	Calibrated vs. standard weights	Pre-test	Within 0.5 g

[1] 40 CFR Part 60, Appendix A.

[2] Glass or Quartz nozzles will be used and the calibration cannot change.

7 Analytical Procedures

The analytical methods to be used during this test effort are detailed in Tables 7-1 and 7-2. Table 7-1 presents analytical methods for waste feeds; and Table 7-2 presents analytical methods for stack gas. These tables present the referenced analytical method, the laboratory performing the analysis, the extraction and analysis holding time if required, sample preservation, and sample preparation method if required. Collection of these samples is described in Section 4.0. Note that the tables in Section 4.0 specify which samples are to be analyzed for which parameters, and that the tables in Section 7.0 specify the methods to be used.

Table 7-1. Sample Preparation and Analysis for Liquid Waste

Parameter	Analytical Method[1]	Lab[2]	Extraction Holding Time (days)	Analysis Holding Time (days)	Preservative Required	Prep Method
Specific Gravity	ASTM Method D1298	TBD	NA	NA	NA	NA
Higher Heating Value	ASTM Method D4809	TBD	NA	NA	NA	NA
Volatile Organic Compounds	SW846-8260B	TBD	NA	14	Ice	S-5030B
Chlorine	SW846-9076	TBD	NA	NA	NA	NA
Ash Content	ASTM –D4082	TBD	NA	NA	NA	NA
Metals	SW846-6020 (all except mercury) S-7470A (mercury)	TBD	NA	180 (all except mercury) 28 (mercury)	Ice	S-3050B (all except mercury) NA (mercury)

[1] Methods with "S-" are from SW-846.

[2] To be determined

Table 7-2. Sample Preparation and Analysis for Stack Gas

Parameter	Analytical Method	Lab	Extraction Holding Time (days)	Preservative Required	Analysis Holding Time (days)	Prep Method
Molecular weight	EPA Method 3A	*Stack Sampling Firm*	NA	NA	NA	NA
Moisture	EPA Method 4	*Stack Sampling Firm*	NA	NA	NA	NA
Chlorobenzene and volatile organics	SW-846 Method 8260B	Commercial Lab	NA	Ice	14	SW-846 Method 5041A
Metals[1] and Particulate	SW-846 Method 6020 (all except mercury) SW-846 Method 7470A (Mercury); EPA Method 5	Commercial Lab and Stack Sampling Firm	NA	NA	180 (all except mercury) 28 (mercury)	SW-846 Method 0060 and references therein
O_2 for purposes of THC correction to 7% O_2	Facility CEM	FFCC	NA	NA	NA	NA
O_2 and CO_2 for purposes of molecular weight of stack gas	Orsat	*Stack Sampling Firm*	NA	NA	NA	NA
THC	Facility CEMs	*FFCC*	NA	NA	NA	NA

[1] Target analytes: As, Be, Cr, Cd, Pb, and Hg

8 Internal Quality Control Procedures

Specific QC procedures will be followed to ensure the production of useful and valid data throughout the course of this test program. These include procedures that are inherent in the sampling and analytical protocols, as well as procedures that are project-specific. The protocol-specific QC procedures are independent of any particular project or sample; project-specific QC procedures are designed for the unique needs of a particular project, including the types of samples particular to the project, the experimental design, the intended data use, and potential concerns. The protocol-specific QC procedures and acceptance criteria are detailed in the reference methods. QC sample collection activities that are specific to this CPT are summarized in Tables 8-1 and 8-2, and are described in Table 8-3.

8.1 Analytical Quality Control

As appropriate, the analytical quality control activities include:

- Initial Calibration Curves and/or analytical instruments standardization will be accomplished in accordance with the applicable method specific requirements.
- Initial Calibration Standards will be verified using standards obtained from an independent source whenever new calibration standard solutions are prepared.
- Daily Calibration Checks of the established initial calibration curves will be performed prior to the analysis of each batch to ensure that the acceptance criteria is met.
- A Method Blank will be analyzed a minimum of once per day or with each batch[1] of samples processed, and the laboratory contamination level will be evaluated against the acceptance criteria for each method.
- A Laboratory Control Sample (LCS) will be analyzed with each batch of samples processed to verify that the precision and bias of the analytical process are within established control limits. An LCS consists of either a control matrix spiked with

analytes representative of the target analytes or a certified reference material in the same matrix as the sample if available.

- Matrix Spikes (MS) to determine the bias of the results due to the matrix will be analyzed with each batch[1] of samples processed.
- Matrix Spike Duplicates (MSD) to determine the precision of the method for the matrix will be analyzed with each batch of samples processed.

[1]A batch is a group of samples which behave similarly with respect to the procedures being employed and which are processed as a unit, i.e., are analyzed on the same day. For QC purposes, if the number of samples in a group is greater than 20, then each group of 20 samples or less will all be handled as a separate batch. Samples from this CPT will be analyzed at the beginning of a batch to minimize carryover from other samples. In addition, laboratory-required batch QA/QC will be performed on samples as well.

Other method-specific QC procedures will be followed and evaluated based on the method's criteria. For example, in the case of GC/MS analysis the following procedures will be performed and evaluated as dictated by the method of analysis:

- Tune;
- Calibration check compound;
- System performance check compound; and
- Surrogate analysis.

Results containing out of control data will be investigated and corrective measures will be taken and documented. More detailed discussion is presented in Section 12.0, Corrective Action. The following procedures will be incorporated into the analytical effort:

- The stack sampling firm's field management team will review all field data and QC data on a daily basis for completeness and acceptability.
- Analytical QC data will be tabulated using the appropriate charts and forms on a daily basis.
- Copies of the QC data tabulation will be submitted to the Quality Assurance Manager following the completion of the test program.
- Raw data (i.e., chromatograms, instrument printouts, computer files, etc.) will be maintained in organized files.

Table 8-1. Quality Control Samples - Solid and Liquid Feed/Process Waste Streams

Sample Stream and Analyses Performed	QC Activity			
	Field Blanks	Field Duplicates	Trip Blanks	Matrix Spike/Matrix Spike Duplicate
Specific Gravity	None	1 per CPTn	None	None
Higher Heating Value	None	1 per CPT	None	None
Metals	None	1 per CPT	None	1 per CPT
Chlorine	None	1 per CPT		1 per CPT
Ash	None	1 per CPT		None
Volatile Organic Compounds	None	1 per CPT n	None	1 per CPT

Table 8-2. Quality Control Samples - Stack Gases

Sample Train and Analyses Performed	Field Blank	Trip Blank[1]	Matrix Spike/Matrix Spike Duplicate
VOST			
Volatile Organics	1 per run	1 per run	None
Multi-Metals Train			
All analytes except mercury	1 per CPT	1 per CPT	1 per CPT
Mercury	1 per CPT	1 per CPT	1 per CPT

[1] Trip blank samples, consisting of field reagents and media, will be collected and held, and only analyzed if indicated based on the results of analysis of field blanks.

Table 8-3. Techniques Used to Obtain Quality Control Samples

Sample Type		Quality Control Sample			
		Trip Blank	**Field Blank**	**Field Duplicate**	**Matrix Spike/ Matrix Spike Duplicate**
Waste Feed/ Process		None	None	Duplicate aliquots of sample, split in field and analyzed independently	Duplicate aliquots of samples, split in laboratory or field, spiked in the laboratory with analyte
Gases					
	VOST	VOST traps transported to and from the field with each sample shipment	VOST traps taken to the sampling location, exposed to ambient conditions, recovered per the method	None	None
	Particulate	Sampling media and reagents transported to and from the field with sample shipment	None	None	None
	Metals	Sampling media and reagents transported to and from the field with sample shipment	Aliquots of field recovery reagents collected in the field and submitted with samples	None	Duplicate aliquots of prepared analytical solutions spiked with analytes

8.2 Sampling Equipment Inspection and Maintenance

Each item of field test equipment is assigned a unique, permanent identification number. An effective preventive maintenance program is necessary to ensure data quality. Each item of equipment returning from the field is inspected. During the course of these inspections, items are cleaned, repaired, reconditioned, and recalibrated where necessary.

Each item of equipment transported to the field for this test program is inspected again before shipment to detect equipment problems. This minimizes lost time on the job site due to equipment failure.

8.3 Sampling Equipment Calibration

New items purchased by the stack sampling firm for which calibration is required will be calibrated before initial field use. When an item of equipment is found to be out of calibration, it is repaired and recalibrated or retired from service. All equipment is periodically recalibrated in full, regardless of the outcome of these regular inspections. For this test program, pre and post test calibrations will be performed on the pitot tubes, thermocouples, and dry gas meters.

Calibrations are conducted in a manner, and at a frequency, which meets or exceeds U.S. EPA specifications. Specific calibration activities and frequencies are discussed below. The stack sampling firm will follow the calibration procedures outlined in the EPA method, and those recommended within the *Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III - Stationary Source Specific Methods*, September 1994, U.S. EPA. A summary of equipment calibration is presented in Section 6.0.

Data obtained during calibrations are recorded on standardized forms, which are checked for completeness and accuracy. Data reduction and subsequent calculations are performed using the

stack sampling firm's computer facilities. Calculations are checked for accuracy. Copies of calibration forms are included in the test or project reports.

Stack sampling equipment requiring calibration includes pitot tubes, pressure gauges, thermocouples, and dry gas meters. Details of the calibrations are presented in Section 6.0.

8.4 Sampling Quality Control

The following **pretest** QC will be conducted at a minimum:

- All sampling equipment will be thoroughly checked to ensure clean and operable components.
- Equipment will be inspected for possible damage from shipment.
- The oil manometer used to measure pressure across the Type-S Pitot tube will be leveled and zeroed.
- The number and location of the sampling traverse points will be checked before taking measurements.
- All calibration data forms will be reviewed for completeness and accuracy.

In addition to the general QC procedures listed above, QC procedures specific to each sampling method will also be incorporated into the sampling scheme.

Sampling Train Quality Control

The following QC procedures will be included:

Prior to Start of Tests

- Keep all cleaned glassware and sample train components sealed until train assembly.

- Assemble the sampling trains in an environment free from uncontrolled dust.
- Visually check the temperature measurement system for damage and operability by measuring the ambient temperature prior to each traverse.
- Visually inspect each sampling train for proper assembly.
- Perform pretest calculations to determine the proper sampling nozzle size.

Prior to Testing Each Day

- Visually inspect the sampling nozzle.
- Visually inspect the Type-S pitot tube.
- Leak check each leg of the Type-S pitot tube.
- Leak check the entire sampling train.

During Testing Each Day

- Take readings of temperature and differential pressure at each traverse point.
- Record sampling data and calculations on preformatted data sheets.
- Note any unusual occurrences during each run on the appropriate data form.
- Review sampling data sheets daily during testing.
- Properly maintain the roll and pitch axis of the Type-S pitot tube and the sampling nozzle.
- Leak check the train before and after any move from one sampling port to another during a run or if a train component is replaced.
- Maintain the probe, filter, and impingers at the proper temperature.
- Maintain ice in the ice bath at all times.
- Make proper readings of the dry gas meter, temperature, and pump vacuum during sampling at each traverse point.
- Maintain isokinetic sampling within ±10%.

After Testing Each Day

- Visually inspect and cover the inlet of the sampling nozzle.
- Visually inspect the Type-S pitot tube.
- Leak check each leg of the Type-S pitot tube.
- Leak check the entire sampling train.

8.5 Spiking Equipment Calibration

To ensure the quality of the spiking data, FFCC will only use a spiking emulsion that is supplied with a certificate of analysis. A product scale from the chemical manufacturing area will be obtained and calibrated no later than 14-days prior to the CPT. A "Certificate of Calibration Traceability" will be provided to ensure the accuracy of the scale. The calibration will be done by a standard that is directly traceable to the national standards maintained by the National Institute of Standards and Technology. The calibration certificate will document how the scale performed during the calibration, the identity of the person who calibrated it, the date of the calibration, and the method of calibration. This information will be placed in the operating record and submitted with the CPT notification of compliance.

9 Performance and Systems Audits

Performance and systems audits are used to confirm the quality of data obtained from sampling analysis activities. Either type of audit may show the need for corrective action or validity of a performance test.

9.1 Systems Audits

Systems audits are qualitative evaluations of field and laboratory QC measurement systems. This determines if the measurement systems are being used appropriately. The audits may be carried out before all systems are operational, during the program, or after the completion of the program. Such audits typically involve a comparison of the activities given in the QA Project Plan with those actually scheduled or performed.

Regulatory personnel will have the opportunity to perform on-site inspection and review of each sampling system during this FFCC CPT. Systems audits may include the following evaluations:

- Equipment calibration methods.
- Data validation.
- Sample logging and documentation.

The stack sampling firm will perform any audit requested by the regulatory agencies.

9.2 Performance Audits

A performance audit is a procedure to analyze "blind" samples, the content of which is known by the regulatory agency, simultaneously with the analysis of performance test samples. The purpose of a performance test sample, i.e., to check whether the test is measuring the right compound or parameter with an acceptable degree of accuracy. Performance test audits check data quality at the time of the test or analysis and they are specific to the equipment and personnel involved with the test.

VOST audit gas materials are provided by the U.S. EPA or other regulatory agency personnel with recommended volumes to collect. Previous experience with audit gas samples suggest that the volume of gas should be less than the recommended volume. Recommended volumes commonly result in concentrations exceeding the upper range of many commercial laboratory instruments. To obtain valid audit results, the exact volume of audit gas collected will be determined in the field upon receipt of the cylinder and after consultation with laboratory completing sample analysis.

No specific performance or systems audits are planned as part of the FFCC CPT **because at the time the CPT Plan was prepared the EPA audit gas program was not operational. If EPA desires a that an audit gas sample be collected, EPA should request that the sample be provided to FFCC at the time of the test.**

Any performance audit samples supplied to FFCC will be analyzed with the samples from the CPT and the results will be submitted with the report.

10 Preventive Maintenance

The stack sampling firm will minimize the potential impact of equipment malfunction on data completeness through two complementary approaches. First, an in-house equipment maintenance program is part of routine operations. The maintenance program's strengths include:

- Ready availability of personnel experienced in the details of equipment maintenance and fabrication;
- Maintenance of an adequate spare parts inventory; and
- Availability of tools and specialized equipment.

The second approach is based upon equipment redundancy. Backup equipment, spare parts, and tools are included with the materials transported to the field for each sampling task. This approach allows the sampling team to respond to equipment breakage or malfunction in a timely fashion.

For field equipment, preventive maintenance schedules are developed from historical data. Maintenance schedules for major analytical instruments (e.g., balances, GCs) are based on manufacturer's recommendations

11 Specific Routine Procedures Used to Assess Data Precision and Accuracy

FFCC will follow the protocols established in *QA/QC Procedures for Hazardous Waste Incineration* (EPA/625/6-89/023, January 1990) and *Hazardous Waste Incineration Measurement Guidance Manual* (EPA/625/6-89/021, June 1989) and of SW-846, Chapter 1, 3rd edition, July, 1992, to address data precision, accuracy and completeness. The experimental design allows data to be grouped into sets that can be analyzed to evaluate data precision and accuracy. The general tendency and dispersion of data is assessed by reviewing the following parameters. Table 3-1 lists the precision and accuracy objectives.

11.1 Precision

Precision is used to demonstrate the reproducibility of analytical results obtained using the same method. This precision will be evaluated by calculating the relative percent difference (RPD) between duplicate analyses, or the relative standard deviation (RSD) for sets of three or more analyses. These are calculated as follows for the situation where X_1 and X_2 represent each of the duplicate results:

$$\mathrm{RPD} = \left(\frac{|X_1 - X_2|}{\mathrm{avg.X}} \right) \mathrm{x}\,100$$

$$\mathrm{RSD} = \left(\frac{\mathrm{STDDEV}}{\mathrm{avg.X}} \right) \mathrm{x}\,100$$

11.2 Accuracy

Accuracy will be measured from the analysis of reference materials and spiked samples. Accuracy for spiked samples is expressed as percent recovery (% recovery) and will be determined by using the following equation:

$$\% \text{ Recovery} = \left(\frac{\text{SSR - SR}}{\text{SA}} \right) \text{x } 100$$

Where:

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

In the case of a blank spike, the value for SR (sample result) is taken to be zero.

11.3 Completeness

Completeness is assessed in a number of nonquantitative ways discussed in Section 3. The equation for the quantitative measurements is:

$$\% \text{Completeness} = \left(\frac{\text{No. of Valid Data}}{\text{No. of Data Planned}} \right) \text{x } 100$$

Project completeness objectives are discussed in Section 3.

12 Corrective Action

During any testing project, simple or complex, there is potential that deviations from sample collection or analysis procedures may occur. If deviations do occur, an evaluation must be made to determine if the data collected have compromised the test results. If the test results have not been compromised then data should be considered acceptable.

Any equipment found to be out of calibration or operating improperly will be repaired or replaced before additional measurements are made. If equipment repair is made on site, calibrations will be performed in accordance with the applicable EPA or SW-846 methods prior to use. It may be necessary to transport equipment off site for calibration. If calibrations cannot be performed, the equipment will not be used. If measurements are made with equipment subsequently found to be out of calibration or operating improperly, a detailed explanation of the cause of the malfunction will be provided. The effect of the malfunction on the data will be assessed and the data will be qualified.

For analyses where a method QC check sample such as method blank, calibration verification, or laboratory control is out of the control limits, then the QC check sample will be re-analyzed. If the result of the re-analysis is still out of control, the cause will be investigated, appropriate corrective action will be taken, and when possible, the associated batch of samples will be re-analyzed. In those instances where re-analyzing the sample is not possible, such as in the case of VOST analysis, corrective measures will be taken to improve method performance prior to analysis of the next batch of samples. These corrective measures will include, but not be limited to re-calibration of instruments and analysis of field, lab and trip blanks to identify any contamination effects.

FFCC, the third party independent QA/QC officer, and the stack sampling firm's project management team will determine an appropriate action in all cases where standard procedures cannot resolve the problem. The action will be implemented after approval from the

representatives of the regulatory agency.

The stack sampling firm's handling procedures for sorbent traps during all phases of handling, from blank testing to sample collection and analysis, will be designed to eliminate contamination in field blank sorbent traps by limiting their exposure to contaminants in the ambient air. If high levels of contamination are present in the field blanks, trip blanks will be analyzed. Corrective action will be taken if the field blanks are significantly different from the trip blanks. The stack sampling firm will follow the blank correction procedures presented in the QA/QC Handbook. This comparison will indicate whether high levels in the field blank are due to contamination from exposure to ambient air or from degradation of the sorbent traps. If blank correction is applied, results both with and without the correction will be reported in the report.

13 Data Reduction, Validation and Reporting

This section presents the approaches to be used to reduce, validate, and report measurement data. This discussion includes an annotated report outline and describes the reporting conventions that will be applied.

13.1 Data Reduction

The methods referenced in this QAPP for field measurements and lab analyses are standard methods and routinely used for such measurements and analysis. Data reduction procedures will follow the specific calculations presented in the reference methods.

Extreme care will be exercised to ensure hand recorded data are written accurately and legibly. Additionally, prepared and formatted data recording forms will be required for all data collection. This is an important aid to verify that all necessary data items are recorded. The collected field and laboratory data will be reviewed for correctness and completeness.

The stack sampling firm will reduce and validate all of the sampling and field measurement data that are collected. The sampling data will include flow measurements, calibration, etc. Each laboratory will reduce all analytical results prior to their submission to stack sampling firm. The analytical data will be used to determine concentrations and emission rates of the compounds of interest. The manner in which the derived quantities will be reported are discussed in Section 13.3.

13.2 Data Validation

Validation demonstrates that a process, item, data set, or service satisfies the requirements defined by the user. For this program, review and evaluation of documents and records will be performed

to assess the validity of samples collected, methodologies used, and data reported. This review comprises three parts, review of field documentation, review of laboratory data reports, and evaluation of data quality.

The sampling and analytical methods for this program have been selected because of their accepted validity for these types of applications. Adherence to the accepted methods, as described in this QAPP, is the first criterion for validation. The effectiveness of the analytical methods as applied to this particular study will be evaluated based on project-specific quality indicators, such as audit samples, replicate samples, matrix and surrogate spikes.

13.2.1 Review of Field Documentation

Sample validation is intended to ensure that the samples collected are representative of the population under study. Criteria for acceptance include positive identification; documentation of sample shipment, preservation, and storage; and documentation demonstrating adherence to sample collection protocols and QC checks.

As part of the review of field documentation, field data sheets and master logbooks will be checked for completeness, legibility, correctness, and consistency. The following specific items will be checked:

- Sample collection date;
- Sample identification, type and volume;
- Analysis requested;
- Any comments that may affect interpretation of results;
- Number of required field QC samples (i.e., field blanks, field duplicate samples, matrix spikes);
- Sample tracking documentation; and

- Documentation of calibration procedures for field instruments and other field parameters, such as isokinetics, temperatures, volumes, and sampling durations.

13.2.2 Review of Laboratory Data Reports

A qualitative evaluation of the reported data will be performed to verify:

- Adherence to holding time requirements;
- Completeness of target analyte lists;
- Correctness of reporting limits;
- Measurement units are correct and consistent;
- Results are flagged as necessary and meaningful comments regarding flagged data are provided;
- Adherence to specified analytical methodologies; and
- Sample tracking documentation.

13.2.3 Evaluation of Data Quality

Field and laboratory documentation will be reviewed to assess the following indicators of data quality:

- Integrity and stability of samples;
- Performance of instruments used for analysis;
- Possibility of sample contamination;
- Identification and quantitation of analytes;
- Precision; and
- Accuracy.

This review will be based on evaluation of documentation for each of the following, as appropriate to the analytical method:

- Analytical and preparation methods used;
- Sample preservation and custody documentation;
- Instrument tuning - mass spectrometer;
- Initial calibration;
- Continuing calibration verification;
- Blank analyses;
- Duplicate samples;
- Laboratory control samples;
- Surrogate spike analyses; and
- Matrix spike analyses.

Review of the above documentation will result in an evaluation of the following parameters:

- Maximum holding time for samples from date of collection to date of preparation and/or analysis;
- Sample storage conditions during the holding period prior to analysis;
- Method used to tune and calibrate instruments;
- Tuning and calibration acceptance criteria;
- Acceptance criteria for matrix spike recoveries and matrix spike duplicate precision;
- Acceptance criteria for surrogate spike recoveries;
- Frequency of required blank sample analyses; and
- Frequency and type of performance evaluation sample analyses.

13.3 Data Reporting

All data will be reported in the appropriate units as applicable to the sample stream and the method of analysis.

Results from the analyses of samples for a given stream will be reported on the same basis in the same units. For example, the reported mass flow rate of aqueous waste measures the as-received (wet) material. The analytical data for that waste stream will also be reported on an as-received (wet) basis. The rate of POHC fed to the incineration system from the aqueous waste stream is calculated as the product of the mass flow rate and the concentration of a given POHC in the stream. Rates of POHC input to the boiler and those in the stack emissions will be stated in common units (e.g., pounds per hour) to facilitate the calculation of DREs.

The report will include calculated DREs, concentrations, and emission rates for the compounds and elements of interest. DREs will be reported as percentages, concentrations as ppm or weight percent, and feed and POHC emission rates as pounds per hour. Particulate emission rates will be reported in grains/dscf, corrected to 7% oxygen. Carbon monoxide will be reported in ppm corrected to 7% oxygen. Raw (unreduced) data will be submitted in appendices to the report. The proposed report contents and reporting conventions are discussed in the following section and summarized in Table 13-1.

Table 13-1. Annotated Outline for Report

Section	Content
Introduction	Brief description of the facility, discussion of testing, summary of results, and comparison with regulatory and contract performance criteria.
Discussion	Discussion of results. This will include discussion of any QA/QC questions and any deviations from the planning documents. Section 2.0 will present process operating conditions as demonstrated and a description and justification for anticipated permit limits based on the trial burn demonstration.
Spiking Report	Discussion of POHC spiking and materials blending. POHC spiking information will include discussion of feed rates of POHC spikes, on a pounds-per-hour basis. This will be based on field data sheets and the material preparation information.
Sampling	Summary of all sampling activities. This will include times and dates of sampling, as well as summarized information from the stack sampling. This will include sample volumes, stack flow rate, oxygen and carbon dioxide content, moisture, and other parameters. Also included will be summary of process sampling: compositing strategy, number of grab samples taken, and analytical parameters. All support documentation will be presented. A master sample list will be provided, showing field sample number, sample description, laboratory, lab sample number, and any QA/QC for that sample.
Analytical Results	Summary of all analytical activities. This will present the results of all analytical activities with concentration on the stream samples. Complete data packages will be presented as appendices to the report. These data packages will include all analytical support documentation, copies of chain-of-custody forms, laboratory analytical reports, calibration data, and other related data.
Derived Quantities	Summary of derived quantities. This will include feed rates of individual components (such as chlorine, ash, POHC), mass emission rates, and DREs for POHC. Also included will be corrections of particulate loading and CO.
Quality Assurance/Quality Control	Summary of all QA/QC activities. Results of equipment calibrations will be presented, as well as results of all QA/QC analysis and analytical activities. These results will be compared with results for actual samples, and any deviations will be discussed. Support documentation for QA/QC activities will be in the appendices. In addition, the QA/QC section will provide a detailed discussion of any objectives not met with an assessment of the impact on the overall data and conclusions.
Appendices	Appendices will be used as needed. Support documentation will be provided in the appendices. Documentation will include (but is not limited to): ⇒ Process operating logs ⇒ Process instrument calibrations ⇒ POHC spiking feed documentation ⇒ Sampling data sheets ⇒ Sampling equipment calibration data sheets ⇒ Field CEM calibrations ⇒ Chain-of-custody documentation ⇒ Analytical request forms ⇒ Analytical reports ⇒ Analysis support documentation and raw data, including instrument printouts for all PCB measurements ⇒ Example calculations

13.4 Report Contents

The report will include information on:

- Emission rates and concentrations of particulate and gaseous pollutants;
- Waste stream constituent determinations;
- Summary of results;
- Summary of QC data and results **with a statement of QA/QC performance in the Executive Summary;**
- Descriptions of sampling/analytical procedures used (including documentation and justification of any modifications);
- A description of the source and its operation during testing;
- Test location;
- Example calculations with derived emission results, conversion factors, and equations used. **(An example calculation will be provided for each parameter that is reported to include at least one calculation involving non-detects and one calculation involving detected results. The calculation will include a reference to specific page numbers in the Field Raw Data reports and the Analytical Data Reports to that the calculations can be re-produced from the raw data)**;
- Field raw data, i.e., detailed laboratory reports, data sheets, instrument printouts, etc.;
- Analytical data **including Laboratory QA/QC Manager statement of QA/QC expectations in a case narrative;**
- Equipment calibrations;
- Acceptance criteria; and
- Preparation methods including cleanup procedures.

The Appendices containing the raw field data, analytical data, and equipment calibrations will be prepared in the following manner:

1. **A Table of Contents specific to the each section of the field and analytical data, and equipment calibration data, will be provided.**
2. **All pages of the field and analytical data, and equipment calibration data, will be numbered and correlated to the Table of Contents.**
3. **The data specific to a parameter will be tabbed.**
4. **A minimum of one hard copy will be provided for each parameter.**

The summary of the QC data will include information on:

- Initial calibrations;
- Continuing calibrations;
- Measurement equipment calibrations;
- Duplicate analyses;
- Matrix spike recoveries;
- Blank results (relevant to sample concentration units);
- Laboratory control spikes;
- Surrogate recoveries;
- Documentation to show that field measurement and test equipment met EPA acceptance criteria and that initial and post-test calibrations were acceptable;
- Information showing traceability of project prepared performance evaluation samples;
- Accuracy validation against independent QC check standards;
- Detailed description and justification of any changes made from the plan; and
- Investigation and explanation for any failures of performance standards.

13.5 Reporting Conventions

13.5.1 Management of Non-Detects

There are several specific situations that will arise in which calculations will need to be performed, but the analytical results are non-detects (at some level). This section presents a series of conventions for dealing with those situations.

General philosophy: A non-detect in waste feed and emissions will be treated as the detection limit (with a less-than sign) for the purposes of calculation. This should provide for the some conservatism in the estimate of emission rates, DREs and control efficiencies in assessing the performance of the FFCC boiler. Note that calculations of emissions using non-detects are reported as maxima (i.e., with less-than, <) and determinations of DRE using non-detects are reported as minima (i.e., with a greater than, >).

In cases where there is more than one component of a sampling train whose results need to be combined, the following guidelines will be used:

Case 1: All components of a train (or combined analysis) are non-detects In this case, the various detection limits will be summed according to the following equation:

$$\text{Summed DL} = \Sigma\left(DL_{Ind}\right)$$

where:

Summed DL is the limit for the overall determination, and

DL_{Ind} is the detection limit for the particular specific measurement.

Example: If there are three separate VOST measurements which represent a run, and all results are reported as <10 ng per tube pair, the summed result would be less than (10 + 10 +10) or <30 ng. This provides a conservative estimate of the emissions.

Case 2: One or more components of a train (or combined analysis) are non-detects, and there is at least one positive result. In this case, the non-detects and the positive results are summed and reported as a maximum.

Example: Analysis of the components of a metals train show 10 ng Cd on the filter and probe and nozzle rinse, and <2 ng Cd in the nitric acid/hydrogen peroxide impinger catch. The result would be reported as <12 ng for the entire train.

13.5.2 Oxygen Correction

Particulate loading and total hydrocarbon concentration will be corrected to 7% oxygen, according to the following equation:

$$P_c = P_m \times \frac{13.9}{20.9 - Y}$$

where:

P_c = Corrected particulate loading or carbon monoxide concentration

P_m = Uncorrected particulate loading or carbon monoxide concentration

Y = Concentration of oxygen in the gas sample.

13.5.3 Sampling Times and Calculation of Derived Quantities

Many of the calculated quantities are based on comparing inlet or feed activities with measured stack concentrations and emissions. These calculated quantities include DRE for the POHCs, as well as the demonstration of compliance with emission limits at a specified target feed rate. In past trial burns and performance tests, there have been significant variations in process, and particularly waste feed, parameters during the testing. Thus, it became crucial to identify the times of sampling, and to correlate feed activities with sampling times, or a per-train basis.

While this approach is certainly feasible, it is time-intensive, and only of value when there are significant variations in operations during the test run. All sampling during a single trial burn/risk burn test condition is to be conducted simultaneously, or as near simultaneously as possible. Thus, process operations will be calculated for the overall test period, and applied for each derived quantity.

Under extenuating circumstances, alternative approaches to calculations can and will be decided upon. This can be done during testing, or even during the data review stage

13.5.4 Background Correction

Some of the methods specified for use in this test program allow background or blank correction. Every effort will be made to use reagents and sampling media of the highest quality to ensure that no contamination is indicated in any of the blank samples.

In the event that background contamination is found, any background correction will be carefully documented, and all calculations (e.g., emission rates) will be developed using both corrected and uncorrected data.

13.5.5 Rounding and Significant Figures

Observational results will be taken with as many significant figures as possible. Rounding will be deferred until all resultant calculations have been made. The following rules will be applied in rounding data:

- When the digit after the one to be rounded is less than five, the one to be rounded is left unchanged; and
- When the digit after the one to be rounded is greater than or equal to five, the one to be rounded is increased by one.

Intermediate results will be presented in the final report at an appropriate level of significance, i.e., rounded, although the derived, or resultant, calculations will be based on unrounded intermediate data. Consequently, it may not be possible to precisely reconstruct the resultant calculations on any particular table from the rounded intermediate results, due to rounding errors.

The level of significance, or number of significant figures, to be reported for DRE calculations, will follow the following rules:

- DREs will be calculated to provide four digits to the right of the decimal, e.g., 99.9999%; and
- DREs will not be rounded off to demonstrate a final nine unless that final nine is the fourth digit to the right of the decimal (e.g., a DRE of 99.9872 will not be rounded to 99.99).
- If there is no POHC measured in the stack gas, the emission rate is reported as a maximum (less-than), and the DRE is reported as a minimum (greater-than).

13.5.6 Reporting Detection Limits

Another important performance requirement is the adherence to method identified target detection limits. The spiking feed rates and stack gas sampling times identified in this document are based on the laboratory's ability to meet the detection limits identified for the method. Work has been coordinated with the laboratories such they fully understand what detection limits are appropriate and how analytical results found to be at or below detection limits are to be reported. No data results will be reported as ND with a referenced determined detection limit also stated on the analytical report.

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14 Quality Assurance Reports to Management

Activities affecting quality will be reviewed by the project management, daily in the field and as appropriate during non-field efforts. This will allow assessment of the overall effectiveness of the CPT QAPP. These reviews will include the following:

- Summary of key QA activities, stressing measures that are being taken to ensure adherence to the QAPP;
- Description of problems observed that may impact data quality and corrective actions taken;
- Status of sample shipment and integrity at time of receipt and progress of sample analysis;
- Assessment of the QC data gathered over that time period;
- Any changes in QA organizational activities and personnel; and
- Results of internal or external assessments and the plan for correcting identified deficiencies, if any.

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ATTACHMENT
RESUMES OF KEY PERSONNEL

P.O. Box 2357
Batesville, AR 72501

Phone 870-698-5577
Fax 870-698-5563
E-mail thomasfloyd@ffcmail.com

Thomas L Floyd

Functional summary

Manger, Comprehensive Performance Test (CPT),

FutureFuel Chemical Company, Batesville, Arkansas.

Oversee the CPT and ensure team members have the resources to complete their tasks.

Employment

June 29, 1987 to Present

FutureFuel Chemical Company, Batesville, Arkansas 72501

Environmental Biologist

- Supervisor of the RCRA, CWA, RMP, SPCC, and SARA Department

Education

1982 to 1986

University of Arkansas at Little Rock , Little Rock, Arkansas

B.S. in Biology

- Minored in Chemistry and completed undergraduate research in Chemistry

Summary of qualifications

1991 - Present

FutureFuel Chemical Company, Environmental Affairs, Batesville, Arkansas

Environmental Biologist

- Transferred to Environmental Affair Department in 1991 from the Laboratory Department to become the RCRA specialist.
- Responsible for providing guidance in RCRA compliance to all FFCC, from the point of generation to disposal.
- 1999 Trial Burn Manager for Successful RCRA and Risk Burn on the Coal-Fired boilers
- 2004 CPT Manager for successful MACT EEE CPT on the facility's Incinerator
- Supervised many various test, including several annual Title V test, several shakedown test, and other waste combustion tests.

CAREER SUMMARY

Mr. Hutchens is an Environmental Scientist with diverse experience in the environmental testing field. During his first years in the environmental field, he worked on projects that required knowledge of air, water and soil testing. His job tasks included source testing, asbestos air monitoring, gas well monitoring, groundwater sampling, storm water sampling, monitoring well installation, groundwater remediation system operation and maintenance, underground storage tank removals and Phase I Environmental Site Assessments. Over the past seven years, he has dedicated the majority of his time and experience to source testing. His responsibilities involve all aspects of source testing management including project, field personnel, equipment and laboratory. He is also involved in the field testing activities where his knowledge of source testing is used to coordinate large scale projects down to operating test equipment on small scale projects.

Education
BS, Environmental Science,
Alabama A&M,
1998

Certification
Visible Emissions Evaluator

Experience
10 years

Joined Firm
2000

CORE SKILLS

- Management of Source Testing
- Perform Multiple EPA Reference Test Methods
- Perform Multiple NCASI Test Methods

REPRESENTATIVE PROJECTS

Aleris International, Inc., Beachwood, Ohio

Perform compliance NESHAP and Title V emission testing for particulate matter, dioxin/furan, total hydrocarbon, hydrogen fluoride and hydrogen chloride at multiple facilities across the nation – EPA Methods 5, 23, 25A and 26A

BP – Decatur Works, Decatur, Alabama

Performed LME emission testing and RATA for nitrogen oxide on boiler per 40CFR75, Appendix E – EPA Methods 3A and 7E

Calpine (Decatur Energy Center), Decatur, Alabama

Performed LOL emission testing and RATA for nitrogen oxide on natural gas fired turbines per 40CFR75 – EPA Methods 3A and 7E

El Paso Field Services, Oakman, Alabama

Performed compliance emission testing for nitrogen oxide, carbon monoxide and volatile organic compounds on multiple gas fired engines – EPA Methods 7E, 10, 18 and 25A

Graphic Packaging, Lawrenceburg, Tennessee

Performed investigative and compliance VOC destruction efficiency testing (multiple tests) on thermal oxidizer systems – EPA Method 25A

Hoeganaes Corporation, Gallatin, Tennessee

Performed investigative and compliance emission testing (multiple tests) for particulate matter, nitrogen oxide and carbon monoxide – EPA Methods 5, 7E and 10

Inland Paperboard & Packaging, Inc., New Johnsonville, Tennessee
Performed investigative and compliance emission testing for particulate matter, sulfur dioxide, nitrogen oxide, carbon monoxide, metals and ammonia on multiple sources – EPA Methods 5, 6C, 7E, 10, 29 and 027. Also conducted sulfur dioxide RATA on refuse boiler CEMS – PST Method 2

J.M. Huber Corporation, Spring City, Tennessee
Performed investigative and compliance emission testing for particulate matter, sulfur dioxide, nitrogen oxide, carbon monoxide and total hydrocarbons – EPA Methods 5, 6C, 7E, 10, 18 and 25A

Louisiana Pacific, Multiple Cities, USA
Performed NESHAP and Title V compliance testing on Press and Dryer regenerative thermal oxidizers for particulate matter, nitrogen oxide, carbon monoxide, methanol and formaldehyde – EPA Methods 5, 7E and 10, NCASI Methods 98.01

MD Recycling, Midway, Tennessee
Performed compliance NESHAP emission testing for particulate matter, dioxin/furan, hydrogen chloride and hydrogen fluoride – EPA Methods 5, 23, 26A

NewPage, Wickliffe, Kentucky
Performed investigative nitrogen oxide testing on natural gas fired boilers, TRS RATA and TRS CGA on recovery boiler, compliance particulate and sulfur dioxide testing on recovery boiler, TDF trail burn for particulate matter, sulfur dioxide, nitrogen oxide, carbon monoxide, dioxin/furan, total hydrocarbons and metals on mulit-fuel boiler, and chlorine/chlorine dioxide on bleach plant scrubbers – EPA Methods 5, 6C, 7E, 10, 23, 25A, and 29, PST Method 5, NCASI Cl2/CLO

Occidental Chemical Corporation, Muscle Shoals, Alabama
Performed NESHAP and Title V compliance emission testing for mercury – EPA Methods 101 and 102

Quebecor World, Corinth, Mississippi
Performed compliance emission testing to determine VOC removal efficiency of multiple solvent recovery systems and destruction efficiency of multiple regenerative thermal oxidizers – EPA Method 25A

Solutia, Decatur, Alabama
Performed performance specification, NESHAP and Title V compliance testing on multiple coal-fired boilers – PST Methods 2 in accordance with 40CFR75, EPA Methods 5, 7E and 29

ThyssenKrupp Waupaca, Inc., Waupaca, Wisconsin
Performed investigative and compliance NESHAP and Title V emission testing to determine the particulate, lead, sulfur dioxide, carbon monoxide, and volatile organic compound emissions from multiple sources at multiple facilities. Also conducted flow, carbon dioxide, sulfur dioxide and carbon monoxide relative accuracy testing – EPA Methods 5, 6C, 10, 12 and 25A and PST 2, 3, 4 and 6

US Steel, Fairfield, Alabama
Performed particulate emission testing on multiple sources per 40CFR63, Subpart EEEEE – EPA Methods 5, 5D and 17

Velsicol Chemical Corporation, Memphis, Tennessee
Performed a facility fugitive emission survey and LDAR testing – EPA Method 21

OTHER PROFESSIONAL QUALIFICATIONS

Organizations

- Source Evaluation Society

Training

- Reciprocal Safety Council Training
- 24 Hour HazMat Training
- CPR & First Aid
- Hazardous Material Transportation Training

David A. Weeks, P.E., DEE, MAC, CIH
Senior Engineer and Industrial Hygienist

Address
705 W. Avenue B, Suite 400
Garland, TX 75040
E-mail: daweeks@rmeltd.com
Office: (972) 272-0386

SUMMARY OF QUALIFICATIONS

Mr. Weeks has extensive, multi-media, technical and project management experience in many areas of the engineering profession, both in the field and at the negotiating table. Mr. Weeks has investigated hundreds of sites potentially contaminated with hazardous and petroleum substances and he has developed systems to categorize and rank environmental sites and problems based on risk and economic factors. He has conducted feasibility studies, remedial designs, and cleanups at hazardous waste sites. Mr. Weeks co-authored U.S. EPA's national guidance on how to perform risk assessments at hazardous waste combustion facilities and he has trained numerous government and industry personnel on proper risk assessment and combustion permit development techniques. Mr. Weeks has prepared trial burn plans, trial burn quality assurance plans, Part B and Title V permit applications, and human health and ecological combustion risk assessments. Mr. Weeks has led and performed environmental investigations of hazardous waste sites, chemical and other manufacturing facilities, commercial buildings, and private residences. Mr. Weeks has conducted hundreds of indoor air quality studies to support investigations related to water damage and both chemical and biological contaminants. Mr. Weeks has conducted all phases of risk assessments for waste sites and hazardous waste burning boilers, incinerators, and cement kilns. He has provided technical support (including expert witness reports and analysis) in CERCLA, CWA, and tort related litigation, performed air dispersion modeling and air monitoring studies in emergency situations (train derailments and factory fires), completed air dispersion modeling for permitting and offsite consequence analyses, and prepared CAA 112(r) risk management plans. Finally, Mr. Weeks has used his excellent communication skills to explain difficult technical concepts to the general public, news media, regulatory agencies, and the state and federal judiciary.

EDUCATION

M.S.	1994	Civil Engineering, University of Texas at Arlington, Arlington, TX
B.S.	1986	Civil Engineering, Texas A&M University, College Station, TX

EMPLOYMENT EXPERIENCE

2003 -Present — **RISK MANAGEMENT & ENGINEERING LTD.**, Rowlett, TX
Senior Engineer & Partner

1998-2003 — **CENTER FOR TOXICOLOGY AND ENVIRONMENTAL HEALTH, L.L.C.**, Garland, TX
Senior Environmental Engineer & Dallas Operations Director

1995- 1998 — **U.S. ENVIRONMENTAL PROTECTION AGENCY**, Dallas, TX
Senior Environmental Engineer, Multimedia Planning and Permitting Division, Region 6

1989-1995 — **U.S. ENVIRONMENTAL PROTECTION AGENCY**, Dallas, TX
Remedial Project Manager, Hazardous Waste Management Division, Region 6

1987-1989 — **U.S. ENVIRONMENTAL PROTECTION AGENCY,** Dallas, TX
Environmental Engineer, Water Management Division, Region 6

1989-2006 — **U.S. NAVAL RESERVE,** Ft. Worth, TX
Civil Engineer Corps; Chemical, Biological, Radiological Warfare Defense Officer for Naval Construction Force; Contingency Engineer for U.S. European Command

SPECIALIZED TRAINING AND CERTIFICATIONS

- Registered Professional Engineer: Arkansas, No. 10600; Louisiana, No. 29677; and Texas, No. 83821. (Passed the Environmental Principles and Practices Examination)
- Certified Industrial Hygienist, American Board of Industrial Hygiene, No. 9267.
- Diplomat Environmental Engineer (Hazardous Waste), American Academy of Environmental Engineers, No. 01-2003
- Texas Mold Assessment Consultant (License No. MAC0297)

2006	Restoration Consultants, Sacramento, CA Applied Thermography Training
2006	American Society of Testing and Materials, Phoenix, AZ Property Condition Assessment
2002	American Industrial Hygiene Association, Dallas, Texas Guidelines for the Assessment of Microbial Contamination
2001	American Institute of Chemical Engineers, Orlando, Florida Physical Properties and Phase Equilibria
2000	American Indoor Air Quality Council, Phoenix, Arizona Strategies for Conducting Meaningful Microbial IAQ Investigations
1999	Air & Waste Management Association, Greenville, SC Fundamentals of New Source Review
1989-1997	Air Pollution Training Institute, Arlington, Texas • Combustion Evaluation • Hazardous Waste Incineration • Air Pollution Field Enforcement • Control of Gaseous Pollutants • Sources and Control of Volatile Organic Air Pollutants • Continuous Emissions Monitoring
1987-1998	U.S. Environmental Protection Agency, Dallas, Texas • Contract Administration • Technical Writing • Orientation to Quality Assurance Management • Data Quality Objectives • Quality Management Plans & Quality and Quality Assurance Project Plans • On-Scene Coordinator (OSC)/Remedial Project Manager (RPM) Basic Training Academy
1996	Naval Construction Training Center Detachment, Fort McClellan, AL Navy Disaster Preparedness Operations Specialist Course (A-494-0006)

PROFESSIONAL AFFILIATIONS

Air and Waste Management Association
American Society of Mechanical Engineers
American Industrial Hygiene Association
American Society of Testing and Materials

AWARDS

1999	Navy and Marine Corps Commendation Medal U.S. Naval Reserve, Ninth Naval Construction Regiment
1998	Navy and Marine Corps Achievement Medal U.S. Naval Reserve, Naval Mobile Construction Battalion Twenty-Two
1997	Bronze Medal for Commendable Service U.S. Environmental Protection Agency, Region 6
1996	Special Achievement Award for Quality Performance U.S. Environmental Protection Agency, Region 6
1996	Memorandum of Appreciation for Support on Permitting the New Orleans Sludge Incinerator, Water Quality Division, U.S. EPA Region 6
1996	Special Achievement Award for Quality Performance U.S. Environmental Protection Agency, Region 6
1996	Nominated for Outstanding Professional Employee Award, Dallas-Fort Worth Federal Executive Board, 1996 Interagency Awards Program
1995	Letter of Commendation from Executive Office of the President, Office of Management and Budget, for Providing Instruction on Hazardous Waste Combustion to OMB Staff Members
1994	Bronze Medal for Commendable Service U.S. Environmental Protection Agency, Region 6
1994	Sustained Superior Performance Award U.S. Environmental Protection Agency, Region 6
1993	Regional Superfund Team of the Year Award U.S. Environmental Protection Agency, Region 6
1993	Special Achievement Award for Quality Performance U.S. Environmental Protection Agency, Region 6
1993	Special Achievement Award for Quality Performance U.S. Environmental Protection Agency, Region 6

1992	Special Achievement Award for Quality Performance U.S. Environmental Protection Agency, Region 6
1989	Special Achievement Award for Quality Performance U.S. Environmental Protection Agency, Region 6

PRESENTATIONS

1. PUBLIC MEETINGS. Presented site investigation and risk assessment results to the general public for U.S. EPA. Explained proposed cleanup remedies and record of decision determinations, and responded to questions from the general public, news media, and national environmental organizations, on topics about public health and safety and remediation techniques including hazardous waste incineration. Some of the sites at which formal presentations were made include the Petro Processors Site, Cleve Reber Site, South 8th Street Landfill Site, and Louisiana Army Ammunition Plant Site.

2. CHEMICAL ACCIDENT PREVENTION PROGRAM – RISK MANAGEMENT PLANNING. Presented to engineers, industrial hygienists, and health and safety professionals at the 1998 Arkansas Safety Conference, Little Rock, Arkansas, April 28-29, 1998.

3. HUMAN HEALTH RISK ASSESSMENT SEMINAR. Presented topics related to project development, air dispersion modeling, permitting processes, trial and risk burn planning, emission rate calculation, risk communication, and advanced applications, in a seminar format. April 1999, June 1999, August 1999, November 1999, November 2003.

4. COMBUSTION PERMITTING SEMINAR. Presented topics related to stack testing, trial burn planning, permit limit development, and trial burn oversight. May and November, 2000.

5. INTERNATIONAL CONFERENCE ON INCINERATION AND THERMAL TREATMENT TECHNOLOGIES. Served as session chairman and presenter for topics related to permitting and risk assessment (1997, 1998, 1999, 2000).

6. AIR AND WASTE MANAGEMENT ASSOC. BOILER AND INDUSTRIAL FURNACE SPECIALTY CONFERENCE. Served as session chairman and presenter for topics related to permitting and risk assessment (1997, 1998, 1999, 2000, 2001).

7. AMERICAN INSTITUTE OF CHEMICAL ENGINEERS INCINERATION SYMPOSIUM. Presented lecture on hazardous waste combustion risk assessment techniques to members of AIChE and the public (May 1999).

CONFERENCE PRESENTATIONS and PUBLICATIONS

1. WEEKS, D.A., THOMAS FLOYD, RICK ULLRICH, "Disposal Alternatives for Glycerol Waste from Biodiesel Production and the Role of Combustion," Proceedings of the 2007 International Conference on Incineration and Thermal Treatment Technologies, Phoenix, AZ, May 14-18, 2007.

2. WEEKS, D.A., BETH CONNELL, "Implementation of the Comparable Fuels Exclusion at a Phase II MACT Facility," Proceedings of the 2007 International Conference on Incineration and Thermal Treatment Technologies, Phoenix, AZ, May 14-18, 2007.

3. WEEKS, D.A., THOMAS FLOYD, RICK ULLRICH, "Issues Associated with the Combustion of Glycerol Waste from Biodiesel Production," Proceedings of Hazardous Waste Combustors Conference and Exhibition, Charleston, SC, March 13-14, 2007.

4. HEWITT, D.J., DAVID A. WEEKS, GLENN C. MILLNER, AND GAIR R. HUSS, "Industrial Pseudomonas Folliculitis," American Journal of Industrial Medicine 49:895-899 (2006).

5. WEEKS, D.A., AND K. GOODMAN, "Forensic Investigation of Chemically Contaminated Buildings" Annual Meeting of the American Academy of Forensic Science, February 21 – 26, 2005.

6. WEEKS, D.A., AND R. ULLRICH, "A Common Sense Approach to Identifying Compounds of Potential Concern for the Risk Assessment Process" Proceedings of the 2003 International Conference on Incineration and Thermal Treatment Technologies, Orlando, Florida, May 12-15, 2003.

7. WEEKS, D.A., "Cumulative Risk and Hazardous Waste Combustion" Proceedings of the 2001 International Conference on Incineration and Thermal Treatment Technologies, Philadelphia, Pennsylvania, May 14-18, 2001.

8. WEEKS, D.A., "How to Deal With Non-Detect Results in Hazardous Waste Combustion Risk Assessments." Proceedings of the 2000 International Conference on Incineration and Thermal Treatment Technologies, Portland, Oregon, May 8-12, 2000.

9. WEEKS, D.A., "Knowing the Basis of Your Emission Estimates Can Significantly Affect Your Case—Not All Numbers Are Equal." Proceedings of the 1999 Fall Meeting; Section of Environment, Energy, and Resources; American Bar Association; San Diego, California; October 6-9, 1999.

10. WEEKS, D.A., "Examination of Polynuclear Aromatic Hydrocarbons in Hazardous Waste Combustion Risk Assessments." Proceedings of the 1999 International Conference on Incineration and Thermal Treatment Technologies, Orlando, Florida, May 10-14, 1999.

11. WEEKS, D.A., "New Environmental Requirements for the Meat Processing Industry," NAMP Science Letter, The Processing Line, North American Meat Processors Association, Issue 4, July, 1998.

12. YURK, J.J. and D.A. WEEKS, "Region 6 Combustion Permitting Program A Midpoint Review," Presented at the 1998 International Conference on Incineration and Thermal Treatment Technologies, Salt Lake City, Utah, May 12-15, 1998.

13. WEEKS, D.A., "Risk Management Planning & the Meat Processing Industry," Environmental News, Arkansas Environmental Federation, March/April 1998.

14. WEEKS, D.A., "Ecological Risk Assessment at Hazardous Waste Combustion Facilities," Presented at the 1998 Waste Combustion in Boilers and Industrial Furnaces Conference, Kansas City, Missouri, April 14-17, 1998.

15. U.S. EPA, "Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities," EPA530-D-98-001A, Office of Solid Waste and Emergency Response, July, 1998. (Served as editor and author of several chapters).

16. U.S. EPA, "Hazardous Waste Combustion Permitting Manual," Region 6, February (1998). (Served as editor and author of several sections related to risk management including model permit language and the development of permit conditions).

17. WEEKS, D.A. YURK, and S.E. EHLERS, "New Protocols for Screening Level Human Health and Ecological Risk Assessments," Proceedings of the 1997 International Conference on Incineration and Thermal Treatment Technologies, Oakland, California, May 12-16, 1997, pp 451-456 (1997).

18. WEEKS, D.A., "Traditional vs. Risk-Based Permitting Approach: Permit to Manage Risks," Proceedings of the 1997 International Conference on Incineration and Thermal Treatment Technologies, Oakland, California, May 12-16, 1997, pp 55-58 (1997).

19. U.S. EPA, "Midlothian Cumulative Risk Assessment," Region 6, January (1996). (Served as principal writer of the report.)

20. U.S. EPA, "Record of Decision, South 8th Street Landfill," Region 6, September (1994). (Served as principal writer of the report.)

21. WEEKS, D.A., "Stabilization/Solidification: A Screening Methodology for Binder Design," University of Texas at Arlington, August (1994).

Michael D. Challis

WORK EXPERIENCE

Maxxam Analytics, Inc.

1988-present

- 7 years as a Senior Project Manager in Customer Service & Customer Service Manager
- 9 years as Manager/Supervisor of the GC Laboratory.
- 5 years as a Senior Analyst in the GC Laboratory.
- 2 years as Tech II in the GC Laboratory.
- Post graduate courses in Organic/Analytical Chemistry.
- Experienced with GC, GC/MS, HPLC, FTIR, UV/VIS and classical wet chemistry techniques.
- Excellent written, oral and interpersonal skills.
- Ability to plan, organize and prioritize own workload and workload of others.
- Enthusiastic, reliable, adaptable and innovative.
- Responsible for the daily activities of a team of 12 employees.
- Adhere to stringent QC protocols. Maintain accurate instrument logs and controls charts.
- Design, validate and implement new analytical methods.
- Providing excellent customer service and a comfortable atmosphere through leadership by example, training, managing and scheduling.
- Selecting quality associates by effectively recruiting, interviewing and hiring.
- Training and developing technical staff to be productive employees.
- Evaluated employee performance through yearly performance reviews.
- Provided a positive working environment by displaying an effective management style and leading by example in all responsibilities.
- Understood and complied with Health and Safety Standards.
- Interact with clients on a daily basis.
- Generate reports, Invoices, review data packages.
- Offer technical support to both clients and the laboratory.

Education & Training

- University of Guelph/Waterloo: completed 4 post-graduate courses in Chemistry (1989-90)
- University of Guelph: Specialized Honors B.Sc. in Applied Chemistry (1985-88)
- Mohawk College: Diploma in Chemical Engineering Technology (1982-5)
- Burlington Central High School: SSGD (1978-82)

- Source Sampling & CEMS Workshop offered by Walter Smith & Associates

- Gas Chromatography courses and seminars offered by Varian & Agilent.

Attachment C

Instrument Calibration Records

Copy

Metal's spike scale

Calibration Data Entry Form (CDEF)

Tag # WI-20205 Date 5/21/10 Next Due Date 11/21/10

Performed By Todd Hutchinson / Kasey Caraway Employee # 851042 / 851478

Procedure # CESCALE Rev. # 5 RTD Curve: DIN (Y/N) — or SAMA (Y/N) —

Check mark where applicable:
ISO-✓, CAA(Title V)-__, RCRA-__, cGMP (FC/NFC)__, Specify Other-__

% OF SPAN	Standard (Desired: temp.press.)	As Found (ma, Displayed)	% Error	Standard (Desired: temp.press.)	As Left (ma, Displayed)
0%	0 lbs	0.0 lbs	0%		
25% as needed	250 lbs	250.0 lbs	0%		
50%	500 lbs	500.0 lbs	0%	SAME	
75% as needed	750 lbs	750.2 lbs	.02%		
100%	1000 lbs	1000.2 lbs	.02%		

Certification Standard Tag #			% Error = Displayed - Desired / Calibrated Range/Span X 100
WTS-SN06-01			

Correct identification tags in place (example: Tag# & Quality Critical, or CAA (Title V), or RCRA or other...)? Check mark here if yes ✓

Please put down all remarks on what was done to the instrument (examples: replaced sensor, calibrated, unplugged, replaced tx...) (Add s/n, model #... Below where applicable).
Remarks/Special Instructions Checked Good

Required For New Instrument or New Location Only: Please fill out completely
Manufacture Name Mettler-Toledo
Model # Puma / 2888 S/N
Decription Portable Scale 1000 # Capacity .1 lb increments
Location Who is going to use it? operations
What unit is it associated to?

ELECTRONIC CALIBRATION DATA ENTRY FORM
FOR
MICROMOTION FLOW ACCURACY VERIFICATION USING DENSITY METHOD

Procedure: AMICRODENS **Rev.** 0

Performed By: JOHNNY P STURDIVANT **Employee #** 851220

Instrument Information

Tagname:	FT-WCB-300
Description:	Flow
Certification Date:	4/29/2010
Certification Due Date:	4/29/2011

Test Target Input Parameters

Worse Case Flow Accuracy:	2.00000	%
Known Density:	62.18000	lb/cu ft

Test Target Calculated Paramters

Known Density:	62.18000	lb/cu ft	or	0.99612	g/cc
Density Tolerance (+/-):	2.08073	lb/cu ft	or	0.03333	g/cc
High Density Limit:	64.26073	lb/cu ft	or	1.02946	g/cc
Low Density Limit:	60.09927	lb/cu ft	or	0.96279	g/cc

Test Results From Transmitter

Density Reading:	62.44000	lb/cu ft

Test Calculated Results

Density Reading:	1.00029	g/cc
Density Variation:	0.00417	g/cc
Flow Inaccuracy:	0.24991	%
Pass / Fail:	[redacted]	

Uses data published by MicroMotion stating that a MicroMotion meter will experience a 0.06% change in mass flow measurement for every 0.001 g/cc variation between the measured density and a known density.

Density is converted from lb/cu ft to g/cc using a multiplier of 0.01602

Copy Boiler 3 Liquid Waste Flow

PLS **Certification Data Entry Form (CDEF)**

Tag # ~~PSI~~-6M01-WCB-1164 Date 4 / 27 / 10 Next Due Date 4 / 27 / 11

Performed By Eric Butler Employee # 851461

Procedure # APSL Rev. # 1 RTD Curve: DIN (Y/N) ___ or SAMA (Y/N) ___

Check mark where applicable:
ISO-___, CAA(Title V)-___, RCRA-✓, cGMP (FC/NFC), Specify Other-_____

% OF SPAN	Standard (Desired: temp.press.)	As Found (ma, Displayed)	% Error
0%	40 PSI ↓	39.1	1.87%
25% as needed			
50%	40 PSI ↓	39.5	1.04%
75% as needed			
100%	40 PSI ↓	39.4	1.25%

Standard (Desired: temp.press.)	As Left (ma, Displayed)

SAMA

Certification Standard Tag #			% Error = Displayed - Desired / Calibrated Range/Span X 100
Shop-744-04			
Shop-744P-09			

Correct identification tags in place (example: Tag# & Quality Critical, or CAA (Title V), or RCRA or other...)? Check mark here if yes ✓.

Please put down all remarks on what was done to the instrument (examples: replaced sensor, calibrated, unplugged, replaced tx...) (Add s/n, model #.... Below where applicable).
Remarks/Special Instructions _____

Required For New Instrument or New Location Only: Please fill out completely
Manufacture Name _____
Model # _____ S/N _____
Decription _____
Location _____ Who is going to use it? _____
What unit is it associated to? _____

Boiler 3 Purge Steam Waste Burner

Certification Data Entry Form (CDEF)

Tag # TE-9197 Date 4/26/10 Next Due Date 4/26/11

Performed By Johnny Studivant / Kelvin Employee # 851220

Procedure # ATCEMENT Rev. # 1 RTD Curve: DIN (Y/N) ___ or SAMA (Y/N) ___

Check mark where applicable:
ISO-___, CAA(Title V)-___, RCRA-✓, cGMP (FC/NFC), Specify Other-_____

% OF SPAN	Standard (Desired: temp.press.)	As Found (ma, Displayed)	% Error
0%			
25% as needed	550.0°F	558.7°F	+8.7°F
50%			
75% as needed	1652.0°F	1648.3°F	-3.7°F
100%			

Standard (Desired: temp.press.)	As Left (ma, Displayed)
SAME	

Certification Standard Tag #			% Error = Displayed - Desired / Calibrated Range/Span X 100
Shop-9122	Shop TC 005		
Shop 9150			

Correct identification tags in place (example: Tag# & Quality Critical, or CAA (Title V), or RCRA or other...)? Check mark here if yes ✓.

Please put down all remarks on what was done to the instrument (examples: replaced sensor, calibrated, unplugged, replaced tx...) (Add s/n, model #.... Below where applicable).
Remarks/Special Instructions Checked good

Required For New Instrument or New Location Only: Please fill out completely
Manufacture Name_____
Model # _____ S/N_____
Decription_____
Location _____ Who is going to use it? _____
What unit is it associated to? _____

Boiler 3 Combustion Temperature

Calibration Data Entry Form (CDEF)
Precipitator

Tag # AI-PPTR-3 Date 5 / 14 / 10 Next Due Date 5 / 14 / 11

Performed By K. MITCHELL, C. STURDIVANT Employee # A851322, A851220

Procedure # APRECIPMVC Rev. # 1, CAA (Title V)- ✓ RCRA- ✓ Specify Other- ____

Value s Inlet Section	Meter (Digital Multi-meter / RMS Ammeter)	As Found Displayed	% Error	Meter (Digital Multi-meter / RMS Ammeter)	As Left Displayed
Primary Current	44 A	45 A	2.2%		
Primary Voltage	351 V	351 V	0%	SAME	
Secondary Current	.23 A	.23 A	0%		
Secondary Voltage	45 KV	46.1 KV	+2.4%		

Values Center Section	Meter (Digital Multi-meter / RMS Ammeter)	As Found Displayed	% Error	Meter (Digital Multi-meter / RMS Ammeter)	As Left Displayed
Primary Current	45 A	45 A	0%		
Primary Voltage	375 V	376 V	.26%	SAME	
Secondary Current	.25 A	.24 A	-4%		
Secondary Voltage	48 KV	48 KV	0%		

Values Outlet Section	Meter (Digital Multi-meter / RMS Ammeter)	As Found Displayed	% Error	Meter (Digital Multi-meter / RMS Ammeter)	As Left Displayed
Primary Current	44 A	45 A	2.2%		
Primary Voltage	354.8 V	353 V	-.5%	SAME	
Secondary Current	.24 A	.23 A	-4%		
Secondary Voltage	45 KV	45 KV	0%		

Certification Standard Tag #		% Error = Displayed - Desired / Calibrated Range/Span X 100
Fluke 87 equivalent		
True RMS Clamp ON		

Boiler 3 Precipitator

Correct identification tags in place (example: Tag# & Quality Critical, or CAA (Title V), or RCRA or other...)? Check mark here if yes ✓.

Please put down all remarks on what was done to the instrument (examples: replaced sensor, calibrated, unplugged, replaced tx...) (Add s/n, model #.... Below where applicable).
Remarks/Special Instructions Precipitator controls looked good, replaced center & west support bushings in middle section and replaced center support bushing in outlet section, every thing else looked good

Required For New Instrument or New Location Only: Please fill out completely
Manufacture Name
Model # S/N
Decription
Location Who is going to use it?
What unit is it associated to?

Certification Data Entry Form (CDEF)

Tag # TE-FAS-624 Date 4/26/10 Next Due Date 4/26/11

Performed By Johnny Stuedivant / Kelvin Edwardson Employee # 851220

Procedure # ATCElement Rev. # 1 RTD Curve: DIN (Y/N) ___ or SAMA (Y/N) ___

Check mark where applicable:
ISO-___, CAA(Title V)-___, RCRA-✓, cGMP (FC/NFC), Specify Other-_____

% OF SPAN	Standard (Desired: temp.press.)	As Found (ma, Displayed)	% Error
0%	250.0°F	251.2°F	+1.2°F
25% as needed			
50%			
75% as needed	750.1°F	749.2°F	-.9°F
100%			

Standard (Desired: temp.press.)	As Left (ma, Displayed)
SAME	

Certification Standard Tag #			
Shop 9122	Shop-9150		
Shop-TC-005			

% Error = Displayed - Desired / Calibrated Range/Span X 100

Correct identification tags in place (example: Tag# & Quality Critical, or CAA (Title V), or RCRA or other...)? Check mark here if yes ✓.

Please put down all remarks on what was done to the instrument (examples: replaced sensor, calibrated, unplugged, replaced tx...) (Add s/n, model #.... Below where applicable).
Remarks/Special Instructions Checked good

Required For New Instrument or New Location Only: Please fill out completely
Manufacture Name_____
Model # _____ S/N_____
Decription_____
Location _____ Who is going to use it? _____
What unit is it associated to? _____

Copy

Boiler 3 ESP Inlet Temperature

Certification Data Entry Form (CDEF)

Tag # FT-SHI-703 Date 4 / 26 / 10 Next Due Date 4 / 26 / 11

Performed By Eric Butler Employee # 851461

Procedure # APRESSTX Rev. # 2 RTD Curve: DIN (Y/N) ___ or SAMA (Y/N) ___

Check mark where applicable:
ISO-___, CAA(Title V)-___, RCRA-___, cGMP (FC/NFC), Specify Other- OSWRD

% OF SPAN	Standard (Desired: temp.press.)	As Found (ma, Displayed)	% Error
0%	0" wc	3.98 ma	-0.125
25% as needed			
50%	27.0" wc	11.98 ma	-0.125
75% as needed			
100%	54.0" wc	19.98 ma	-0.125

Standard (Desired: temp.press.)	As Left (ma, Displayed)
→	
→	
→	

Certification Standard Tag #			% Error = Displayed - Desired / Calibrated Range/Span X 100
Shop-744-04			
Shop-744R-17			

Correct identification tags in place (example: Tag# & Quality Critical, or CAA (Title V), or RCRA or other...)? Check mark here if yes ✓.

Please put down all remarks on what was done to the instrument (examples: replaced sensor, calibrated, unplugged, replaced tx...) (Add s/n, model #.... Below where applicable).
Remarks/Special Instructions _____

Required For New Instrument or New Location Only: Please fill out completely
Manufacture Name _____
Model # _____ S/N _____
Decription _____
Location _____ Who is going to use it? _____
What unit is it associated to? _____

Boiler 3 Steam Flow Transmitter

Plant ID: ETMA
CALIBRATION GLANCE REPORT
Report Period: 06/02/10 -- 06/02/10
Report Run Time: 08/27/10 12:13

BOILER3

	END DATE	END TIME	LEVEL	EXPECTED	ACTUAL	CAL ERROR	RESULT
CO_HI	06/02/10	07:28	ZERO	0.0	9.7	0.3	CAL OK
		07:32	HIGH	2400.0	2399.0	0.0	CAL OK
CO_LO		07:25	ZERO	0.0	0.9	0.2	CAL OK
		07:30	HIGH	392.0	398.1	1.2	CAL OK
O2		07:25	ZERO	0.0	0.0	0.0	CAL OK
		07:30	HIGH	20.5	20.3	0.2	CAL OK
THC		07:25	ZERO	0.0	0.1	0.1	CAL OK
		07:30	HIGH	53.0	53.6	0.6	CAL OK

-999 = Invalid data

Plant ID: ETMA
CALIBRATION GLANCE REPORT
Report Period: 06/03/10 -- 06/03/10
Report Run Time: 08/27/10 12:13

BOILER3

	END DATE	END TIME	LEVEL	EXPECTED	ACTUAL	CAL ERROR	RESULT
CO_HI	06/03/10	07:28	ZERO	0.0	59.8	2.0	MAINT. LIMIT
		07:32	HIGH	2400.0	62.4	77.9	OUT OF CONTROL
		09:52	ZERO	0.0	10.4	0.3	CAL OK
		09:56	HIGH	2400.0	2365.5	1.1	CAL OK
CO_LO		07:25	ZERO	0.0	47.9	9.6	OUT OF CONTROL
		07:30	HIGH	392.0	50.2	68.4	OUT OF CONTROL
		09:49	ZERO	0.0	0.9	0.2	CAL OK
		09:54	HIGH	392.0	397.5	1.1	CAL OK
O2		07:25	ZERO	0.0	10.1	10.1	OUT OF CONTROL
		07:30	HIGH	20.5	10.1	10.4	OUT OF CONTROL
		09:49	ZERO	0.0	0.0	0.0	CAL OK
		09:54	HIGH	20.5	20.2	0.3	CAL OK
THC		07:25	ZERO	0.0	-0.1	0.1	CAL OK
		07:30	HIGH	53.0	-0.1	53.1	OUT OF CONTROL
		09:49	ZERO	0.0	0.2	0.2	CAL OK
		09:54	HIGH	53.0	53.6	0.6	CAL OK

-999 = Invalid data

Plant ID: ETMA
CALIBRATION GLANCE REPORT
Report Period: 06/04/10 -- 06/04/10
Report Run Time: 08/27/10 12:08

BOILER3

	END DATE	END TIME	LEVEL	EXPECTED	ACTUAL	CAL ERROR	RESULT
CO_HI	06/04/10	07:28	ZERO	0.0	9.1	0.3	CAL OK
		07:32	HIGH	2400.0	2362.3	1.3	CAL OK
CO_LO		07:25	ZERO	0.0	1.9	0.4	CAL OK
		07:30	HIGH	392.0	393.6	0.3	CAL OK
O2		07:25	ZERO	0.0	0.0	0.0	CAL OK
		07:30	HIGH	20.5	20.4	0.1	CAL OK
THC		07:25	ZERO	0.0	0.2	0.2	CAL OK
		07:30	HIGH	53.0	53.2	0.2	CAL OK

-999 = Invalid data

Attachment D

CPT Field Logs

TED 29-1 (7-97)

COMPUTATION SHEET

SUBJECT Boiler CPT

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

BLDG. NO. 6M01
COMPUTED BY Thomas L Floyd
DATE 6/1/10
CHECKED BY Don A. Uhl
DATE 6/4/2010
DRAWINGS
SHEET NO. OF

Pre test Meeting

Deviations

1) Start stabilization and testing 1-hour earlier than planned. Stabilize @ 0500-0700 Test @ 0700

2) Change how we sample coal for Test 2. Obtain Coal samples before spiking with earth. To do this we will need to sample the coal as we load the bunker prior to adding D.E.
We will only be able to obtain ~4 samples of Coal for both Runs 1+2 in this manner.
We will calculate the earth added to obtain total ash feed rate.

3) Method 0030 - VOST sampling was to obtain required amount of sampling over test time frame. EPA requested we obtain 120min of sampling time, so we will obtain same amount of sample as 120 min. This pushed the test 30-45 min longer.

TED 29-1 (7-97)

COMPUTATION SHEET

SUBJECT Boiler CPT Test-1

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

BLDG. NO. 6M01
COMPUTED BY Thomas L Floyd
DATE 6/2/10
CHECKED BY [illegible]
DATE 6/4/2010
DRAWINGS
SHEET NO. OF

6/2/10

04:00 - Plan was to start early on stabilization. There was two problems.
1) we did not have all of our acetic yet
2) Forgot to get some of the AWFCO's disabled for testing purposes.

05:30 - AWFCO's disabled on testing parameters. Still waiting on last amount of acetic acid.

06:15 - Obtained material and began stabilizing test conditions

06:58 - Low temperature stable

08:00 - Began Test 1, Run 1

08:55 - Test 1, Run 1 moving along well. No concerns.

10:42 - Test 1, Run 1 still moving steady.

11:27 - End of Test 1, Run 1

13:27 - Going good Changing out to 3rd tube pair

PI

TED 29-1 (7-97)

COMPUTATION SHEET

SUBJECT: Boiler CPT Test 1

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

BLDG. NO. 6m01
COMPUTED BY Thomas L Floyd
DATE 6/2/10
CHECKED BY Dave A. Wilhelm
DATE 6/4/2010
DRAWINGS
SHEET NO. OF

6/2/10

12:00 - Began Test 1, Run 2

13:27 - Going well. Changing out tube pairs

13:53 - Note that the MDD clock on boiler screen is 6-min behind PI clock.

14:59 - End of Test 1, Run 2. EPA rep concerned with one port cover having a 1/2" hole in middle were pitot tube could fit through. Concerned with possible dilution, but pitot tube is deep into stack so physics does not appear to indicate impact.

15:35 - Begin of Test - Test 1, Run 3
The official time by stack team is ~ 1 min behind of time on PI

18:39 - End of Test 1, Run 3

8 samples were obtained during Run 1
7 samples were obtained during Run 2
7 samples were obtained during Run 3

Metals spike solution is in position with pumps and scales.

Diatomaceous earth is in position.

TED 29-1 (7-97)

COMPUTATION SHEET

SUBJECT: Boiler CPT Test 2 Run 1

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

BLDG. NO. 6M01
COMPUTED BY Thomas L Floyd
DATE 6/3/10
CHECKED BY Dass A. [illegible]
DATE 6/4/2010
DRAWINGS
SHEET NO. OF

6/3/10

04:05 - ~~Bee~~ Sampled coal upstream of diatomaceous earth spiking point, and began spiking diatomaceous earth at 3-bags per minute. The coal was loading into the coal bunker at 2,000 lb/min. The bags weighed 50 lb/each. So we were adding 150 lb/min of ash.

04:55 - Ended spiking of earth. We added 145 bags over 50 minutes. Ended coal addition.
~~50 minutes at 145 lb/min = 7,250 lbs of D.E.~~ 150 lb/min = 7,500 lbs D.E.
50 min @ 2000 lb/min = 100,000 lbs of coal ✓
TLF

05:00 - Began stabilizing boiler system for test 2

06:11 - THC CEMS building electrical issue took the Boiler down.

07:00 - Estimated time to be back online 3 0900 hours.

09:00 - Back online and stabilizing at 0900 hours.

10:04 - Began Test 2, Run 1
11:29 - AWFCO @ CEMs at 11:27 - 11:29 Caused small CO & THC spike
12:56 - End of metals Run 1, Test 2

13:21 - End of VOST Run 1, Test 2

DAW Note: Duplicates of coal and process waste taken thru out. DAW

TED 29-1 (7-97)

COMPUTATION SHEET

SUBJECT Boiler CPT Test 2 Run 2

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

BLDG. NO. Lemol
COMPUTED BY Thomas L Floyd
DATE 6/3/10
CHECKED BY Dana A. Allen
DATE 6/4/2010
DRAWINGS
SHEET NO. OF

14:13 - Start Test 2, Run 2

16:37 - End Metals Train Test 2, Run 2

17:13 - End VOST Train Test 2, Run 2

17:13 - End Test 2, Run 2

DAW Note: During the middle of T2, R1, it was learned that the stack test team was not leak checking between port changes. We requested that they practice leak check after port change.

DAW Note: EPA rep asked if we were analyzing for particulate in the back-half of the M29 train. Explained this was not possible with our approved test program.

TED 29-1 (7-97)

COMPUTATION SHEET

SUBJECT: Boiler CPT Test 2 Run 3

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

BLDG. NO. 6001
COMPUTED BY Thomas L Floyd
DATE 6/4/10
CHECKED BY Dan A. Cable
DATE 6/4/2010
DRAWINGS
SHEET NO. OF

6/4/10

04:05 - Began adding Coal and Diatomaceous earth to bunker for Test Feed.
Added coal + Diatomaceous earth for 25 minutes.
75 bags of D.E. 3,750 lbs DE

04:45 - Began Stabilizing waste feed + Boiler System

05:10 - System Stabilized

05:45 - System Good - all feeds stabilized including metals.

07:00 - Start Test 2, Run 3

09:41 - End of multi-metals Test 2, Run 3

09:51 - Coal is feeding at about 16% less feed rate today but every thing else is the same. We believe the analytical will hold the answer.

09:57 - End of VOST Test 2, Run 3

DAW Note: VOST Audit set-up as collected this date.

Attachment E

Other Information

Attachment E-1 – Metals Spiking Certificate of Analysis

Attachment E-2 – Field Sampling and Spiking Logs

Attachment E-3 – Combustion Air Correlation Curve

Attachment E-4 – Relative Accuracy Test Audit

Attachment E-5 – Process Test Data

Attachment E-6 – Coal Feed Rate Data

Attachment E-1

Metals Spiking Certificate of Analysis

Blue
Ridge
Chemicals

5335 Rogers Road
Hickory, NC 28602
(828) 397-7363
(828) 397-6577 FAX

Certificate of Composition

Material: Cr/Pb Nitrate Solution
Customer: Future Fuels Company
Date: April 27,2010

Chromium Nitrate	9.981 %
Lead Nitrate	1.491 %
Water (H2O)	88.528%
Total Compound	**100.00%**

Mike Martin

Blue Ridge Chemicals

A Disabled American Veteran Small Business
5335 Rogers Road, Hickory, NC 28602, Office: (828) 397-7363, Fax: (828)397-6577

MATERIAL SAFETY DATA SHEET

SECTION I – PRODUCT INFORMATION

Manufacturer: **Blue Ridge Chemicals, Inc.**
5335 Rogers Road
Hickory, NC 28602

24-Hour Phone: (828)397-7363
FAX: (828)397-6577
CHEMTREC: (800)424-9300

HAZARDOUS MATERIAL ID SYSTEM

HEALTH	3	SERIOUS
FLAMMABILITY	0	NONE
REACTIVITY	3	SERIOUS
CONTACT	1	SLIGHT

MATERIAL NAME: Chromium Nitrate & Lead Nitrate in Water

MATERIAL USE: INCINERATOR SPIKING AGENT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	Conc.%	Toxicity Data	NA or UN #	CAS Number
Chromium Nitrate	9.981%	Oral rat LD50: 3250 mg/kg	UN2720	13548-38-4
Lead Nitrate	1.491%	TLV/TWA 0.15 mg/m3	UN1469	10099-74-8
Water	88.528%		n/a	7732-18-5

SECTION III – PHYSICAL DATA

Physical State:	Blue green liquid
Odor and Appearance:	slight nitric acid odor
Vapor Pressure:	n/a
pH:	n/a
Density/25°C:	n/a
Vapor Density(Air=1):	n/a
Evaporation Rate(n-butyl acetate=1):	N/A
Coefficient of Oil/Water Distribution:	N/A
Boiling Point:	n/a
Freezing Point:	n/a

Product Name: Chromium Nitrate & Lead Nitrate in Water

SECTION IV – FIRE OR EXPLOSION HAZARD

Flammability:
YES () NO (XX)

Means of Extinguishing:	water
Upper Flammability Limit:	N/A
Lower Flammability Limit:	N/A
Hazardous Combustion Products:	Dehydrated material is a strong oxidizer. Contact with combustible material may cause fire.

SECTION V – REACTIVITY DATA

Chemical Stability:
Stable (XX)
Unstable ( )

If no, under what conditions:

Incompatibility with other Substances:

Yes (X) No ( )

If yes, which ones: easily oxidizable materials

Hazardous Decomposition Products: Thermal decomposition may produce toxic oxides of nitrogen, which are harmful to eyes, skin and respiratory tract.

SECTION VI – TOXICOLOGICAL PROPERTIES

Skin Contact:	MAY BE IRRITATING AND MAY CAUSE BURNS TO SKIN.
Eye Contact:	May cause burns and irritation to eyes
Ingestion:	INGESTION MAY CAUSE IRRITATION OR BURNING OF THE DIGESTIVE TRACT. MAY CAUSE RESPIRATORY FAILURE. MAY BE FATAL IF SWALLOWED.
Skin Absorption:	MAY BE ABSORBED IN HARMFUL AMOUNTS.
Inhalation:	Avoid breathing vapors or mist. May cause burns of the respiratory tract and irritation to mucous membranes

Product Name: Chromium Nitrate & Lead Nitrate in Water

Effects of Acute Exposure to Material:	see below
Effects of Chronic Exposure to Material:	Lead is a cumulative poison-even small amounts can raise the body's level to toxic. Causes burns to the eyes and skin. Excessive inhalation of vapor or mist may cause nose, throat and respiratory irritation. Soluble chromic salts have been reported to cause an allergic skin rash. Ingestion may cause burns of the mouth, throat and stomach.
Exposure Limit:	2 ppm (TWA), 4 ppm (STEL) as nitric acid 0.05 mg/m3 TWA as lead
Sensitization to Material:	None Known.

Carcinogenicity:	NTP:	N/A
	IARC:	N/A
	Z LIST:	N/A
	OSHA REG:	N/A

SECTION VII –PREVENTATIVE MEASURES

Personal Protective Equipment:	WEAR SAFETY GOGGLES AND FACE SHIELD. PROTECTIVE SUIT AND RUBBER GLOVES ARE RECOMMENDED.
Engineering Controls:	USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.
Spill Procedure:	WEAR PROTECTIVE CLOTHING. TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINER. CAREFULLY COLLECT-DO NOT LET CHEMICALS ENTER ENVIRONMENT!
Waste Disposal:	DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
Storage and Handling Procedures:	STORE IN TIGHTLY CLOSED CONTAINER. SEPARATE FROM FOODSTUFFS.

Product Name: Chromium Nitrate & Lead Nitrate in Water

SECTION VIII – FIRST AID MEASURES

Skin Contact:	Immediately flush skin with water for at least 15 minutes.
Eye Contact:	Immediately flush eyes with water for fifteen minutes.
Ingestion:	May be fatal if swallowed. Call a physician immediately. Do not induce vomiting.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

SECTION IX – SHIPPING INFORMATION

Labeling Information:

POISON. DANGER.
CAUTION: CONTAINS CHROMIUM AND LEAD AND NITRIC ACID
HIGHLY CORROSIVE
STRONG OXIDIZER
AVOID BREATHING VAPORS OR MIST.
MAY BE FATAL IF SWALLOWED OR INHALED
MAY CAUSE SEVERE BURNING TO DIGESTIVE AND RESPIRATORY TRACT
MAY AFFECT KIDNEYS, NERVOUS SYSTEM, BLOOD, REPRODUCTIVE SYSTEM, GUM TISSUE,
IRRITATION TO EYES, SKIN
MAY CAUSE FIRE
MAY BE FATAL IF SWALLOWED
DO KEEP IN TIGHTLY CLOSED CONTAINER.
USE WITH ADEQUATE VENTILATION.
WASH THOROUGHLY AFTER HANDLING.

Proper Shipping Name:	TOXIC LIQUID INORGANIC, N.O.S. (CONTAINS Chromium & Lead)
Hazard Class:	8, 6.1
UN/NA	UN3289
Labels:	CORROSIVE LIQUID, TOXIC, OXIDIZER
Packaging:	I

Product Name: Chromium Nitrate & Lead Nitrate in Water

SECTION X – PREPARATION INFORMATION

Prepared by:	Blue Ridge Chemicals, Inc. 5335 Rogers Road Hickory, NC 28602
Phone Number:	(828) 397-7363
Date:	April 27,2010

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty, expressed or implied, with respect to such information, and we assume no liability resulting from its use or misuse. This company shall not be held liable for any damages arising from the information contained on this data sheet howsoever caused, if the product in question is not employed in normal or reasonably foreseeable use or circumstances. The company shall not be liable for any indirect or consequential damages arising out of the use of the information contained on this data sheet howsoever caused.

Attachment E-2

Field Sampling and Spiking Logs

June 2, 2010
Boiler CPT
Test 1

	Test 1 Run 1	Time	Date	Initials	Test 1 Run 2	Time	Date	Initials	Test 1 Run 3	Time	Date	Initials
VOC 40 ml Vials for POHC Analysis	V1101A	08:04	6/2/10	MB	V1201A	12:03	6-2-10	MB	V1301A	15:35	6/2/10	MB
	V1102A	08:34	6/2/10	MB	V1202A	12:33	6/2/10	MB	V1302A	16:05	6/2/10	MB
	V1103A	09:04	6/2/10	MB	V1203A	13:03	6/2/10	MB	V1303A	16:35	6/2/10	MB
	V1104A	09:34	6/2/10	MB	V1204A	13:33	6/2/10	MB	V1304A	17:05	6/2/10	MB
	V1105A	10:04	6/2/10	MB	V1205A	14:03	6/2/10	MB	V1305A	17:35	6/2/10	MB
	V1106A	10:34	6/2/10	MB	V1206A	14:33	6/2/10	MB	V1306A	18:05	6/2/10	MB
	V1107A	11:04	6/2/10	MB	V1207A	15:03	6/2/10	MB	V1307A	18:35	6/2/10	MB
	V1108A	11:27	6/2/10	MB	V1208A				V1308A			
4 oz Sample Waste Feed	A1101A	08:04	6/2/10	MB	A1201A	12:03	6-2-10	MB	A1301A	15:35	6/2/10	MB
	A1102A	08:34	6/2/10	MB	A1202A	12:33	6/2/10	MB	A1302A	16:05	6/2/10	MB
	A1103A	09:04	6/2/10	MB	A1203A	13:03	6/2/10	MB	A1303A	16:35	6/2/10	MB
	A1104A	09:34	6/2/10	MB	A1204A	13:33	6/2/10	MB	A1304A	17:05	6/2/10	MB
	A1105A	10:04	6/2/10	MB	A1205A	14:03	6/2/10	MB	A1305A	17:35	6/2/10	MB
	A1106A	10:34	6/2/10	MB	A1206A	14:33	6/2/10	MB	A1306A	18:05	6/2/10	MB
	A1107A	11:04	6-2/10	MB	A1207A	15:03	6/2/10	MB	A1307A	18:35	6/2/10	MB
	A1108A	11:27	6/2/10	MB	A1208A				A1308A			

June 2, 2010
Boiler CPT
Test 1

	Test 1 Run 1	Time	Date	Initials		Test 1 Run 2	Time	Date	Initials		Test 1 Run 3	Time	Date	Initials
Coal samples	C1101A	7:55	6/2/10	JM		C1201A	12:00pm	6/2/10	JM		C1301A	3:35pm	6/2/10	JM
	C1102A	8:25	6/2/10	JM		C1202A	12:30pm	6/2/10	JM		C1302A	4:05pm	6/2/10	JM
	C1103A	8:55	6/2/10	JM		C1203A	1:00	6/2/10	JM		C1303A	4:35pm	6/2/10	JM
	C1104A	9:25	6/2/10	JM		C1204A	1:30	6/2/10	JM		C1304A	5:05pm	6/2/10	JM
	C1105A	9:55	6/2/10	JM		C1205A	2:00	6/2/10	JM		C1305A	5:35pm	6/2/10	JM
	C1106A	10:25	6/2/10	JM		C1206A	2:30	6/2/10	JM		C1306A	6:05pm	6/2/10	JM
	C1107A	10:55	6/2/10	JM		C1207A	3:00	6/2/10	JM		C1307A	6:35	6/2/10	JM
	C1108A	11:25	6/2/10	JM		C1208A					C1308A			

June 3, 2010
Boiler CPT
Test 2 , Runs 1 2

	Test 2 Run 1	Time	Date	Initials		Test 2 Run 2	Time	Date	Initials		Test 3 Run 3	Time	Date	Initials
VOC 40 ml Vials for POHC Analysis	V2101A	10:10	6-3/10	MB		V2201A	14:10	6/3/10	MB		V2301A			
	V2102A	10:34	6/3/10	MB		V2202A	14:43	6/3/10	MB		V2302A			
	V2103A	11:04	6/3/10	MB		V2203A	15:13	6/3/10	MB		V2303A			
	V2104A	11:34	6/3/10	MB		V2204A	15:43	6/3/10	MB		V2304A			
	V2105A	12:04	6/3/10	MB		V2205A	16:13	6/3/10	MB		V2305A			
	V2106A	12:34	6/3/10	MB		V2206A	16:43	6/3/10	MB		V2306A			
	V2107A	13:04	6/3/10	MB		V2207A	17:13	6/3/10	MB		V2307A			
	V2108A					V2208A					V2308A			
4 oz Sample Waste Feed	A2101A	10:10	6/3/10	MB		A2201A	14:10	6/3/10	MB		A2301A			
	A2102A	10:34	6/3/10	MB		A2202A	14:43	6/3/10	MB		A2302A			
	A2103A	11:04	6/3/10	MB		A2203A	15:13	6/3/10	MB		A2303A			
	A2104A	11:34	6/3/10	MB		A2204A	15:43	6/3/10	MB		A2304A			
	A2105A	12:04	6/3/10	MB		A2205A	16:13	6/3/10	MB		A2305A			
	A2106A	12:34	6/3/10	MB		A2206A	16:43	6/3/10	MB		A2306A			
	A2107A	13:04	6/3/10	MB		A2207A	17:13	6/3/10	MB		A2307A			
	A2108A					A2208A					A2308A			

June 3 , 2010
Boiler CPT
Test 2, Runs 1 and 2

	Test 2 Run 1 & 2	Time	Date	Initials
Coal samples	C1101A	4:05	6-3-10	MB
	C1102A	4:20	6-3-10	MB
	C1103A	4:35	6-3-10	MB
	C1104A	4:50	6-3-10	MB
	C1105A			
	C1106A			
	C1107A			
	C1108A			

Coal samples for both runs 1 and 2 were collected as the bunker was loaded for the test, upstream from the diatomaceous earth spiking point.

June 4, 2010
Boiler CPT
Test 2 , Run 3

	Test 2 Run 1	Time	Date	Initials		Test 2 Run 2	Time	Date	Initials		Test 3 Run 3	Time	Date	Initials
VOC 40 ml Vials for POHC Analysis	V2101A					V2201A					V2301A	07:00	6/4/10	MB
	V2102A					V2202A					V2302A	07:30	6/4/10	MB
	V2103A					V2203A					V2303A	0800	6/4/10	MB
	V2104A					V2204A					V2304A	0830	6/4/10	MB
	V2105A					V2205A					V2305A	0900	6/4/10	MB
	V2106A					V2206A					V2306A	0930	6/4/10	MB
	V2107A					V2207A					V2307A	10:00	6/4/10	MB
	V2108A					V2208A					V2308A			
4 oz Sample Waste Feed	A2101A					A2201A					A2301A	0700	6/4/10	MB
	A2102A					A2202A					A2302A	0730	6/4/10	MB
	A2103A					A2203A					A2303A	0800	6/4/10	MB
	A2104A					A2204A					A2304A	0830	6/4/10	MB
	A2105A					A2205A					A2305A	0900	6/4/10	MB
	A2106A					A2206A					A2306A	0930	6/4/10	MB
	A2107A					A2207A					A2307A	1000	6/4/10	MB
	A2108A					A2208A					A2308A			

June 4 , 2010
Boiler CPT
Test 2, Run 3

4 of 2	Test 2 Run 3	Time	Date	Initials
Coal samples	C1101A	4:05Am	6-4-10	M.B
	C1102A	4:15Am	6-4-10	M.B.
	C1103A	4:25Am	6-4-10	M.B.
	C1104A	4:31Am	6-4-10	M.B.
	C1105A			
	C1106A			
	C1107A			
	C1108A			

Date 6/3/10 Test # ~~1~~ 2 DAW Run # 1

Metals Spike Operator Name	Test Run Time	Pump Time	Scale Weight (lbs)	Feed Weight (lbs)	Comments	Pump Speed
John Johnson	09:30		372.4	0.01		
	09:35		354.2	18.2		
	09:40		341.9	12.3		
	09:45		341.6	0.3		
	09:50		332.4	9.2		
	09:55		324.0	8.4		
	10:00	10:04	312.3	11.7		
	10:19		283.9	28.4	28.4 DAW	
	10:34		251.3	32.6		
	10:49		240.6	10.7		
	11:04		226.0	14.6		
	11:19		211.3	14.7		
	11:34		196.2	15.1		
	11:49		183.5	12.7		
	12:04		169.9	13.6		
	12:19		155.0	14.9		
	12:34		142.7	12.3		
	12:49		128.4	14.3		
	13:04		113.6	14.8		
	~~13:19~~ DAW					

Spike Operator Signature/Date [signature] 6/3/10

QA/QC Officer Signature/Date [signature] 6/3/10

Start pump, record weight every 5 min until lined out at 1 lb/min for 15 min, then skip to every 15 min

Date 6/3/10 Test # X2 DAW TCF Run # 2

Metals Spike Operator Name	Test Run Time	Pump Time	Scale Weight (lbs)	Feed Weight (lbs)	Comments	Pump Speed
John Johnson/Philip Antici	14:12	14:12	461.0			
		14:27	444.6	17.6	14:30 - Pull bottom ash / 14:33 Stop pulling bottom ash	
		14:42	431.5	13.1		
		14:57	416.5	15.0		
		15:12	404.3	12.2		
		15:27	391.5	12.8		
		15:42	373.9	17.6		
		15:57	355.5	18.4		
		16:12	341.0	14.5		
		16:27	326.0	15.0		
	16:37	16:42	310.7	15.3		
		16:[illegible]	306.7			

Spike Operator Signature/Date John Johnson 6/3/10

QA/QC Officer Signature/Date [illegible] 6/3/2010

Start pump, record weight every 5 min until lined out at 1 lb/min for 15 min, then skip to every 15 min

Date 6-4-10 Test # 2 Run # 3

Metals Spike Operator Name	Test Run Time	Pump Time	Scale Weight (lbs)	Feed Weight (lbs)	Comments	Pump Speed
John Johnson/Philip		06:50	344.6			
		06:55	340.2	4.4		
	07:00	07:00	335.7	4.5		
		07:15	322.9	12.8		
		07:30	308.1	14.8		
		07:45	288.8	19.3		
		08:00	267.6	21.2		
		08:15	255.2	12.4		
		08:30	241.8	13.4		
		08:45	228.2	13.6		
		09:00	211.1	16.1		
		09:15	197.2	13.9		
		09:30	181.4	15.8		
	09:41	09:45	163.9	17.5		
		10:00	147.2	16.7		

Spike Operator Signature/Date John Johnson 6/4/10 Philip [illegible] 6/4/10

QA/QC Officer Signature/Date [illegible] 6/4/2010

Start pump, record weight every 5 min until lined out at 1 lb/min for 15 min, then skip to every 15 min

Attachment E-3

Combustion Air Correlation Curve

1.0 INTRODUCTION

Future Fuel Chemical Company (FFCC) prepared a curve that correlates the flow rate of combustion air to the stack gas flow rate. The purpose of the correlation curve is to allow the use of combustion air flow rate as a surrogate for the MACT EEE operating parameter limit of stack gas flow rate. FFCC prepared this correlation curve at the direction of U.S. EPA Region 6 and it disputes the Region's opinion that this method of demonstrating compliance is preferred over the use of steam production rate. Production rate (including steam production rate) is expressly called out by the regulations as the most appropriate surrogate for stack gas flow rate. Thus, in spite of the fact that Region 6 cited no regulation or technical facts to support its decision to void the use of steam production rate (thus making the decision unexpected and financially damaging), FFCC acquiesced to the Region's request in a spirit of cooperation.

2.0 METHODOLOGY

FFCC used stack gas flow rate and combustion air flow rate data collected during the CPT to prepare the correlation curve. Some of the data was collected on May 10, 2010; and the remainder of the data was collected during the days of June 2-4, 2010. The May 10, 2010 stack gas flow rate data is provided in Appendix A to this Attachment, and the May 10, 2010 combustion air flow rate data is provided in Appendix B. The June 2-4, 2010 data is summarized in CPT Report Tables 7 and 8.

FFCC summarized the data in tables and used standard regression equations provided in Microsoft® Excel to prepare the correlation curves. FFCC used a second order polynomial function to correlate the data because it provided the best reasonable fit. A summary of the data that was used in the regression analysis is provided in Table 1.

Table 1: SUMMARY OF DATA USED IN CORRELATION CURVE

TEST/DATA SOURCE	Combustion Air Flow (scfm)	Stack Flow (scfm)	Stack Flow (acfm @ 1,061 °F)
May 10, 2010 Stack Flow Test	11552	15098	48649
May 10, 2010 Stack Flow Test	12485	15968	51453
May 10, 2010 Stack Flow Test	13911	17830	57776
May 10, 2010 Stack Flow Test	15410	17888	57962
June CPT, Test Condition 1-R1	16131	19728	62796
June CPT, Test Condition 1-R2	16103	19786	62980
June CPT, Test Condition 1-R3	16125	19575	62309
May 10, 2010 Stack Flow Test	16944	20148	65654
May 10, 2010 Stack Flow Test	18050	20703	67463
June CPT, Test Condition 2-R1	21040	22225	70822
June CPT, Test Condition 2-R2	21028	23078	73785
June CPT, Test Condition 2-R3	21321	21781	69716
May 10, 2010 Stack Flow Test	16639	19955	65026
May 10, 2010 Stack Flow Test	15532	19302	62545
May 10, 2010 Stack Flow Test	13830	18551	60112
May 10, 2010 Stack Flow Test	12926	16878	54629
May 10, 2010 Stack Flow Test	11465	15327	49609

3.0 RESULTS

The results of the correlation are provided in Figures 1 and 2. Two correlations were prepared: one correlation between combustion air flow rate and stack gas flow rate with both flow rates at standard conditions (68 °F, atmospheric pressure, no moisture in stack gas); and a second correlation with combustion air flow at standard conditions and stack gas flow at 1,061 °F, atmospheric pressure, moisture included.

The first correlation results in Equation 1.

$$SGF_{dscfm} = -5E\text{-}05 * (CAF)^2 + 2.0518 * (CGF) - 2{,}996.1;\ R^2 = 0.9603$$

Where,

SGF = Stack Gas Flow Rate (dscfm)

CAF = Combustion Air Flow Rate (scfm), and combustion gas flow rate is calculated by the percent valve open recorded by FFCC's data acquisition system * the design flow of the forced draft fan (21,456 scfm), + the design air flow rates associated with the atomizing gun (1,800 scfm) and the overfire air (3,050 scfm).

The second correlation results in Equation 2.

$$SGF_{acfm} = -0.0001 * (CAF)^2 + 6.9976 * (CGF) - 12{,}203;\ R^2 = 0.9571$$

Where,

SGF = Stack Gas Flow Rate (acfm @ 1,061 °F)

CAF = Combustion Air Flow Rate (scfm), and combustion gas flow rate is calculated by the percent valve open recorded by FFCC's data acquisition system * the design flow of the forced draft fan (21,456 scfm), + the design air flow rates associated with the atomizing gun (1,800 scfm) and the over-fire air (3,050 scfm).

Figure 1: Combustion Air Flow (scfm) v. Stack Gas Flow (dscfm)

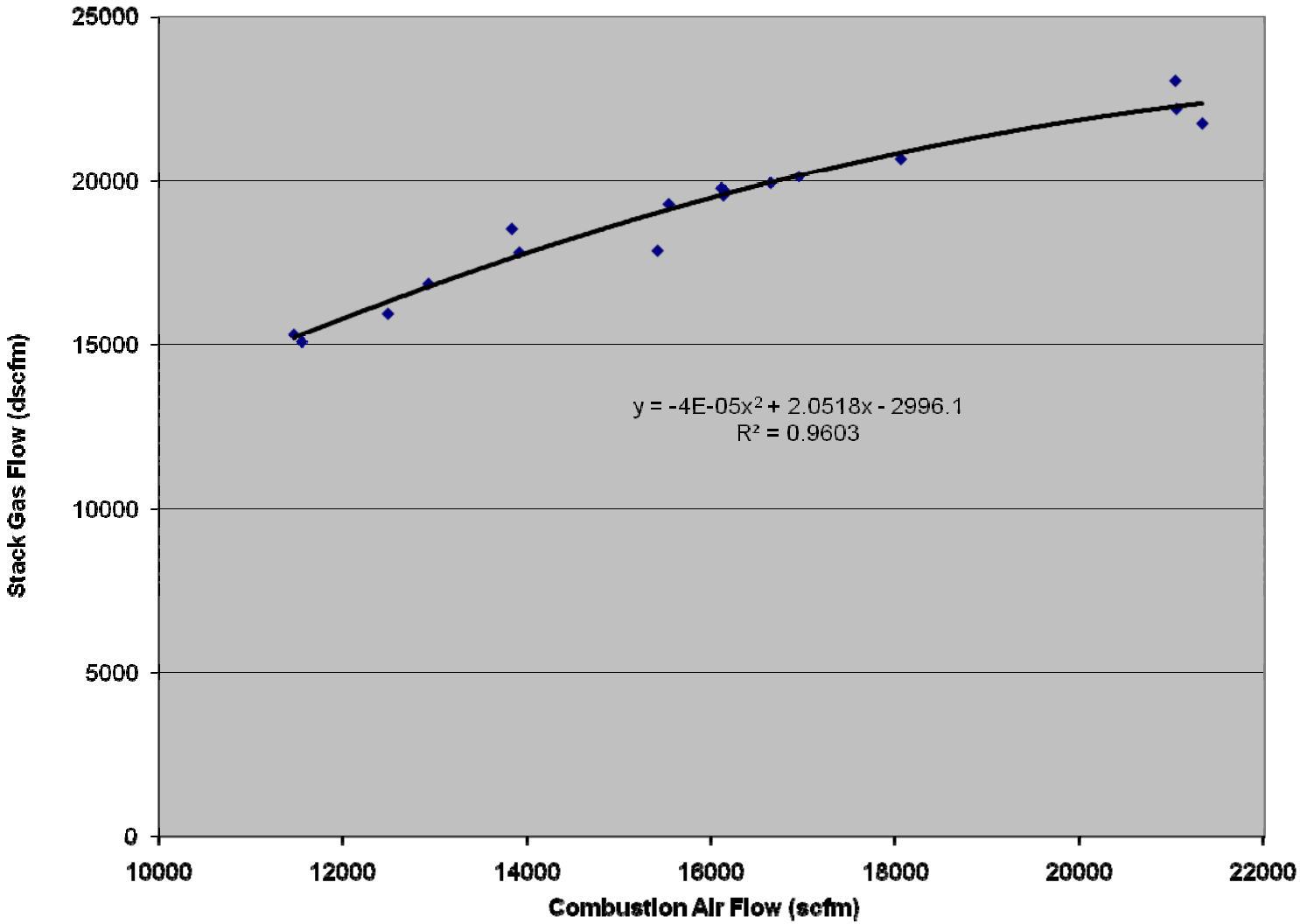
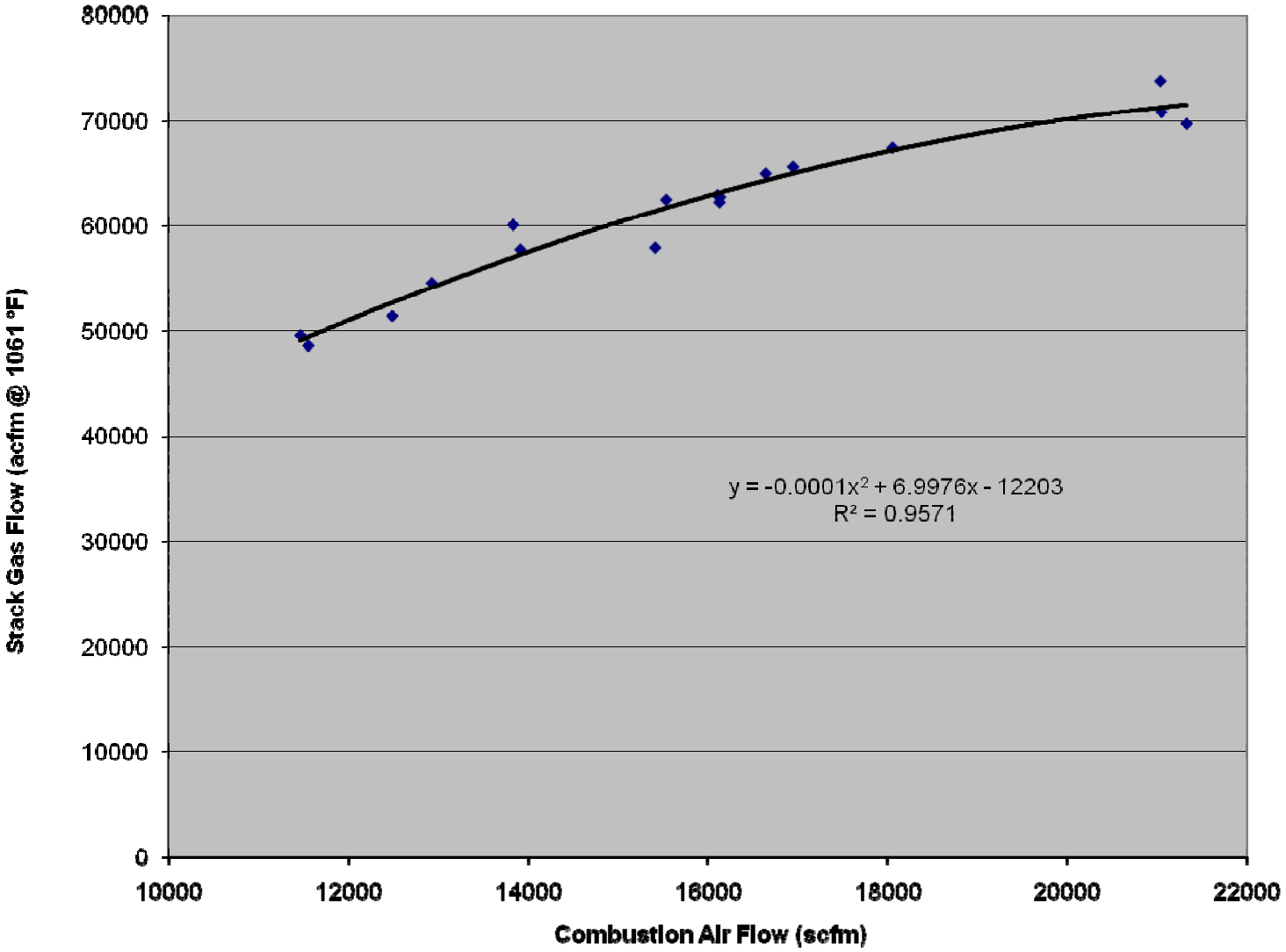


Figure 2: Combustion Air Flow (scfm) v. Stack Gas Flow (acfm @ 1,061 °F)



APPENDIX A

May 10, 2010 STACK GAS FLOW RATE DATA

Location: FutureFuel Chemical Company
Date: 05/20/10

Source: Boiler 3
Project No.: 2010-0146

Method 1 - Velocity Traverse Data

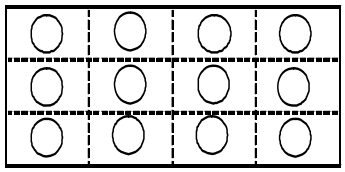
Distance from far wall to outside of port:	26.50	in.	**Distance from ports to nearest disurbance**				
Nipple length:	3.50	in.	**Up-stream (A):**	8.5	ft.	3.3	Duct Diameters
Depth of Duct (Ds):	23.00	in.	**Down-stream (B):**	9.8	ft.	3.8	Duct Diameters
Width of Duct (Ws):	49.00	in.	**Equivalent Diameter:**	31.31			
Cross Sectional Area of Duct (As):	7.83	ft^2	**Number of traverse points total:**	15			
No. of port:	5						

LOCATION OF TRAVERSE POINTS
RECTANGULAR STACKS

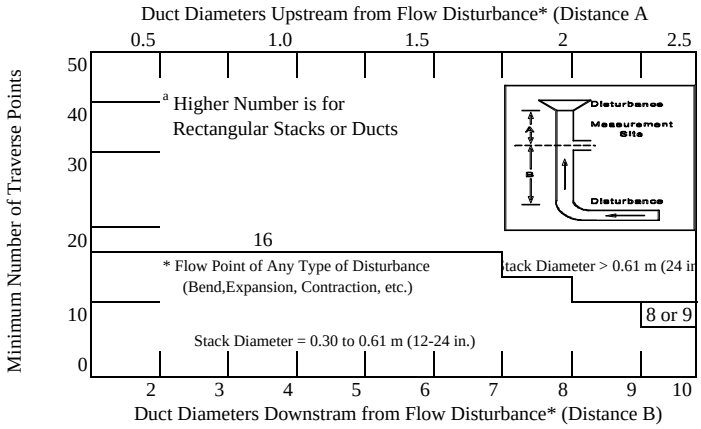
Traverse point Number on a Diameter	Number of traverse ports on a diameter										
	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5
3	--	63.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	31.8	20.8
4	--	--	87.5	70.0	58.3	50.0	43.8	38.9	35.0	22.7	29.2
5	--	--	--	90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
6	--	--	--	--	91.7	78.6	68.8	61.1	55.0	50.0	45.8
7	--	--	--	--	--	92.9	81.3	72.2	65.0	59.1	54.2
8	--	--	--	--	--	--	93.8	83.3	75.0	68.2	62.5
9	--	--	--	--	--	--	--	94.4	85.0	77.3	70.8
10	--	--	--	--	--	--	--	--	95.0	86.4	79.2
11	--	--	--	--	--	--	--	--	--	95.5	87.5
12	--	--	--	--	--	--	--	--	--	--	95.8

*Percent of stack diameter from inside wall to traverse point.

EXAMPLE RECTANGULAR STACK CROSS SECTION DIVIDED INTO 12 EQUAL AREAS, WITH TRAVERSE AT CENTROID



Minimum number of traverse points for velocity (nonparticulate traverses).



Traverse Point	% of Diameter	Distance from inside wall	Distance from outside of port
1	16.7	3.84	7.34
2	50.0	11.50	15.00
3	63.3	14.56	18.06
4	--	--	--
5	--	--	--
6	--	--	--
7	--	--	--
8	--	--	--
9	--	--	--
10	--	--	--
11	--	--	--
12	--	--	--

Notes:

Test Personnel (signature/date)

Test Team Leader (signature/date)

Location: FutureFuel Chemical Company
Date: 05/20/10

Source: Boiler 3
Project No.: 2010-0146

Method 4 - Moisture Data

Run No.		1	2	3	Meter ID: 159308-A
Start Time		10:15 AM	11:00 AM	11:45 AM	Y(avg): 1.017
End Time		10:45 AM	11:30 AM	12:15 PM	ΔH @: 1.844
Sample Time (minutes)	(Θ)	30	30	30	
Meter Volume, ft^3					
Time					
0		377.370	399.194	422.658	
5		381.000	402.802	426.331	
10		384.580	406.341	430.004	
15		388.160	410.004	433.684	
20		391.740	413.879	437.241	
25		395.320	417.225	440.920	
30		398.900	421.340	444.956	
Total Meter Volume	(Vm)	21.530	22.146	22.298	
Meter Temperature (°F), (Inlet/Outlet)					
Time					
0		68 / 68	73 / 73	76 / 76	
5		68 / 68	73 / 74	77 / 76	
10		70 / 70	74 / 74	77 / 76	
15		70 / 70	74 / 75	77 / 77	
20		70 / 70	75 / 75	78 / 78	
25		72 / 72	75 / 75	78 / 78	
30		72 / 72	76 / 76	79 / 79	
Average Meter Temperature (°F)	(Tm)	70.0	74.4	77.3	
Barometeric Pressure (in. Hg)	(Pb)	29.68	29.68	29.68	
Meter Orifice Pressure (in. WC)	(ΔH)	1.800	1.800	1.800	
Meter Pressure (in. Hg)	(Pm)	29.81	29.81	29.81	
Standard Meter Volume (ft^3)	(Vmstd)	21.735	22.171	22.205	
Impinger 1, (mL) Pre/Post Test		100 / 140	100 / 148	100 / 154	
Impinger 2, (mL) Pre/Post Test		100 / 106	100 / 100	100 / 100	
Impinger 3, (mL) Pre/Post Test		0 / 0	0 / 0	0 / 0	
Impinger 4, (g) Pre/Post Test		242.4 / 251.4	224.4 / 233.4	243.6 / 251.7	
Volume Water Collected, (mL)	(Vlc)	55.0	57.0	62.1	
Standard Water Volume, (ft^3)	(Vwstd)	2.589	2.683	2.923	**Average(s)**
Moisture Fraction	(BWS)	0.106	0.108	0.116	0.110
Moisture Content (%)	(MC)	10.6	10.8	11.6	11.0

Notes:

Test Personnel (signature/date)

Test Team Leader (signature/date)

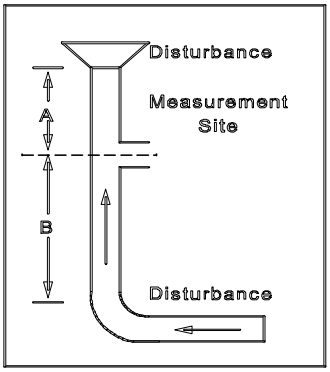
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.54 in. WC

Stack Pressure (Ps): 29.64 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	10:13 AM		10:18 AM				
Stop Time	10:18 AM		10:22 AM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.22	355	1.00	362			
2	0.24	356	0.99	362			
3	0.28	354	0.97	362			
B1	0.45	352	0.91	360			
2	0.46	354	0.90	361			
3	0.58	356	0.88	361			
C1	0.74	355	0.67	359			
2	0.76	358	0.68	359			
3	0.77	359	0.71	360			
D1	0.89	360	0.43	357			
2	0.90	360	0.44	358			
3	0.86	360	0.52	359			
E1	0.97	360	0.27	356			
2	0.98	361	0.26	357			
3	0.97	362	0.33	357			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	0.799		0.797		--		0.798
Average ΔP, (in. WC)	0.67		0.66		--		0.67
Average Temperature (Ts), °F	357.5		359.3		--		358.4
Moisture (BWS), unitless	0.106		0.106		0.106		0.106
CO2 Concentration, %	8.7		8.7				8.7
O2 Concentration, %	11.9		11.9				11.9
Molecuar Weight (Md), lb/lb-mole (dry)	29.87		29.87		--		29.87
Molecuar Weight (Ms), lb/lb-mole (wet)	28.60		28.60		--		28.60
Velocity (Vs), ft/sec	56.4		56.2		--		56.3
VFR at stack conditions (Qa), acfm	26,462		26,410		--		26,436
VFR at standard conditions (Qs), dscfm	15,130		15,066		--		15,098

Test Personnel (signature/date)

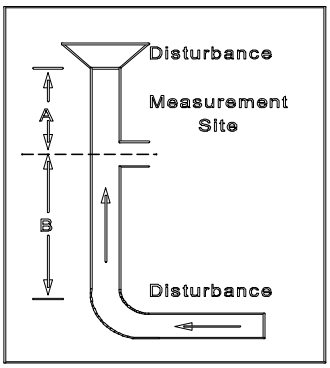
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.53 in. WC

Stack Pressure (Ps): 29.64 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	10:41 AM		10:46 AM				
Stop Time	10:46 AM		10:51 AM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.34	355	1.10	365			
2	0.34	356	1.10	365			
3	0.40	358	1.05	364			
B1	0.44	353	0.92	361			
2	0.58	360	0.94	361			
3	0.64	361	0.95	362			
C1	0.75	360	0.77	360			
2	0.79	362	0.78	361			
3	0.83	362	0.84	362			
D1	0.92	361	0.46	360			
2	0.94	363	0.53	361			
3	0.88	363	0.62	362			
E1	1.10	363	0.30	356			
2	1.10	364	0.33	358			
3	1.05	363	0.43	359			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	0.845		0.845		--		0.845
Average ΔP, (in. WC)	0.74		0.74		--		0.74
Average Temperature (Ts), °F	360.3		361.1		--		360.7
Moisture (BWS), unitless	0.106		0.106		0.106		0.106
CO2 Concentration, %	8.7		8.7				8.7
O2 Concentration, %	11.9		11.9				11.9
Molecuar Weight (Md), lb/lb-mole (dry)	29.87		29.87		--		29.87
Molecuar Weight (Ms), lb/lb-mole (wet)	28.60		28.60		--		28.60
Velocity (Vs), ft/sec	59.7		59.7		--		59.7
VFR at stack conditions (Qa), acfm	28,035		28,040		--		28,038
VFR at standard conditions (Qs), dscfm	15,975		15,961		--		15,968

Test Personnel (signature/date)

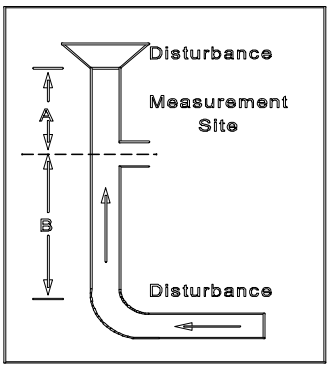
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.63 in. WC

Stack Pressure (Ps): 29.63 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	10:59 AM		11:04 AM				
Stop Time	11:04 AM		11:09 AM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.34	350	2.00	371			
2	0.33	360	1.95	371			
3	0.43	362	1.90	371			
B1	0.58	366	1.10	369			
2	0.68	366	1.10	370			
3	0.81	367	1.15	370			
C1	0.91	368	0.78	369			
2	0.97	369	0.89	369			
3	1.00	369	0.97	370			
D1	0.93	367	0.50	368			
2	1.10	368	0.53	369			
3	1.10	369	0.72	369			
E1	1.25	369	0.33	367			
2	2.00	370	0.37	367			
3	2.00	370	0.42	368			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	0.950		0.952		--		0.951
Average ΔP, (in. WC)	0.96		0.98		--		0.97
Average Temperature (Ts), °F	366.0		369.2		--		367.6
Moisture (BWS), unitless	0.108		0.108		0.116		0.111
CO2 Concentration, %	9.9		9.9				9.9
O2 Concentration, %	10.5		10.5				10.5
Molecuar Weight (Md), lb/lb-mole (dry)	30.00		30.00		--		30.00
Molecuar Weight (Ms), lb/lb-mole (wet)	28.71		28.71		--		28.71
Velocity (Vs), ft/sec	67.2		67.5		--		67.4
VFR at stack conditions (Qa), acfm	31,559		31,705		--		31,632
VFR at standard conditions (Qs), dscfm	17,824		17,837		--		17,830

Test Personnel (signature/date)

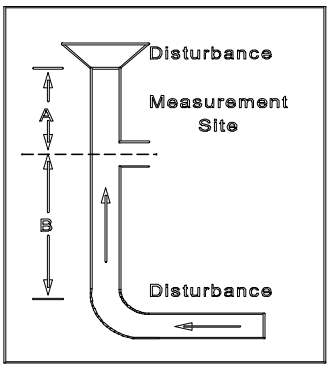
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.75 in. WC

Stack Pressure (Ps): 29.62 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	11:27 AM		11:31 AM				
Stop Time	11:31 AM		11:35 AM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.42	356	1.30	380			
2	0.44	364	1.30	380			
3	0.49	365	1.20	376			
B1	0.68	370	1.20	377			
2	0.77	376	1.20	379			
3	0.90	377	1.10	378			
C1	0.99	376	0.98	378			
2	1.05	378	1.05	379			
3	1.10	376	1.10	379			
D1	1.15	377	0.65	377			
2	1.10	378	0.73	378			
3	1.10	378	0.88	376			
E1	1.40	379	0.52	376			
2	1.30	379	0.50	377			
3	1.30	379	0.49	377			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	0.958		0.960		--		0.959
Average ΔP, (in. WC)	0.95		0.95		--		0.95
Average Temperature (Ts), °F	373.9		377.8		--		375.8
Moisture (BWS), unitless	0.108		0.108		0.116		0.111
CO2 Concentration, %	9.9		9.9				9.9
O2 Concentration, %	10.5		10.5				10.5
Molecuar Weight (Md), lb/lb-mole (dry)	30.00		30.00		--		30.00
Molecuar Weight (Ms), lb/lb-mole (wet)	28.71		28.71		--		28.71
Velocity (Vs), ft/sec	68.1		68.5		--		68.3
VFR at stack conditions (Qa), acfm	31,975		32,144		--		32,060
VFR at standard conditions (Qs), dscfm	17,883		17,893		--		17,888

Test Personnel (signature/date)

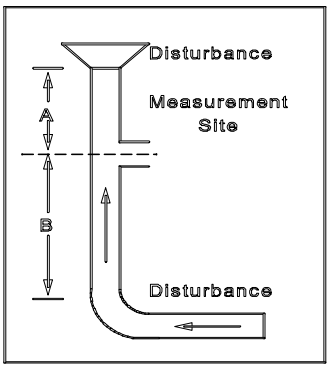
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -1.30 in. WC

Stack Pressure (Ps): 29.58 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	11:46 AM		11:53 AM				
Stop Time	11:53 AM		11:57 AM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.37	372	1.90	395			
2	0.39	379	1.80	395			
3	0.44	377	1.80	392			
B1	0.62	383	1.80	395			
2	0.80	387	1.70	395			
3	0.99	386	1.70	394			
C1	1.50	390	1.20	393			
2	1.55	391	1.50	395			
3	1.70	388	1.60	395			
D1	1.80	389	0.73	393			
2	1.70	395	0.85	394			
3	1.80	394	1.20	394			
E1	1.90	393	0.45	392			
2	1.90	394	0.49	392			
3	1.90	393	0.52	390			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	1.098		1.104		--		1.101
Average ΔP, (in. WC)	1.29		1.28		--		1.29
Average Temperature (Ts), °F	387.4		393.6		--		390.5
Moisture (BWS), unitless	0.116		0.116		0.116		0.116
CO2 Concentration, %	11.0		11.0				11.0
O2 Concentration, %	9.3		9.3				9.3
Molecuar Weight (Md), lb/lb-mole (dry)	30.13		30.13		--		30.13
Molecuar Weight (Ms), lb/lb-mole (wet)	28.72		28.72		--		28.72
Velocity (Vs), ft/sec	78.7		79.5		--		79.1
VFR at stack conditions (Qa), acfm	36,974		37,314		--		37,144
VFR at standard conditions (Qs), dscfm	20,129		20,167		--		20,148

Test Personnel (signature/date)

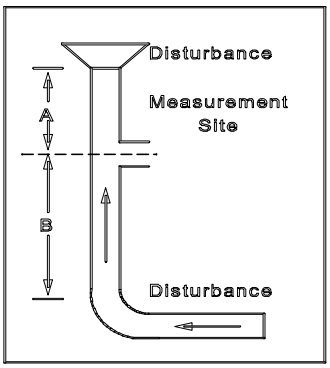
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.90 in. WC

Stack Pressure (Ps): 29.61 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	12:05 PM		12:08 PM				
Stop Time	12:08 PM		12:12 PM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.39	387	2.00	400			
2	0.48	388	2.00	400			
3	0.64	384	2.10	400			
B1	0.60	389	1.80	399			
2	0.73	395	2.00	400			
3	1.10	397	2.10	400			
C1	1.40	397	1.30	398			
2	1.60	398	1.45	399			
3	1.90	397	1.90	400			
D1	1.90	399	0.71	397			
2	1.90	399	0.78	397			
3	2.20	399	0.90	397			
E1	2.00	398	0.43	395			
2	2.00	400	0.42	396			
3	2.20	400	0.47	393			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	1.145		1.125		--		1.135
Average ΔP, (in. WC)	1.40		1.36		--		1.38
Average Temperature (Ts), °F	395.1		398.1		--		396.6
Moisture (BWS), unitless	0.116		0.116		0.116		0.116
CO2 Concentration, %	11.0		11.0				11.0
O2 Concentration, %	9.3		9.3				9.3
Molecuar Weight (Md), lb/lb-mole (dry)	30.13		30.13		--		30.13
Molecuar Weight (Ms), lb/lb-mole (wet)	28.72		28.72		--		28.72
Velocity (Vs), ft/sec	82.4		81.1		--		81.8
VFR at stack conditions (Qa), acfm	38,712		38,091		--		38,402
VFR at standard conditions (Qs), dscfm	20,906		20,500		--		20,703

Test Personnel (signature/date)

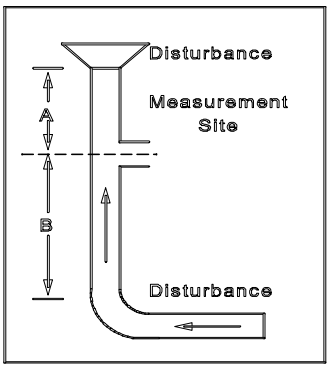
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.93 in. WC

Stack Pressure (Ps): 29.61 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	12:25 PM		12:29 PM				
Stop Time	12:29 PM		12:32 PM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.44	387	1.95	401			
2	0.48	390	1.85	401			
3	0.51	392	1.80	401			
B1	0.71	393	1.60	397			
2	0.85	396	1.75	399			
3	1.10	398	1.70	400			
C1	1.30	397	1.30	397			
2	1.30	398	1.40	398			
3	1.50	399	1.50	399			
D1	1.65	394	0.74	397			
2	1.70	398	0.83	398			
3	1.70	399	1.10	399			
E1	1.90	399	0.44	396			
2	1.95	400	0.47	396			
3	1.80	401	0.52	396			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	1.093		1.095		--		1.094
Average ΔP, (in. WC)	1.26		1.26		--		1.26
Average Temperature (Ts), °F	396.1		398.3		--		397.2
Moisture (BWS), unitless	0.116		0.116		0.116		0.116
CO2 Concentration, %	11.0		11.0				11.0
O2 Concentration, %	9.3		9.3				9.3
Molecuar Weight (Md), lb/lb-mole (dry)	30.13		30.13		--		30.13
Molecuar Weight (Ms), lb/lb-mole (wet)	28.72		28.72		--		28.72
Velocity (Vs), ft/sec	78.8		79.0		--		78.9
VFR at stack conditions (Qa), acfm	36,984		37,102		--		37,043
VFR at standard conditions (Qs), dscfm	19,950		19,960		--		19,955

Test Personnel (signature/date)

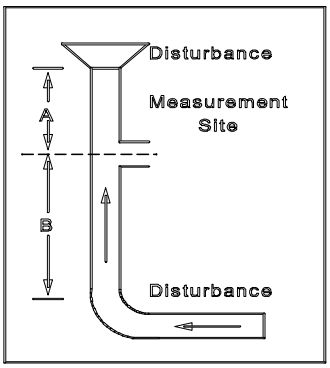
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.65 in. WC

Stack Pressure (Ps): 29.63 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	12:36 PM		12:41 PM				
Stop Time	12:41 PM		12:45 PM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.42	376	1.60	397			
2	0.48	386	1.50	397			
3	0.57	385	1.50	397			
B1	0.69	390	1.50	395			
2	0.81	393	1.40	396			
3	1.05	392	1.40	396			
C1	1.20	394	1.40	395			
2	1.30	395	1.20	395			
3	1.45	393	1.40	396			
D1	1.60	395	0.75	394			
2	1.50	396	0.90	395			
3	1.45	397	1.00	393			
E1	1.50	397	0.47	393			
2	1.45	397	0.44	393			
3	1.45	395	0.67	391			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	1.041		1.050		--		1.046
Average ΔP, (in. WC)	1.13		1.14		--		1.14
Average Temperature (Ts), °F	392.1		394.9		--		393.5
Moisture (BWS), unitless	0.108		0.108		0.116		0.111
CO2 Concentration, %	9.9		9.9				9.9
O2 Concentration, %	10.5		10.5				10.5
Molecuar Weight (Md), lb/lb-mole (dry)	30.00		30.00		--		30.00
Molecuar Weight (Ms), lb/lb-mole (wet)	28.71		28.71		--		28.71
Velocity (Vs), ft/sec	74.8		75.6		--		75.2
VFR at stack conditions (Qa), acfm	35,139		35,494		--		35,316
VFR at standard conditions (Qs), dscfm	19,237		19,368		--		19,302

Test Personnel (signature/date)

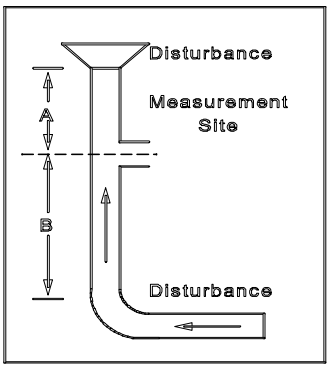
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.91 in. WC

Stack Pressure (Ps): 29.61 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	1:06 PM		1:10 PM				
Stop Time	1:10 PM		1:14 PM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.38	375	1.55	391			
2	0.42	373	1.40	391			
3	0.51	378	1.40	391			
B1	0.74	386	1.40	387			
2	0.74	387	1.35	388			
3	0.81	388	1.30	387			
C1	1.15	389	1.10	386			
2	1.20	389	1.20	387			
3	1.15	389	1.20	388			
D1	1.40	388	0.77	386			
2	1.40	388	0.81	387			
3	1.30	390	1.00	388			
E1	1.55	390	0.42	384			
2	1.50	389	0.41	385			
3	1.35	389	0.43	385			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	0.999		1.004		--		1.001
Average ΔP, (in. WC)	1.04		1.05		--		1.04
Average Temperature (Ts), °F	385.9		387.4		--		386.6
Moisture (BWS), unitless	0.108		0.108		0.116		0.111
CO2 Concentration, %	9.9		9.9				9.9
O2 Concentration, %	10.5		10.5				10.5
Molecuar Weight (Md), lb/lb-mole (dry)	30.00		30.00		--		30.00
Molecuar Weight (Ms), lb/lb-mole (wet)	28.71		28.71		--		28.71
Velocity (Vs), ft/sec	71.5		72.0		--		71.7
VFR at stack conditions (Qa), acfm	33,586		33,797		--		33,692
VFR at standard conditions (Qs), dscfm	18,510		18,593		--		18,551

Test Personnel (signature/date)

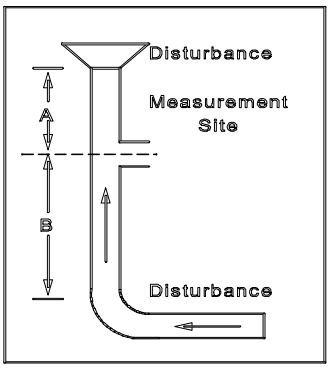
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.55 in. WC

Stack Pressure (Ps): 29.64 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	1:17 PM		1:23 PM				
Stop Time	1:23 PM		1:27 PM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.32	380	1.30	387			
2	0.31	378	1.20	386			
3	0.55	377	1.20	385			
B1	0.63	376	1.00	381			
2	0.69	382	1.05	387			
3	0.70	382	1.05	382			
C1	0.72	383	0.83	382			
2	0.86	381	0.88	382			
3	1.05	378	0.95	382			
D1	1.20	383	0.49	379			
2	1.20	385	0.60	379			
3	1.20	379	0.68	375			
E1	1.30	386	0.33	377			
2	1.30	386	0.33	377			
3	1.30	387	0.42	376			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	0.922		0.887		--		0.904
Average ΔP, (in. WC)	0.89		0.82		--		0.85
Average Temperature (Ts), °F	381.5		381.1		--		381.3
Moisture (BWS), unitless	0.106		0.106		0.116		0.110
CO2 Concentration, %	8.7		8.7				8.7
O2 Concentration, %	11.9		11.9				11.9
Molecuar Weight (Md), lb/lb-mole (dry)	29.87		29.87		--		29.87
Molecuar Weight (Ms), lb/lb-mole (wet)	28.60		28.60		--		28.60
Velocity (Vs), ft/sec	66.0		63.4		--		64.7
VFR at stack conditions (Qa), acfm	30,981		29,782		--		30,382
VFR at standard conditions (Qs), dscfm	17,207		16,549		--		16,878

Test Personnel (signature/date)

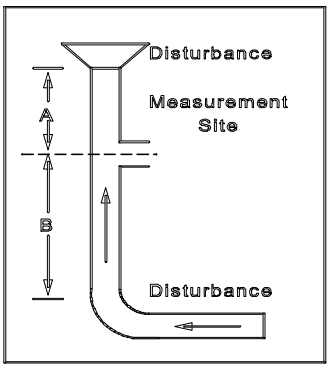
Location: FutureFuel Chemical Company

Date: 05/20/10

Source: Boiler 3

Project No.: 2010-0146

Method 2 - Velocity Data



Depth of Duct (Ds): 23.00 in.

Width of Duct (Ws): 49.00 in.

Stack Cross-sectional Area (As): 7.83 ft^2

Pitot Tube ID#: P-05

Pitot Tube Coefficient (Cp): 0.84

Barometric Pressure (Pb): 29.68 in. Hg

Static Pressure(Pg): -0.70 in. WC

Stack Pressure (Ps): 29.63 in. Hg

Distance from port to nearest disturbance

Upstream (A): 8.5 ft.

Duct Diameters: 3.3

Downstream (B): 9.8 ft.

Duct Diameters: 3.8

Run No.	1		2		3		
Start Time	1:32 PM		1:36 PM				
Stop Time	1:36 PM		1:40 PM				
Traverse Point	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	Δ P (in. WC)	Ts (°F)	
A1	0.25	362	1.05	374			
2	0.29	360	1.05	375			
3	0.35	363	0.97	371			
B1	0.42	365	0.90	372			
2	0.46	370	0.88	373			
3	0.58	368	0.84	371			
C1	0.72	371	0.70	373			
2	0.75	373	0.72	371			
3	0.82	369	0.73	372			
D1	0.90	370	0.47	368			
2	0.91	372	0.46	370			
3	0.87	361	0.64	366			
E1	1.00	370	0.28	365			
2	1.00	374	0.30	265			
3	0.98	373	0.40	362			
							Average
Square Root of ΔP, (in. WC)$^{1/2}$	0.811		0.817		--		0.814
Average ΔP, (in. WC)	0.69		0.69		--		0.69
Average Temperature (Ts), °F	368.1		363.2		--		365.6
Moisture (BWS), unitless	0.106		0.106		0.116		0.110
CO2 Concentration, %	8.7		8.7				8.7
O2 Concentration, %	11.9		11.9				11.9
Molecuar Weight (Md), lb/lb-mole (dry)	29.87		29.87		--		29.87
Molecuar Weight (Ms), lb/lb-mole (wet)	28.60		28.60		--		28.60
Velocity (Vs), ft/sec	57.6		57.8		--		57.7
VFR at stack conditions (Qa), acfm	27,029		27,142		--		27,085
VFR at standard conditions (Qs), dscfm	15,250		15,404		--		15,327

Test Personnel (signature/date)

APPENDIX B

May 10, 2010 COMBUSTION AIR FLOW DATA

Appendix B

May 10, 2010 COMBUSTION AIR FLOW PROCESS DATA

NOMINAL BOILER LOAD (lb-steam/hr)	FDF VALVE (% Open)	FORCED DRAFT FAN (FDF) DESIGN FLOW RATE (scfm)	FORCED DRAFT FAN COMBUSTION AIR FLOW RATE (scfm)	OVER-FIRE COMBUSTION AIR FLOW RATE (scfm)	ATOMIZING AIR FLOW RATE (scfm)	TOTAL COMBUSTION AIR FLOW RATE (scfm)
25K	31.24	21,456	6,702	3,050	1,800	11,552
30K	35.59	21,456	7,635	3,050	1,800	12,485
35K	42.23	21,456	9,061	3,050	1,800	13,911
40K	49.22	21,456	10,560	3,050	1,800	15,410
45K	56.37	21,456	12,094	3,050	1,800	16,944
50K	61.52	21,456	13,200	3,050	1,800	18,050
45K	54.95	21,456	11,789	3,050	1,800	16,639
40K	49.79	21,456	10,682	3,050	1,800	15,532
35K	41.85	21,456	8,980	3,050	1,800	13,830
30K	37.64	21,456	8,076	3,050	1,800	12,926
25K	30.83	21,456	6,615	3,050	1,800	11,465

Attachment E-4

Relative Accuracy Test Audit (RATA)

Relative Accuracy Test Audit Report

Boiler 3

Testing Location:

FutureFuel Chemical Company
2800 Gap Road
Batesville, Arkansas 72501

Prepared for:

Mr. Thomas Floyd
FutureFuel Chemical Company
2800 Gap Road
Batesville, Arkansas 72501

Testing Conducted:

April 14, 2010

Report Submitted:

April 30, 2010

Ryan O'Dea, QSTI 2008-227
Project Manager

Prepared By:

Alliance Source Testing
8020 Counts Massie Road, Ste. A
N. Little Rock, AR 72113
Phone: (501) 771-9969
Fax: (501) 771-4802
AST Project No. 2010-0129

Alliance
SOURCE TESTING

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APPENDICES

Appendix A Sample Calculations
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Appendix D CEMS Data

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Table 3-1 Source Testing Methodology

Introduction

1.0 Introduction

Alliance Source Testing (AST) was retained by FutureFuel Chemical Company (FFCC) to conduct performance specification (PS) testing at the Batesville, Arkansas facility. FFCC operates a total hydrocarbon (THC) and oxygen (O_2) continuous emissions monitoring system (CEMS) as required by §63.1209(a). PS testing consisted of measuring the concentrations of THC and O_2 in the No. 3 Boiler exhaust to determine the relative accuracy of the CEMS.

1.1 Source/Control System Descriptions

FFCC operates three (3) coal-fired boilers at the facility. The boilers are balanced draft, coal-fired steam generation units that have been fitted with atomizing nozzles to facilitate burning of liquid chemical wastes. Each boiler system is designed as a 70 million Btu/hr unit and is equipped with its own electrostatic precipitator (EAP) to control particulate emissions. The three (3) boilers share a common primary fuel conveying system, a common ash handling system and a common 200 foot stack. The boilers are independently controlled by a Distributed Control System (DCS). All interactions from the operator to the burners are made through this computer system.

These units are hazardous waste solid fuel boilers and subject to the Phase II requirements of NESHAP EEE. Spent solvent from a 2,000 gallon liquid process tank is routed to either the coal-fired boiler auxiliary waste chemical burners or to the burner of the chemical waste destructor. Emissions from tank venting are collected and routed to the coal-fired boilers.

1.2 Continuous Emissions Monitor Description

The relative accuracy test audit (RATA) was conducted on the following CEMS:

Parameter	Make	Model	Range
O2	Rosemount	755R	0-25 %
VOC	Rosemount	400A	0-100 ppm

1.3 Project Team

Testing was conducted by Mr. Ryan O'Dea (Team Leader) and Mr. Aaron Pate. Mr. O'Dea also served as AST's Project Manager while Ms. Leslie Brumleve was the Report Coordinator. Mr. Thomas Floyd of FFCC served as AST's facility contact and coordinated the testing with facility operations. Mr. Alan Breshears and Ms. Larissa Brown of ADEQ were present to observe onsite testing.

1.4 Protocol/Method Deviations

There were no deviations from U.S. EPA Reference Testing Methods or the Test Protocol submitted to ADEQ during the onsite testing.

Summary of Results

2.0 Summary of Results

AST conducted PS testing at the FFCC facility located in Batesville, Arkansas. Testing was conducted on April 14, 2010 to determine the relative accuracy of the CEMS serving to monitor emissions from the No. 3 Boiler. Table 2-1 provides a summary of the testing results with comparisons to the required performance criteria. Any difference between the summary results listed in the following table and the detailed results contained in the appendices is due to rounding for presentation.

Table 2-1
Summary of Testing Results

Test Parameter	Performance Test Data		Relative Accuracy	
	Reference Method Data	CEMS Data	Performance Required (%)	Performance Demonstrated (%)
Oxygen (O_2), % dry	10.76	10.64	± 1	0.1 [1]
Total Hydrocarbons (THC), ppmvd @ 7% O_2	0.50	0.27	≤ 10	3.0 [2]

[1] An acceptable RA is ±1% of the average difference.

[2] Calculated using an applicable source standard of 10 ppmvd @ 7 % O_2.

Testing Methodology

3.0 Testing Methodology

The testing program was conducted in accordance with the U.S. EPA Reference Methods listed in Table 3-1. Method descriptions are provided below while quality assurance/quality control data is provided in Appendix C.

Table 3-1
Source Testing Methodology

Parameter	U. S. EPA Reference Test Method	Notes/Remarks
Oxygen/Carbon Dioxide (O_2/CO_2)	3A	Instrumental Analysis
Moisture Content (BWS)	4	Volumetric / Gravimetric Analysis
Total Hydrocarbon (THC)	25A	Instrumental Analysis

3.1 U.S. EPA Reference Test Method 3A – Oxygen/Carbon Dioxide

The oxygen and carbon dioxide concentrations were determined in accordance with U.S. EPA Reference Test Method 3A. Data was collected online and reported in one-minute averages. The sampling system consisted of an in-stack filter, heated stainless steel probe, heated Teflon sample line(s), gas conditioning system and California Analytical Model 300P O_2/CO_2/CO analyzer. The gas conditioning system was a non-contact condenser to remove moisture from the source gas. The quality control measures are described in Section 3.4.

3.2 U.S. EPA Reference Test Method 4 – Moisture Content

The stack gas moisture content was determined in accordance with U.S. EPA Reference Test Method 4. The gas conditioning train consisted of a series of chilled impingers. Each impinger was pre and post-measured to determine the amount of moisture condensed during each test run.

3.3 U.S. EPA Reference Test Method 25A – Non Methane Volatile Organic Compounds

The concentration of volatile organic compounds was determined in accordance with U.S. EPA Reference Test Method 25A. Data was collected online and reported in one-minute averages. The sampling system consisted of a stainless steel probe, heated Teflon sample line(s) and CAI Model 300HFID THC analyzer. The quality control measures are described in Section 3.5.

3.4 Quality Assurance/Quality Control – Method 3A

EPA Protocol 1 Calibration Gases – Cylinder calibration gases were supplied by NexAir which meet EPA Protocol 1 (+/- 2%) standards.

Calibration/Bias/Drift – Each instrument was calibrated as needed, and a three (3) point calibration error test was conducted in direct calibration mode with zero nitrogen, mid-level and high level (span) gases prior to initiating testing each day. Pretest Bias checks were performed prior to initiating testing by introducing zero and mid-level gases through the sampling system. Posttest Bias and Drift checks were performed after each test run by introducing zero and mid-level gases through the sampling system.

A calibration gas dilution system field check was conducted in accordance with EPA Method 205 by diluting a high concentration Protocol 1 gas with Zero Nitrogen to 50%, 30%, and 10% of the cylinder gas concentration. The three (3) ranges of diluted calibration gases were sent directly to the analyzer, and the analyzer response recorded in an electronic field data sheet. The analyzer response must agree within 2% of the actual diluted gas concentration. A second Protocol 1 calibration gas, with a cylinder concentration within 10% of one of the gas divider settings described above, was introduced directly to the analyzer, and the analyzer response recorded in an electronic field data sheet. The cylinder concentration and the analyzer response must agree within 2%. These steps were repeated three (3) times.

Stratification Check – A stratification check was conducted on the source gas before initiating testing. The pollutant concentrations were measured at three traverse points (16.7, 50.0 and 83.3 percent of the measured line). Each traverse point was sampled for a minimum of twice the system response time. If the pollutant concentration at each traverse point did not differ more than 5% or 0.5 ppm (whichever was less restrictive) of the average pollutant concentration, single point sampling was conducted during the testing. If the pollutant concentration did not meet these specifications but differed less than 10% or 1.0 ppm from the average concentration, then three (3) point sampling was conducted (stacks less than 7.8 feet in diameter - 16.7, 50.0 and 83.3 percent of the measurement line; stacks greater than 7.8 feet in diameter – 0.4, 1.0, and 2.0 meters from the stack wall). If the pollutant concentration differed by more than 10% or 1.0 ppm from the average concentration, then sampling was conducted at a minimum of twelve (12) traverse points.

Data Collection – PM Plus Data Acquisition System (Dutech Analog Signal Modules) with battery backup was used to record the instrument response (analog 0-10 volt signal) in one (1) minute averages. The data was continuously stored as a *.CSV file in Excel format on the hard drive of a desktop computer. At the completion of the emission testing the data will also be saved to disk.

3.5 Quality Assurance/Quality Control – U. S. EPA Reference Method 25A

EPA Protocol 1 Calibration Gases – Cylinder calibration gases were supplied by NexAir which meet EPA Protocol 1 (+/- 2%) standards

A calibration gas dilution system field check was conducted in accordance with EPA Method 205 by diluting a high concentration Protocol 1 gas with Zero Nitrogen to 50%, 30%, and 10% of the cylinder gas concentration. The three (3) ranges of diluted calibration gases were sent directly to the analyzer, and the analyzer response was recorded in an electronic field data sheet. The analyzer response agreed within 2% of the actual diluted gas concentration. A second Protocol 1 calibration gas, with a cylinder concentration within 10% of one of the gas divider settings described above, was introduced directly to the analyzer, and the analyzer response was recorded in an electronic field data sheet. The cylinder concentration and the analyzer response agreed within 2%. These steps were repeated three (3) times. Copies of the Method 205 data can be found in the Quality Assurance/Quality Control Appendix.

Instrument Calibration and Response Time - Zero gas was introduced through the sampling system to the analyzer. After adjusting the analyzer to the Zero gas concentration and once the analyzer reading was stable, the analyzer value was recorded. This process was repeated for the High Level gas and the time required for the analyzer reading to reach 95 percent of the gas concentration was recorded to determine the response time. Next, Mid and Low Level

gases were introduced through the sampling system to the analyzer, and the response recorded when it was stable. All values must be within +/- 5 percent of the calibration gas concentration.

Post Test Drift Checks – Mid Level gas was introduced through the sampling system. After the analyzer response was stable, the value was recorded. Next, Zero gas was introduced through the sampling system, and the analyzer value recorded once it reached a stable response. The Analyzer Drift must be less than 3.0 percent of the Calibration Span.

Methane Cutter Validation – After the system was calibrated with propane gas in THC mode, the analyzer was placed in CH_4 mode and ethane gas was introduced through the sample port. Thirty (30) seconds of data was recorded and averaged. With the analyzer back in THC mode, ethane gas was introduced through the sample port, and thirty (30) seconds of data was recorded and averaged. The ethane penetration fraction (EPF) was less then 0.02. Next, methane gas was introduced through the sample port, and the steps previously described for ethane gas were repeated. The methane penetration fraction (MPF) was greater than 0.95.

Data Collection – PM Plus Data Acquisition System (Dutech Analog Signal Modules) with battery backup was used to record the instrument response (analog 0-10 volt signal) in one (1) minute averages. The data was continuously stored as a *.CSV file in Excel format on the hard drive of a desktop computer. At the completion of the emission testing the data was also saved to disk.

Appendix A

Alliance
SOURCE TESTING

THC Summary

Run No.	Date	Time			Reference Method THC Concentration ppmvd @ 7 % O2	CEMS THC Concentration ppmvd @ 7 % O2	Average Difference ppmvd @ 7 % O2
		Start	End				
1	4/14/10	10:42	11:02		0.75	0.60	0.15
2	4/14/10	11:03	11:23		0.37	0.30	0.07
3	4/14/10	11:24	11:44		0.51	0.30	0.21
4	4/14/10	11:56	12:16		0.53	0.20	0.33
5	4/14/10	12:17	12:37		0.49	0.20	0.29
6	4/14/10	12:38	12:58		0.51	0.20	0.31
7	4/14/10	13:06	13:26		0.41	0.20	0.21
8	4/14/10	13:27	13:47		0.47	0.20	0.27
9	4/14/10	13:48	14:08		0.46	0.20	0.26
				Average	0.50	0.27	0.23
						Standard Deviation (Sd)	0.08
						Applicable Source Standard (AS)	10
						Confidence Coefficient (CC)	0.064
						Relative Accuracy (RA)	**2.97**

* Delimiter for runs not used in RA calculations

The RA is < 10% using the applicable source standard.

THC data reported as Propane (C3).

Relative Accuracy, RA

$$RA = \frac{|mean\ difference| + \left|\frac{t_{0.975}}{\sqrt{n}} \times (Sd)\right|}{AS\ or\ RM} \times 100$$

where,

mean difference	0.23	= average difference of Reference Method and CEMS, ppmvd
$t_{0.975}$	2.306	= degrees of freedom value from Table 2-1 of PS 2 (2.036)
n	9	= number of runs selected for calculating the RA
Sd	0.08	= standard deviation of difference, ppmvd
AS	10.00	= applicable source standard, ppmvd
RM	0.50	= reference method, ppmvd
RA	2.97	= relative accuracy

Alliance
SOURCE TESTING

O2 Summary

Run No.	Date	Time			Reference Method O2 Concentration % dry	CEMS O2 Concentration % dry	Average Difference % dry
		Start	End				
1	4/14/10	10:42	11:02		10.80	10.80	0.00
2	4/14/10	11:03	11:23		10.84	10.60	0.24
3	4/14/10	11:24	11:44		10.83	10.60	0.23
4	4/14/10	11:56	12:16		10.74	10.80	-0.06
5	4/14/10	12:17	12:37		10.74	10.60	0.14
6	4/14/10	12:38	12:58		10.70	10.50	0.20
7	4/14/10	13:06	13:26		10.72	10.60	0.12
8	4/14/10	13:27	13:47		10.76	10.60	0.16
9	4/14/10	13:48	14:08		10.70	10.70	0.00
				Average	10.76	10.64	0.12

* Delimiter for runs not used in RA calculations

An acceptable RA is +/- 1% of the average difference

Appendix B

Alliance
SOURCE TESTING

Run 1 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
10:42	10.7	0.3
10:43	10.7	0.3
10:44	10.8	0.3
10:45	10.5	0.3
10:46	11.0	0.4
10:47	10.8	0.5
10:48	10.5	0.5
10:49	10.4	0.5
10:50	10.5	0.5
10:51	10.6	0.6
10:52	10.5	0.7
10:53	10.8	0.6
10:54	10.7	0.6
10:55	10.8	0.7
10:56	10.7	0.7
10:57	10.7	0.6
10:58	10.7	0.5
10:59	10.9	0.5
11:00	10.9	0.6
11:01	10.7	0.6
11:02	10.6	0.5

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.69	0.50
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Average Zero Response (Co)	0.00	0.00
Pretest System Cal Response	9.9	5.0
Posttest System Cal Response	9.9	5.0
Average Cal Response (C_M)	9.90	5.00
Corrected Run Average (Corr)	10.80	NA

Alliance
SOURCE TESTING

Run 2 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
11:03	10.8	0.2
11:04	10.9	0.1
11:05	10.7	0.1
11:06	10.6	0.3
11:07	10.7	0.3
11:08	10.7	0.3
11:09	10.8	0.2
11:10	10.7	0.2
11:11	10.8	0.2
11:12	10.7	0.3
11:13	10.8	0.3
11:14	10.7	0.2
11:15	10.9	0.1
11:16	10.7	0.1
11:17	10.7	0.2
11:18	10.6	0.3
11:19	10.8	0.3
11:20	10.9	0.3
11:21	10.8	0.3
11:22	10.7	0.3
11:23	10.6	0.3

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.73	0.25
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Average Zero Response (Co)	0.00	0.00
Pretest System Cal Response	9.9	5.0
Posttest System Cal Response	9.9	5.0
Average Cal Response (C_M)	9.90	5.00
Corrected Run Average (Corr)	10.84	NA

Alliance
SOURCE TESTING

Run 3 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
11:24	10.7	0.2
11:25	10.8	0.3
11:26	10.9	0.3
11:27	10.7	0.3
11:28	10.7	0.3
11:29	10.7	0.3
11:30	10.7	0.3
11:31	10.7	0.4
11:32	10.9	0.3
11:33	10.6	0.2
11:34	10.5	0.3
11:35	10.7	0.4
11:36	10.7	0.5
11:37	10.7	0.4
11:38	10.7	0.4
11:39	10.7	0.3
11:40	10.5	0.3
11:41	10.8	0.3
11:42	11.0	0.4
11:43	10.9	0.3
11:44	10.7	0.3

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.72	0.34
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Average Zero Response (Co)	0.00	0.00
Pretest System Cal Response	9.9	5.0
Posttest System Cal Response	9.9	5.0
Average Cal Response (C_M)	9.90	5.00
Corrected Run Average (Corr)	10.83	NA

Alliance
SOURCE TESTING

Run 4 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
11:56	10.6	0.4
11:57	10.6	0.5
11:58	10.6	0.3
11:59	10.8	0.3
12:00	10.9	0.4
12:01	10.5	0.3
12:02	10.5	0.4
12:03	10.8	0.4
12:04	10.8	0.4
12:05	10.6	0.4
12:06	10.7	0.4
12:07	10.8	0.4
12:08	10.7	0.4
12:09	10.6	0.4
12:10	10.7	0.4
12:11	10.8	0.3
12:12	10.7	0.3
12:13	10.7	0.3
12:14	10.7	0.3
12:15	10.7	0.3
12:16	10.7	0.4

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.69	0.35
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Average Zero Response (Co)	0.00	0.00
Pretest System Cal Response	9.9	5.0
Posttest System Cal Response	10.0	5.0
Average Cal Response (C_M)	9.95	5.00
Corrected Run Average (Corr)	10.74	NA

Alliance
SOURCE TESTING

Run 5 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
12:17	10.6	0.3
12:18	10.6	0.4
12:19	10.8	0.4
12:20	10.7	0.4
12:21	10.7	0.3
12:22	10.5	0.4
12:23	10.7	0.4
12:24	10.8	0.4
12:25	10.7	0.3
12:26	10.6	0.3
12:27	10.7	0.3
12:28	10.9	0.3
12:29	10.7	0.3
12:30	10.5	0.3
12:31	10.8	0.3
12:32	10.7	0.4
12:33	10.7	0.5
12:34	10.5	0.3
12:35	10.9	0.4
12:36	10.7	0.3
12:37	10.5	0.2

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.68	0.33
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Average Zero Response (Co)	0.00	0.00
Pretest System Cal Response	9.9	5.0
Posttest System Cal Response	10.0	5.0
Average Cal Response (C_M)	9.95	5.00
Corrected Run Average (Corr)	10.74	NA

Alliance
SOURCE TESTING

Run 6 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
12:38	10.7	0.4
12:39	10.8	0.4
12:40	10.8	0.3
12:41	10.6	0.3
12:42	10.5	0.3
12:43	10.7	0.3
12:44	10.8	0.3
12:45	10.7	0.3
12:46	10.4	0.4
12:47	10.5	0.4
12:48	10.5	0.4
12:49	10.4	0.4
12:50	10.6	0.4
12:51	10.7	0.4
12:52	10.6	0.4
12:53	10.7	0.4
12:54	10.7	0.3
12:55	10.7	0.3
12:56	10.7	0.3
12:57	10.7	0.3
12:58	10.7	0.3

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.65	0.34
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Average Zero Response (Co)	0.00	0.00
Pretest System Cal Response	9.9	5.0
Posttest System Cal Response	10.0	5.0
Average Cal Response (C_M)	9.95	5.00
Corrected Run Average (Corr)	10.70	NA

Alliance
SOURCE TESTING

Run 7 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
13:06	10.6	0.1
13:07	10.5	0.2
13:08	10.6	0.2
13:09	10.7	0.3
13:10	10.6	0.2
13:11	10.7	0.2
13:12	10.6	0.2
13:13	10.7	0.3
13:14	10.7	0.3
13:15	10.7	0.3
13:16	10.7	0.3
13:17	10.8	0.2
13:18	10.7	0.3
13:19	10.7	0.3
13:20	10.8	0.3
13:21	10.8	0.3
13:22	10.7	0.4
13:23	10.5	0.4
13:24	10.7	0.4
13:25	10.9	0.4
13:26	10.5	0.3

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.67	0.27
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.1
Average Zero Response (Co)	0.00	0.05
Pretest System Cal Response	10.0	5.0
Posttest System Cal Response	9.9	5.0
Average Cal Response (C_M)	9.95	5.00
Corrected Run Average (Corr)	10.72	NA

Alliance
SOURCE TESTING

Run 8 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
13:27	10.8	0.3
13:28	10.8	0.3
13:29	10.6	0.3
13:30	10.6	0.3
13:31	10.7	0.2
13:32	10.7	0.2
13:33	10.8	0.4
13:34	10.6	0.3
13:35	10.6	0.3
13:36	10.8	0.4
13:37	10.7	0.4
13:38	10.7	0.3
13:39	10.7	0.3
13:40	10.7	0.4
13:41	10.8	0.3
13:42	10.6	0.3
13:43	10.6	0.4
13:44	10.8	0.4
13:45	10.7	0.4
13:46	10.6	0.3
13:47	10.8	0.3

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.71	0.31
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.1
Average Zero Response (Co)	0.00	0.05
Pretest System Cal Response	10.0	5.0
Posttest System Cal Response	9.9	5.0
Average Cal Response (C_M)	9.95	5.00
Corrected Run Average (Corr)	10.76	NA

Alliance
SOURCE TESTING

Run 9 Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Time Unit	O_2 % dry	THC ppmvw
0:01		
13:48	10.6	0.3
13:49	10.4	0.3
13:50	10.2	0.2
13:51	10.4	0.3
13:52	10.5	0.2
13:53	10.7	0.3
13:54	10.8	0.3
13:55	10.7	0.4
13:56	10.6	0.4
13:57	10.5	0.3
13:58	10.8	0.4
13:59	10.7	0.4
14:00	10.6	0.3
14:01	10.7	0.4
14:02	10.8	0.4
14:03	10.8	0.4
14:04	10.7	0.3
14:05	10.8	0.3
14:06	10.8	0.3
14:07	10.8	0.4
14:08	10.7	0.3

Parameter	Diluent	Pollutant
	O2	THC
Uncorrected Run Average (C_{obs})	10.65	0.31
Cal Gas Concentration (C_{MA})	10.0	5.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.1
Average Zero Response (Co)	0.00	0.05
Pretest System Cal Response	10.0	5.0
Posttest System Cal Response	9.9	5.0
Average Cal Response (C_M)	9.95	5.00
Corrected Run Average (Corr)	10.70	NA

Alliance SOURCE TESTING

Method 4 Data

Location: FutureFuel Chemical Company

Source: Boiler 3
Project No.: 2010-0129

Meter Correction Factor (Y): 1.017
Orifice Calibration Value (ΔH @): 1.844
Meter ID: 159308-A

Run No.	1	2	3	
Date	4/14/10	4/14/10	4/14/10	
Start Time	10:42 AM	12:03 PM	1:08 PM	
End Time	11:12 AM	12:33 PM	1:38 PM	
Run Time (θ), min	30	30	30	
Max Vacuum, in. Hg	2.0	2.0	2.0	
Post Leak Check, cfm (at max vac.)	0.003	0.005	0.005	
Meter Volume, ft^3				
Time				
0	122.940	145.470	167.910	
5	126.590	149.165	171.615	
10	130.240	152.840	175.290	
15	133.875	156.470	178.975	
20	137.490	160.250	182.580	
25	141.270	163.850	186.310	
30	145.040	167.490	190.050	
Total Meter Volume (Vm), ft^3	22.100	22.020	22.140	
Meter Temperature, °F				
Time				
0	67.0	71.0	76.0	
5	68.0	72.0	77.0	
10	69.0	73.0	78.0	
15	70.0	74.0	79.0	
20	71.0	75.0	80.0	
25	72.0	76.0	81.0	
30	73.0	77.0	82.0	
Average Meter Temperature (Tm), °F	70.0	74.0	79.0	
Average Meter Temperature (Tm), °R	530.0	534.0	539.0	
Barometeric Pressure (Pb), in. Hg	29.79	29.79	29.79	
Meter Orifice Pressure (ΔH), in. WC	1.800	1.800	1.800	
Meter Pressure (Pm), in. Hg	29.92	29.92	29.92	
Standard Meter Volume (Vmstd), ft^3	22.393	22.144	22.059	
Impinger 1, Pre/Post Test, mL	100.0 / 132.0	100.0 / 138.0	100.0 / 136.0	
Impinger 2, Pre/Post Test, mL	100.0 / 104.0	100.0 / 102.0	100.0 / 102.0	
Impinger 3, Pre/Post Test, mL	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	
Impinger 4, Pre/Post Test, g	237.6 / 243.4	221.2 / 226.8	239.4 / 244.8	
Volume Water Collected (Vlc), mL	41.8	45.6	43.4	
Standard Water Volume (Vwstd), ft^3	1.968	2.146	2.043	
Moisture Fraction (BWS)	0.081	0.088	0.085	0.085
DGM Calibration Check Value, Yqa	0.6	-0.1	-0.1	0.1

Ryan O'Dea
QA/QC Reviewer

DE: AP
TL: RPO

Appendix C

Alliance
SOURCE TESTING

Calibration Data

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Parmeter	O_2	THC
Expected Average Concentration	10.0	5.0
Span Should be between:		
Low	10.0	7.5
High	50.0	12.5
Desired Span	19.9	10.0
Low Range Gas Should be between:		
Low	NA	2.5
High	NA	3.5
Mid Range Gas Should be between:		
Low	8.0	4.5
High	12.0	5.5
High Range Gas Should be between:		
Low	NA	8.0
High	NA	9.0
Actual Concentration (%)		
Zero	0.0	0.0
Low	NA	3.0
Mid	10.0	5.0
High	19.9	9.0
Cylinder Certification Numbers		
Zero	NA	NA
Low	NA	CC246653
Mid	SA10801	CC246653
High	SA10801	CC246653
Response Time (seconds)	SA10801	CC246653
Instrument Response (%)		
Zero	0.0	0.0
Low	NA	3.1
Mid	9.8	5.0
High	19.9	9.0
Performance (% of Span)		
Zero	0.0	0.0
Low	NA	3.3
Mid	1.0	0.0
High	0.1	0.0
Status		
Zero	PASS	PASS
Low	NA	PASS
Mid	PASS	PASS
High	PASS	PASS

Notes:

PRAXAIR

Praxair Distribution Mid-Atlantic LLC

145 Shimersville Road • Bethlehem, PA 18015 • Phone: 610.317.1608 • Fax: 610.758.8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:
NEXAIR GAS TECH LLC
6000 LINDSEY ROAD
LITTLE ROCK AR 72206

DocNumber: 00000009038
Order Number: 181485700 - 5
Customer P. O. Number: 748133
Customer Reference Number: L8561

Fill Date: 8/11/2009
Part Number: EV NICDOXE123AS
Lot Number: NA
Cylinder Style & Outlet: AS 590
Cylinder Pressure & Volume: 2000 psi 140 cu ft
Customer Order Number: NA

Certified Concentration:

Expiration Date:		8/19/2012	
Cylinder Number:		SA10801	Analytical Uncertainty:
19.80	%	CARBON DIOXIDE	± 1 %
19.92	%	OXYGEN	± 1 %
	Balance	NITROGEN	

NOx ppm = NA (NOX Values for Reference Only)

Certification Information: *Certification Date:* 8/19/2009 *Term:* 36 Months *Expiration Date:* 8/19/2012

1. This cylinder was certified according to the 1997 EPA Traceability Protocol, document #EPA-600/R-97/121, using procedure G1
2. Do not use this standard if pressure is less than 150 PSIG.

G1: O2; G2:CO2

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: CARBON DIOXIDE

Requested Concentration: 20 %
Certified Concentration: 19.8 %
Instrument Used: SIEMENS ULTRAMAT 5E SN: D2-412
Analytical Method: NON-DISPERSIVE INFRARED
Last Multipoint Calibration: 8/13/2009

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC109454
Ref. Std. Conc: 17.82 %
Ref. Std. Traceable to SRM # : 2745

First Analysis Data:							Date: 8/19/2009
Z:	0	R:	17.24	C:	19.16	Conc:	19.8
R:	17.24	Z:	0	C:	19.16	Conc:	19.8
Z:	0	C:	19.16	R:	17.24	Conc:	19.8
UOM:	%			Mean Test Assay:			19.8 %

Second Analysis Data:							Date:
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			0 %

2. Component: OXYGEN

Requested Concentration: 20 %
Certified Concentration: 19.92 %
Instrument Used: SIEMENS OXYMAT 5E S/N F1-111
Analytical Method: PARAMAGNETIC
Last Multipoint Calibration: 8/3/2009

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC154663
Ref. Std. Conc: 22.98 %
Ref. Std. Traceable to SRM # : 2659a

First Analysis Data:							Date: 8/18/2009
Z:	0	R:	22.98	C:	19.94	Conc:	19.93
R:	23	Z:	0	C:	19.92	Conc:	19.91
Z:	0	C:	19.92	R:	22.98	Conc:	19.91
UOM:	%			Mean Test Assay:			19.92 %

Second Analysis Data:							Date:
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			0 %

Analyzed by: Robin Morgan

Certified by:

Information contained herein has been prepared at your request by qualified experts within GTS-Welco, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of GTS-Welco, Inc., arising out of the use of the information con tained herein exceed the fee established for providing such information.

GTS-WELCO
A PRAXAIR JOINT VENTURE

145 Shimersville Road • Bethlehem, PA 18015 • Phone: 610.317.1608 • Fax: 610.758.8384

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:
NEXAIR GAS TECH LLC
1259 N MCLEAN BLVD
MEMPHIS TN 38108

Doc Number: 00000000628
Order Number: 106303500 - 2
Customer P. O. Number: 713645
Customer Reference Number: AE344

Fill Date: 4/1/2008
Part Number: EV NIPR50ME-AS
Lot Number: N/A
Cylinder Style & Outlet: AS 350
Cylinder Pressure & Volume: 2000 psi 140 cu ft

Certified Concentration:

Expiration Date: **5/2/2011**
Cylinder Number: **CC246653**

			Analytical Uncertainty:
51.0	**ppm**	**PROPANE**	**± 1 %**
	Balance	**NITROGEN**	

NOx ppm = N/A (NOX Values for Reference Only)

Certification Information: Certification Date: 5/2/2008 Term: 36 Months Expiration Date: 5/2/2011

1. This cylinder was certified according to the 1997 EPA Traceability Protocol, document #EPA-600/R-97/121, using procedure G1
2. Do not use this standard if pressure is less than 150 PSIG.

Analytical Data: (R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: **PROPANE**

Requested Concentration: 50 ppm
Certified Concentration: 51 ppm
Instrument Used: VARIAN 3900 INST 023 (PROPANE)
Analytical Method: FID
Last Multipoint Calibration: 4/8/2008

Reference Standard Type: GMIS
Ref. Std. Cylinder # : CC167771
Ref. Std. Conc: 100.6 PPM
Ref. Std. Traceable to SRM # : 2644a

First Analysis Data: Date: 5/2/2008

Z:	0	R:	100.1	C:	50.97	Conc:	50.9				
R:	100.5	Z:	0	C:	51.1	Conc:	51				
Z:	0	C:	51.1	R:	101.5	Conc:	51				

UOM: PPM Mean Test Assay: 51 PPM

Second Analysis Data: Date:

Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0

UOM: PPM Mean Test Assay: 0 PPM

Analyzed by: Michelle Kostik

Certified by: MB 5/5/08

Information contained herein has been prepared at your request by qualified experts within GTS-Welco, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of GTS-Welco, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

Alliance SOURCE TESTING

Runs 1-3 Bias/Drift Determinations

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Parameter	O_2	THC
Span Value	19.9	10.0
Instrument Zero Cal Response	0.0	0.0
Instrument Mid Cal Response	9.8	5.0
Run 1		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Mid Response	9.9	5.0
Posttest System Mid Response	9.9	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	0.5	NA
Posttest Span	0.5	NA
Drift (%)		
Zero	0.0	0.0
Mid	0.0	0.0
Run 2		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Mid Response	9.9	5.0
Posttest System Mid Response	9.9	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	0.5	NA
Posttest Span	0.5	NA
Drift (%)		
Zero	0.0	0.0
Mid	0.0	0.0
Run 3		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Mid Response	9.9	5.0
Posttest System Mid Response	9.9	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	0.5	NA
Posttest Span	0.5	NA
Drift (%)		
Zero	0.0	0.0
Mid	0.0	0.0

Notes:

Alliance SOURCE TESTING

Runs 4-6 Bias/Drift Determinations

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Parameter	O_2	THC
Span Value	19.9	10.0
Instrument Zero Cal Response	0.0	0.0
Instrument Mid Cal Response	9.8	5.0
Run 4		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Mid Response	9.9	5.0
Posttest System Mid Response	10.0	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	0.5	NA
Posttest Span	1.0	NA
Drift (%)		
Zero	0.0	0.0
Mid	0.5	0.0
Run 5		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Mid Response	9.9	5.0
Posttest System Mid Response	10.0	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	0.5	NA
Posttest Span	1.0	NA
Drift (%)		
Zero	0.0	0.0
Mid	0.5	0.0
Run 6		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Mid Response	9.9	5.0
Posttest System Mid Response	10.0	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	0.5	NA
Posttest Span	1.0	NA
Drift (%)		
Zero	0.0	0.0
Mid	0.5	0.0

Notes:

Alliance SOURCE TESTING

Runs 7-9 Bias/Drift Determinations

Location: FutureFuel Chemical
Source: Boiler 3
Project No.: 2010-0129
Date: 4/14/10

Parameter	O_2	THC
Span Value	19.9	10.0
Instrument Zero Cal Response	0.0	0.0
Instrument Mid Cal Response	9.8	5.0
Run 7		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.1
Pretest System Mid Response	10.0	5.0
Posttest System Mid Response	9.9	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	1.0	NA
Posttest Span	0.5	NA
Drift (%)		
Zero	0.0	1.0
Mid	0.5	0.0
Run 8		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.1
Pretest System Mid Response	10.0	5.0
Posttest System Mid Response	9.9	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	1.0	NA
Posttest Span	0.5	NA
Drift (%)		
Zero	0.0	1.0
Mid	0.5	0.0
Run 9		
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.1
Pretest System Mid Response	10.0	5.0
Posttest System Mid Response	9.9	5.0
Bias (%)		
Pretest Zero	0.0	NA
Posttest Zero	0.0	NA
Pretest Span	1.0	NA
Posttest Span	0.5	NA
Drift (%)		
Zero	0.0	1.0
Mid	0.5	0.0

Notes:

Alliance
SOURCE TESTING

Stratification Check

Date: 4/14/2010
Time: 10:07

Traverse Point	O2 (%)	Abs. Standard Deviation
A-1	10.6	0.0
2	10.6	0.0
3	10.7	0.1
4	10.7	0.1
5	10.6	0.0
6	10.7	0.1
B-1	10.6	0.0
2	10.6	0.0
3	10.7	0.1
4	10.7	0.1
5	10.6	0.0
6	10.6	0.0
Average	10.6	--
Allowable [1,2]	--	0.5
Status	**PASS**	

[1] Single Point - 5% from the average or +/- 0.5 ppm for pollutant and +/- 0.3% for diluent.

[2] Three Points - 10% from the average or +/- 1.0 ppm for pollutant and +/- 0.5% for diluent.

Notes:

Alliance
SOURCE TESTING

EPA Method 205
Field Calibration of Dilution System

Date:	4/14/10
Analyzer Type:	CAI Model 300M HFID
Environics ID:	4428
Component/Balance Gas (Dilution):	C3H8/N2
Cylinder Gas No (Dilution):	SA11806
Cylinder Gas Concentration (Dilution):	5081
Component/Balance Gas (Mid-Level)	C3H8/N2
Cylinder Gas No (Mid-Level):	SA18841
Cylinder Gas Concentration (Mid-Level):	499

Gas Divider Setting (%)	Predicted Concentration (ppm)	Calibration 1 Analyzer Concentration (ppm)	Calibration 2 Analyzer Concentration (ppm)	Calibration 3 Analyzer Concentration (ppm)	Average Analyzer Concentration (ppm)	Difference (ppm)	Average Error[1] (%)
50.0	2540.50	2537.80	2539.10	2538.90	2538.60	-1.90	-0.07
30.0	1524.30	1520.20	1520.80	1521.00	1520.67	-3.63	-0.24
10.0	508.10	504.80	504.70	504.50	504.67	-3.43	-0.68

[1] Method 205 §3.2.5 - For each level of dilution, calculate the difference between the average concentration output recorded by the analyzer and the predicted concentration. The average concentration output from the analyzer shall be within ± 2 % of the predicted concentration.

Average Analyzer Concentration (ppm)	Calibration 1 Error[2] (%)	Calibration 2 Error[2] (%)	Calibration 3 Error[2] (%)
2538.60	-0.03	0.02	0.01
1520.67	-0.03	0.01	0.02
504.67	0.03	0.01	-0.03

[2] Method 205 §3.2.4 - Calculate the average instrument response for each triplicate injection at each dilution level. No single injection shall differ by more than ± 2 % from the average instrument response for that dilution.

Mid-Level Supply Gas Calibration Direct to Analyzer

Calibration Gas Concentration (ppm)	Calibration 1 Analyzer Concentration (ppm)	Calibration 2 Analyzer Concentration (ppm)	Calibration 3 Analyzer Concentration (ppm)	Average Analyzer Concentration (ppm)	Difference (ppm)	Average Error[3] (%)
499.00	496.80	496.50	496.60	496.63	-2.37	-0.47

[3] Method 205 §3.2.6 - Calculate the average analyzer output concentration for the mid-level supply gas. The difference between the certified concentration of the mid-level supply gas and the instrument response shall within ± 2 %.

PROCEDURE:

Connect the dilution and high-level calibration gas to the Environics gas divider. Flow the mixed gases according to the ratios provided in the above table. Repeat the procedure for three trials. An additional mid-level calibration gas, within 10% of one of the predicted concentrations, should be fed directly into the analyzer bypassing the gas divider. Repeat the procedure for three trials.

PRAXAIR

DocNumber: 00000012597

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:
NEXAIR LITTLE ROCK

Praxair Order Number: 08627934-00
Customer P. O. Number: 732411
Customer Reference Number: DG807

Fill Date:
Part Number: EV NIPR5000E-AS
Lot Number: 109900707
Cylinder Style & Outlet: AS 350
Cylinder Pressure & Volume: 2000 psi 140 cu ft

Certified Concentration:

Expiration Date: 1/12/2012
Cylinder Number: SA 11806

			Analytical Uncertainty:
5081	ppm	PROPANE	
	Balance	NITROGEN	± 1 %

NOx ppm = N/A NOX Values for Reference Only

Certification Information: *Certification Date:* 1/12/2009 *Term:* 36 Months *Expiration Date:* 1/12/2012
This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1
Do Not Use this Standard if Pressure is less than 150 PSIG

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: PROPANE

Requested Concentration:	5000 ppm
Certified Concentration:	5081 ppm
Instrument Used:	HP 5890 Series II+ S/N 3310A48
Analytical Method:	G.C. / Flame Ionization
Last Multipoint Calibration:	1/10/2009

Reference Standard Type	GMIS	
Ref. Std. Cylinder # :	SA 19942	
Ref. Std. Conc:	1.00 %	
Ref. Std. Traceable to SRM # :	vs. 2649a	
SRM Sample # :	105-22-A	
SRM Cylinder # :	CAL 2640	

First Analysis Data:

						Date:	1/12/2009
Z:	0	R:	371235	C:	188641	Conc:	5081
R:	372312	Z:	0	C:	189295	Conc:	5084
Z:	0	C:	189760	R:	373697	Conc:	5078

UOM: PPM Mean Test Assay: 5081 PPM

Second Analysis Data:

						Date:	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0

UOM: PPM Mean Test Assay: 0 PPM

Analyzed by: Peter Ngo

Certified by: Jack Fu

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

Making Our Planet More Productive

PRAXAIR

DocNumber: 00000010978

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

NEXAIR GAS TECH LLC

Praxair Order Number: 08099110-00
Customer P. O. Number:
Customer Reference Number: DG807

Fill Date:
Part Number: EV NIPR500ME-AS
Lot Number: 109832204
Cylinder Style & Outlet: AS 350
Cylinder Pressure & Volume: 2000 psi 140 cu ft

Certified Concentration:

Expiration Date:		11/26/2011	
Cylinder Number:		SA 18841	Analytical Uncertainty:
499	ppm	PROPANE	± 1 %
	Balance	NITROGEN	

NOx ppm = N/A NOX Values for Reference Only

Certification Information: *Certification Date:* 11/26/2008 *Term:* 36 Months *Expiration Date:* 11/26/2011

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1

Do Not Use this Standard if Pressure is less than 150 PSIG

Analytical Data: *(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)*

1. Component: PROPANE

Requested Concentration:	500 ppm
Certified Concentration:	499 ppm
Instrument Used:	HORIBA, FIA-510, 851135122
Analytical Method:	Flame Ionization
Last Multipoint Calibration:	11/17/2008

Reference Standard Type:	GMIS
Ref. Std. Cylinder # :	SA 11153
Ref. Std. Conc:	502 ppm
Ref. Std. Traceable to SRM # :	vs. 2645a
SRM Sample # :	101-41-B
SRM Cylinder # :	FF-26800

First Analysis Data: Date: 11/24/2008

Z:	0	R:	1271	C:	1264	Conc:	499
R:	1273	Z:	0	C:	1263	Conc:	498
Z:	0	C:	1264	R:	1272	Conc:	499

UOM: ppm Mean Test Assay: 499 ppm

Second Analysis Data: Date:

Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0

UOM: ppm Mean Test Assay: 0 ppm

Analyzed by: Peter Ngo

Certified by: Ben McCauley

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information con tained herein exceed the fee established for providing such information.

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Flow Controller Calibration Data Sheet

Description: MFC-1 **Size: 10 SLM** **K-Factor: 1.0**

Model: EFC- 202-10L **Serial Number: 4456400001**

THE ABOVE FLOW CONTROLLER WAS CALIBRATED USING STANDARDS TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGIES.

SERIAL NUMBER: 4428
CALIBRATION DATE: 01/12/2010
NEXT CALIBRATION DUE: 01/12/2011
CALIBRATION EQUIPMENT: Porter CM2-C1

	Set Flow (cc/min)	True Flow (cc/min)	% Difference
5%	500	490	-0.10
10%	1000	995	-0.05
20%	2000	1970	-0.30
30%	3000	2970	-0.30
40%	4000	3980	-0.20
50%	5000	4990	-0.10
60%	6000	6000	0.00
70%	7000	7020	0.20
80%	8000	8030	0.30
90%	9000	9040	0.40
100%	10000	10020	0.20

ENVIRONMENTAL CONDITIONS: Room Temperature
BAROMETRIC PRESSURE: 30.3
THIS CALIBRATION IS REFERENCED TO NITROGEN

Flow Controller Calibration Data Sheet

Description: MFC-2 **Size: 5000 SCCM** **K-Factor: 1.0**

Model: EFC- 202-5L **Serial Number: 44564000001**

THE ABOVE FLOW CONTROLLER WAS CALIBRATED USING STANDARDS TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGIES.

SERIAL NUMBER: 4428
CALIBRATION DATE: 01/12/2010
NEXT CALIBRATION DUE: 01/12/2011
CALIBRATION EQUIPMENT: Porter CM2-C1

	Set Flow (cc/min)	True Flow (cc/min)	% Difference
5%	250	245	-0.10
10%	500	500	0.00
20%	1000	1010	0.20
30%	1500	1515	0.30
40%	2000	2020	0.40
50%	2500	2525	0.50
60%	3000	3025	0.50
70%	3500	3525	0.50
80%	4000	4030	0.60
90%	4500	4525	0.50
100%	5000	5015	0.30

ENVIRONMENTAL CONDITIONS: Room Temperature
BAROMETRIC PRESSURE: 30.3
THIS CALIBRATION IS REFERENCED TO NITROGEN

Flow Controller Calibration Data Sheet

Description: MFC-3 **Size: 1 SLM** **K-Factor: 1.0**

Model: EFC- 202-1L **Serial Number: 44564000001**

THE ABOVE FLOW CONTROLLER WAS CALIBRATED USING STANDARDS TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGIES.

SERIAL NUMBER: 4428
CALIBRATION DATE: 01/12/2010
NEXT CALIBRATION DUE: 01/12/2011
CALIBRATION EQUIPMENT: Porter CM2-C1

	Set Flow (cc/min)	True Flow (cc/min)	% Difference
5%	50	50	0.00
10%	100	100	0.00
20%	200	200	0.00
30%	300	300	0.00
40%	400	400	0.00
50%	500	500	0.00
60%	600	600	0.00
70%	700	700	0.00
80%	800	800	0.00
90%	900	901	0.10
100%	1000	1002	0.20

ENVIRONMENTAL CONDITIONS: Room Temperature
BAROMETRIC PRESSURE: 30.3
THIS CALIBRATION IS REFERENCED TO NITROGEN

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES

Quality - Service - Reliability

1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the **GREEN** cells. YELLOW cells are calculated.

DATE: 12/29/2009
METER PART #: 159308-A

METER SERIAL #: 159308
CRITICAL ORIFICE SET SERIAL #: 1452 S

BAROMETRIC PRESSURE (in Hg): INITIAL 29.45 | FINAL 29.45 | AVG (P_{bar}) 29.45

IF Y VARIATION EXCEEDS 2.00%, ORIFICE SHOULD BE RECALIBRATED

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) θ	DGM ΔH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y VARIATION (%)	$\Delta H_@$
16	1	0.4253	19	984.969	990.411	5.442	65	66	67	66	67	66.5	10.00	1	5.3862	5.4680	1.015		1.862
	2	0.4253	19	1,001.212	1,006.675	5.463	65	68	68	68	68	68	10.00	1	5.3916	5.4680	1.014		1.857
	3	0.4253	19	21.861	27.335	5.474	65	69	70	69	70	69.5	10.00	1	5.3872	5.4680	1.015		1.851
																AVG =	1.015	-0.21	
20	1	0.5422	17	990.411	995.954	5.543	65	67	68	67	68	67.5	8.00	1.6	5.4839	5.5768	1.017		1.832
	2	0.5422	17	11.064	16.610	5.546	65	67	68	67	68	67.5	8.00	1.6	5.4869	5.5768	1.016		1.832
	3	0.5422	17	27.335	32.890	5.555	65	69	70	69	70	69.5	8.00	1.6	5.4750	5.5768	1.019		1.825
																AVG =	1.017	0.04	
25	1	0.6884	16	995.954	1,001.212	5.258	65	68	68	68	68	68	6.00	2.6	5.210	5.3104	1.019		1.850
	2	0.6884	16	16.610	21.861	5.251	65	68	69	68	69	68.5	6.00	2.6	5.1981	5.3104	1.022		1.848
	3	0.6884	16	32.890	38.195	5.305	65	70	71	70	71	70.5	6.00	2.6	5.2318	5.3104	1.015		1.841
																AVG =	1.019	0.17	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = **1.017**

AVERAGE $\Delta H_@$ = **1.844**

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions
K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)
T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions
T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)
K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

= DGM calibration factor

$$\Delta H_@ = \left(\frac{0.75\,\theta}{V_{cr}(std)}\right)^2 \Delta H \left(\frac{V_m(std)}{V_m}\right)$$

DGM cal

Appendix D

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	10:42	10.6	10.6	0.2	0.6	0.6	1.0
	10:43	10.6	10.6	0.2	0.6	0.6	1.0
	10:44	10.6	10.6	0.2	0.6	0.6	1.0
	10:45	10.5	10.5	0.2	0.6	0.6	1.0
	10:46	10.9	10.9	0.2	0.6	0.6	1.0
	10:47	10.6	10.6	0.2	0.6	0.6	1.0
	10:48	10.4	10.4	0.2	0.6	0.6	1.0
	10:49	10.3	10.3	0.2	0.6	0.6	1.0
	10:50	10.4	10.4	0.2	0.6	0.6	1.0
	10:51	10.5	10.5	0.2	0.6	0.6	1.0
	10:52	10.5	10.5	0.2	0.6	0.6	1.0
	10:53	10.7	10.7	0.2	0.6	0.6	1.0
	10:54	10.8	10.8	0.2	0.6	0.6	1.0
	10:55	10.6	10.6	0.2	0.6	0.6	1.0
	10:56	10.6	10.6	0.2	0.6	0.6	1.0
	10:57	10.6	10.6	0.2	0.6	0.6	1.0
	10:58	10.6	10.6	0.2	0.6	0.6	1.0
	10:59	10.8	10.8	0.2	0.3	0.3	1.0
	11:00	13.5	13.5	0.6	0.3	0.3	1.0
	11:01	11.4	11.4	0.2	0.3	0.3	1.0
	11:02	10.6	10.6	0.2	0.3	0.3	1.0
Average =		10.8	10.8	0.2	0.6	0.6	1.0
Maximum =		13.5	13.5	0.6	0.6	0.6	1.0
Minimum =		10.3	10.3	0.2	0.3	0.3	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		226.3	226.3	4.0	11.6	11.6	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

2

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	11:03	10.7	10.7	0.2	0.3	0.3	1.0
	11:04	10.7	10.7	0.2	0.3	0.3	1.0
	11:05	10.6	10.6	0.2	0.3	0.3	1.0
	11:06	10.6	10.6	0.2	0.3	0.3	1.0
	11:07	10.6	10.6	0.2	0.3	0.3	1.0
	11:08	10.7	10.7	0.2	0.3	0.3	1.0
	11:09	10.7	10.7	0.2	0.3	0.3	1.0
	11:10	10.6	10.6	0.2	0.3	0.3	1.0
	11:11	10.7	10.7	0.2	0.3	0.3	1.0
	11:12	10.6	10.6	0.2	0.3	0.3	1.0
	11:13	10.6	10.6	0.2	0.3	0.3	1.0
	11:14	10.6	10.6	0.2	0.3	0.3	1.0
	11:15	10.7	10.7	0.2	0.3	0.3	1.0
	11:16	10.7	10.7	0.2	0.3	0.3	1.0
	11:17	10.5	10.5	0.2	0.3	0.3	1.0
	11:18	10.5	10.5	0.2	0.3	0.3	1.0
	11:19	10.7	10.7	0.2	0.3	0.3	1.0
	11:20	10.7	10.7	0.2	0.3	0.3	1.0
	11:21	10.7	10.7	0.2	0.3	0.3	1.0
	11:22	10.6	10.6	0.2	0.3	0.3	1.0
	11:23	10.5	10.5	0.2	0.3	0.3	1.0
Average =		10.6	10.6	0.2	0.3	0.3	1.0
Maximum =		10.7	10.7	0.2	0.3	0.3	1.0
Minimum =		10.5	10.5	0.2	0.3	0.3	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		223.3	223.3	3.8	5.7	5.7	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

3

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	11:24	10.6	10.6	0.2	0.3	0.3	1.0
	11:25	10.8	10.8	0.2	0.3	0.3	1.0
	11:26	10.7	10.7	0.2	0.3	0.3	1.0
	11:27	10.6	10.6	0.2	0.3	0.3	1.0
	11:28	10.6	10.6	0.1	0.3	0.3	1.0
	11:29	10.7	10.7	0.2	0.3	0.3	1.0
	11:30	10.5	10.5	0.1	0.3	0.3	1.0
	11:31	10.7	10.7	0.1	0.3	0.3	1.0
	11:32	10.7	10.7	0.2	0.3	0.3	1.0
	11:33	10.5	10.5	0.1	0.3	0.3	1.0
	11:34	10.4	10.4	0.1	0.3	0.3	1.0
	11:35	10.6	10.6	0.1	0.3	0.3	1.0
	11:36	10.6	10.6	0.2	0.3	0.3	1.0
	11:37	10.6	10.6	0.2	0.3	0.3	1.0
	11:38	10.6	10.6	0.2	0.3	0.3	1.0
	11:39	10.5	10.5	0.2	0.3	0.3	1.0
	11:40	10.5	10.5	0.2	0.3	0.3	1.0
	11:41	10.7	10.7	0.1	0.3	0.3	1.0
	11:42	10.8	10.8	0.2	0.3	0.3	1.0
	11:43	10.8	10.8	0.2	0.3	0.3	1.0
	11:44	10.5	10.5	0.2	0.3	0.3	1.0
Average =		10.6	10.6	0.2	0.3	0.3	1.0
Maximum =		10.8	10.8	0.2	0.3	0.3	1.0
Minimum =		10.4	10.4	0.1	0.3	0.3	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		222.8	222.8	3.2	5.4	5.4	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

4

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	11:56	10.9	10.9	0.1	0.2	0.2	1.0
	11:57	10.8	10.8	0.1	0.2	0.2	1.0
	11:58	10.6	10.6	0.1	0.2	0.2	1.0
	11:59	10.7	10.7	0.1	0.2	0.2	1.0
	12:00	~~13.6~~	~~13.6~~	0.5	0.2	0.2	1.0
	12:01	11.2	11.2	0.2	0.2	0.2	1.0
	12:02	10.5	10.5	0.1	0.2	0.2	1.0
	12:03	10.6	10.6	0.1	0.2	0.2	1.0
	12:04	10.6	10.6	0.2	0.2	0.2	1.0
	12:05	10.6	10.6	0.2	0.2	0.2	1.0
	12:06	10.5	10.5	0.1	0.2	0.2	1.0
	12:07	10.8	10.8	0.1	0.2	0.2	1.0
	12:08	10.5	10.5	0.1	0.2	0.2	1.0
	12:09	10.6	10.6	0.1	0.2	0.2	1.0
	12:10	10.6	10.6	0.1	0.2	0.2	1.0
	12:11	10.6	10.6	0.1	0.2	0.2	1.0
	12:12	10.6	10.6	0.1	0.2	0.2	1.0
	12:13	10.6	10.6	0.1	0.2	0.2	1.0
	12:14	10.6	10.6	0.1	0.2	0.2	1.0
	12:15	10.6	10.6	0.1	0.2	0.2	1.0
	12:16	10.6	10.6	0.1	0.2	0.2	1.0
Average =		10.8	10.8	0.2	0.2	0.2	1.0
Maximum =		13.6	13.6	0.5	0.2	0.2	1.0
Minimum =		10.5	10.5	0.1	0.2	0.2	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		226.7	226.7	3.3	4.9	4.9	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

5

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of
Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	12:17	10.5	10.5	0.1	0.2	0.2	1.0
	12:18	10.6	10.6	0.1	0.2	0.2	1.0
	12:19	10.6	10.6	0.1	0.2	0.2	1.0
	12:20	10.6	10.6	0.1	0.2	0.2	1.0
	12:21	10.6	10.6	0.1	0.2	0.2	1.0
	12:22	10.5	10.5	0.1	0.2	0.2	1.0
	12:23	10.6	10.6	0.1	0.2	0.2	1.0
	12:24	10.7	10.7	0.1	0.2	0.2	1.0
	12:25	10.6	10.6	0.1	0.2	0.2	1.0
	12:26	10.5	10.5	0.1	0.2	0.2	1.0
	12:27	10.7	10.7	0.1	0.2	0.2	1.0
	12:28	10.8	10.8	0.1	0.2	0.2	1.0
	12:29	10.5	10.5	0.1	0.2	0.2	1.0
	12:30	10.5	10.5	0.1	0.2	0.2	1.0
	12:31	10.7	10.7	0.1	0.2	0.2	1.0
	12:32	10.7	10.7	0.1	0.2	0.2	1.0
	12:33	10.5	10.5	0.1	0.2	0.2	1.0
	12:34	10.5	10.5	0.1	0.2	0.2	1.0
	12:35	10.8	10.8	0.1	0.2	0.2	1.0
	12:36	10.5	10.5	0.1	0.2	0.2	1.0
	12:37	10.4	10.4	0.1	0.2	0.2	1.0
Average =		10.6	10.6	0.1	0.2	0.2	1.0
Maximum =		10.8	10.8	0.1	0.2	0.2	1.0
Minimum =		10.4	10.4	0.1	0.2	0.2	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		222.2	222.2	2.6	4.4	4.4	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

b

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	12:38	10.6	10.6	0.1	0.2	0.2	1.0
	12:39	10.7	10.7	0.1	0.2	0.2	1.0
	12:40	10.6	10.6	0.1	0.2	0.2	1.0
	12:41	10.5	10.5	0.1	0.2	0.2	1.0
	12:42	10.5	10.5	0.1	0.2	0.2	1.0
	12:43	10.6	10.6	0.1	0.2	0.2	1.0
	12:44	10.7	10.7	0.1	0.2	0.2	1.0
	12:45	10.5	10.5	0.1	0.2	0.2	1.0
	12:46	10.3	10.3	0.1	0.2	0.2	1.0
	12:47	10.4	10.4	0.1	0.2	0.2	1.0
	12:48	10.4	10.4	0.1	0.2	0.2	1.0
	12:49	10.3	10.3	0.1	0.2	0.2	1.0
	12:50	10.5	10.5	0.1	0.2	0.2	1.0
	12:51	10.6	10.6	0.1	0.2	0.2	1.0
	12:52	10.5	10.5	0.1	0.2	0.2	1.0
	12:53	10.6	10.6	0.1	0.2	0.2	1.0
	12:54	10.5	10.5	0.1	0.2	0.2	1.0
	12:55	10.6	10.6	0.1	0.2	0.2	1.0
	12:56	10.6	10.6	0.1	0.2	0.2	1.0
	12:57	10.6	10.6	0.1	0.2	0.2	1.0
	12:58	10.6	10.6	0.1	0.2	0.2	1.0
Average =		10.5	10.5	0.1	0.2	0.2	1.0
Maximum =		10.7	10.7	0.1	0.2	0.2	1.0
Minimum =		10.3	10.3	0.1	0.2	0.2	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		221.2	221.2	2.5	4.1	4.1	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

7

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of
Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	13:06	10.6	10.6	0.1	0.2	0.2	1.0
	13:07	10.4	10.4	0.1	0.2	0.2	1.0
	13:08	10.7	10.7	0.1	0.2	0.2	1.0
	13:09	10.7	10.7	0.1	0.2	0.2	1.0
	13:10	10.5	10.5	0.1	0.2	0.2	1.0
	13:11	10.6	10.6	0.1	0.2	0.2	1.0
	13:12	10.5	10.5	0.1	0.2	0.2	1.0
	13:13	10.5	10.5	0.1	0.2	0.2	1.0
	13:14	10.6	10.6	0.1	0.2	0.2	1.0
	13:15	10.5	10.5	0.1	0.2	0.2	1.0
	13:16	10.6	10.6	0.1	0.2	0.2	1.0
	13:17	10.6	10.6	0.1	0.2	0.2	1.0
	13:18	10.6	10.6	0.1	0.2	0.2	1.0
	13:19	10.5	10.5	0.1	0.2	0.2	1.0
	13:20	10.7	10.7	0.1	0.2	0.2	1.0
	13:21	10.6	10.6	0.1	0.2	0.2	1.0
	13:22	10.5	10.5	0.1	0.2	0.2	1.0
	13:23	10.4	10.4	0.1	0.2	0.2	1.0
	13:24	10.7	10.7	0.1	0.2	0.2	1.0
	13:25	10.8	10.8	0.1	0.2	0.2	1.0
	13:26	10.4	10.4	0.1	0.2	0.2	1.0
Average =		10.6	10.6	0.1	0.2	0.2	1.0
Maximum =		10.8	10.8	0.1	0.2	0.2	1.0
Minimum =		10.4	10.4	0.1	0.2	0.2	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		222.1	222.1	2.4	3.9	3.9	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

8

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of
Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	13:27	10.8	10.8	0.1	0.2	0.2	1.0
	13:28	10.7	10.7	0.1	0.2	0.2	1.0
	13:29	10.5	10.5	0.1	0.2	0.2	1.0
	13:30	10.5	10.5	0.1	0.2	0.2	1.0
	13:31	10.7	10.7	0.1	0.2	0.2	1.0
	13:32	10.7	10.7	0.1	0.2	0.2	1.0
	13:33	10.6	10.6	0.1	0.2	0.2	1.0
	13:34	10.5	10.5	0.1	0.2	0.2	1.0
	13:35	10.5	10.5	0.3	0.2	0.2	1.0
	13:36	10.7	10.7	0.2	0.2	0.2	1.0
	13:37	10.6	10.6	0.2	0.2	0.2	1.0
	13:38	10.6	10.6	0.2	0.2	0.2	1.0
	13:39	10.6	10.6	0.2	0.2	0.2	1.0
	13:40	10.7	10.7	0.1	0.2	0.2	1.0
	13:41	10.6	10.6	0.1	0.2	0.2	1.0
	13:42	10.5	10.5	0.1	0.2	0.2	1.0
	13:43	10.5	10.5	0.1	0.2	0.2	1.0
	13:44	10.7	10.7	0.1	0.2	0.2	1.0
	13:45	10.6	10.6	0.1	0.2	0.2	1.0
	13:46	10.5	10.5	0.1	0.2	0.2	1.0
	13:47	10.7	10.7	0.1	0.2	0.2	1.0
Average =		10.6	10.6	0.1	0.2	0.2	1.0
Maximum =		10.8	10.8	0.3	0.2	0.2	1.0
Minimum =		10.5	10.5	0.1	0.2	0.2	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		222.5	222.5	3.0	4.0	4.0	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Plant Name: ETMA
General Average Report
Reporting Period: 04/14/2010 to 04/14/2010

Site Name: BOILER3
Data Averaging Type: 1m

Time of
Rolling

Date	Time	O2 (PERCENT)	O2_HOLD (PERCENT)	THC (PPM)	THC_ROLL (PPM)	THCHRA75 (PPM)	UNITON (MIN)
04/14/10	13:48	10.5	10.5	0.1	0.2	0.2	1.0
	13:49	10.2	10.2	0.1	0.2	0.2	1.0
	13:50	10.1	10.1	0.1	0.2	0.2	1.0
	13:51	10.3	10.3	0.1	0.2	0.2	1.0
	13:52	10.5	10.5	0.1	0.2	0.2	1.0
	13:53	10.6	10.6	0.1	0.2	0.2	1.0
	13:54	10.6	10.6	0.1	0.2	0.2	1.0
	13:55	10.6	10.6	0.2	0.2	0.2	1.0
	13:56	10.5	10.5	0.1	0.2	0.2	1.0
	13:57	10.4	10.4	0.1	0.2	0.2	1.0
	13:58	10.7	10.7	0.1	0.2	0.2	1.0
	13:59	10.6	10.6	0.1	0.2	0.2	1.0
	14:00	13.2	13.2	0.5	0.2	0.2	1.0
	14:01	11.2	11.2	0.2	0.2	0.2	1.0
	14:02	10.7	10.7	0.1	0.2	0.2	1.0
	14:03	10.6	10.6	0.1	0.2	0.2	1.0
	14:04	10.6	10.6	0.2	0.2	0.2	1.0
	14:05	10.7	10.7	0.2	0.2	0.2	1.0
	14:06	10.6	10.6	0.2	0.2	0.2	1.0
	14:07	10.6	10.6	0.2	0.2	0.2	1.0
	14:08	10.5	10.5	0.1	0.2	0.2	1.0
Average =		10.7	10.7	0.2	0.2	0.2	1.0
Maximum =		13.2	13.2	0.5	0.2	0.2	1.0
Minimum =		10.1	10.1	0.1	0.2	0.2	1.0
Possible Values =		21	21	21	21	21	21
Included Values =		21	21	21	21	21	21
Total =		224.3	224.3	3.3	4.1	4.1	21.0

* - excluded values (missing, OOC, invalid, suspect)
< - missing
T - out-of-control
I - invalid
S - suspect
H - exceedance
F - stack not operating
B - invalid (PADER)
U - missing data substituted
-999 - missing value
-888 - value could not be calculated

Attachment E-5

Process Test Data

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 8:00	19.5	2957	31.567	1057	51.9	-0.3	463.7	20.4	0.4	11.7	82.1	34951
6/2/2010 8:01	17.9	3004	31.467	1061	53.1	-0.3	463.7	21.4	0.4	11.7	46.2	34931
6/2/2010 8:02	7.3	3385	31.498	1060	51.9	-0.3	463.7	19.0	0.4	11.7	66.9	34154
6/2/2010 8:03	20.9	3028	32.600	1053	53.2	-0.3	463.7	19.2	0.4	11.7	133.5	35198
6/2/2010 8:04	17.3	3156	32.597	1060	52.9	-0.3	463.6	21.2	0.4	11.7	45.3	34984
6/2/2010 8:05	16.6	3180	32.593	1061	51.8	-0.3	463.6	19.4	0.4	11.7	61.5	34651
6/2/2010 8:06	16.2	3194	32.589	1060	52.0	-0.3	463.6	20.5	0.4	11.7	56.0	34661
6/2/2010 8:07	12.3	3332	32.586	1059	52.2	-0.3	463.6	21.0	0.4	11.7	48.5	34670
6/2/2010 8:08	10.3	3404	32.582	1054	52.4	-0.3	463.6	20.1	0.4	11.7	78.4	34685
6/2/2010 8:09	15.1	3234	32.578	1048	52.7	-0.3	463.6	19.8	0.4	11.7	77.5	34701
6/2/2010 8:10	15.4	3221	32.575	1049	52.9	-0.3	463.6	19.0	0.4	11.7	54.5	34716
6/2/2010 8:11	15.6	3212	32.571	1050	53.1	-0.3	463.6	20.8	0.4	11.7	57.2	34731
6/2/2010 8:12	15.9	3202	32.567	1055	53.1	-0.3	463.6	20.2	0.4	11.7	47.6	34746
6/2/2010 8:13	14.3	3262	32.564	1058	52.0	-0.3	463.6	20.4	0.4	11.7	54.8	34761
6/2/2010 8:14	15.0	3240	32.560	1060	52.6	-0.3	463.5	19.7	0.4	11.7	51.9	34776
6/2/2010 8:15	23.0	2950	32.556	1061	53.1	-0.3	463.5	20.7	0.4	11.7	49.3	34791
6/2/2010 8:16	16.2	3189	32.553	1066	53.7	-0.3	463.5	19.4	0.4	11.7	45.2	34807
6/2/2010 8:17	12.7	3325	32.646	1063	52.7	-0.3	463.5	19.8	0.4	11.7	71.8	34581
6/2/2010 8:18	15.1	3255	32.749	1060	53.1	-0.3	463.5	19.1	0.4	11.7	57.1	35002
6/2/2010 8:19	14.8	3276	32.852	1061	53.2	-0.3	463.5	19.3	0.4	11.7	53.9	34968
6/2/2010 8:20	20.6	3084	32.955	1063	53.1	-0.3	463.5	20.6	0.4	11.7	52.1	34934
6/2/2010 8:21	18.7	3162	33.058	1066	52.9	-0.3	463.5	18.7	0.4	11.7	50.7	34900
6/2/2010 8:22	16.7	3245	33.160	1065	52.8	-0.3	463.5	20.4	0.4	11.8	50.7	34866
6/2/2010 8:23	15.5	3301	33.263	1061	52.7	-0.3	463.4	19.6	0.4	11.8	67.9	34832
6/2/2010 8:24	15.5	3315	33.366	1060	52.5	-0.3	463.4	19.9	0.4	11.8	49.4	34799
6/2/2010 8:25	14.4	3363	33.469	1060	51.8	-0.3	463.4	21.6	0.4	11.8	47.6	34765
6/2/2010 8:26	13.4	3413	33.571	1056	52.7	-0.3	463.4	19.0	0.4	11.8	52.6	34731
6/2/2010 8:27	19.7	3163	33.355	1058	54.1	-0.3	463.4	19.5	0.4	11.8	50.7	35519
6/2/2010 8:28	17.7	3183	32.910	1065	53.0	-0.3	463.4	19.9	0.4	11.8	45.5	35071
6/2/2010 8:29	15.8	3203	32.465	1065	51.9	-0.3	463.4	19.5	0.4	11.8	51.2	34624

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 8:30	13.7	3234	32.071	1059	51.0	-0.3	463.4	21.0	0.4	11.8	61.8	34868
6/2/2010 8:31	17.2	3129	32.243	1056	51.2	-0.3	463.4	18.1	0.4	11.8	54.5	35208
6/2/2010 8:32	17.0	3156	32.416	1057	51.4	-0.3	463.4	19.0	0.4	11.8	55.8	34890
6/2/2010 8:33	16.9	3184	32.588	1058	51.7	-0.3	463.3	20.2	0.4	11.8	61.1	34720
6/2/2010 8:34	16.7	3211	32.761	1059	51.9	-0.3	463.3	20.9	0.4	11.8	54.6	34760
6/2/2010 8:35	16.5	3236	32.933	1060	52.1	-0.3	463.3	21.6	0.4	11.8	59.5	34799
6/2/2010 8:36	16.4	3261	33.106	1061	52.3	-0.3	463.3	20.0	0.4	11.8	51.6	34838
6/2/2010 8:37	16.2	3286	33.278	1062	52.6	-0.3	463.3	21.2	0.4	11.8	53.8	34802
6/2/2010 8:38	10.5	3507	33.451	1059	52.8	-0.3	463.3	21.2	0.4	11.8	63.4	34661
6/2/2010 8:39	23.8	3045	33.543	1054	53.2	-0.3	463.3	20.1	0.4	11.8	116.7	35702
6/2/2010 8:40	17.9	3241	33.422	1065	53.1	-0.3	463.3	20.3	0.4	11.8	50.6	35279
6/2/2010 8:41	13.9	3377	33.386	1065	53.0	-0.3	463.3	20.4	0.4	11.8	65.5	34776
6/2/2010 8:42	10.4	3498	33.350	1059	53.0	-0.3	463.3	20.9	0.4	11.8	74.9	34557
6/2/2010 8:43	15.1	3329	33.314	1054	52.9	-0.3	463.2	18.3	0.4	11.9	78.5	34829
6/2/2010 8:44	15.4	3329	33.350	1056	52.8	-0.3	463.2	20.4	0.4	11.9	52.9	35264
6/2/2010 8:45	15.6	3328	33.437	1058	52.7	-0.3	463.2	21.0	0.4	11.9	51.7	35144
6/2/2010 8:46	21.0	3152	33.523	1057	52.6	-0.3	463.2	20.3	0.3	12.0	65.2	34914
6/2/2010 8:47	18.9	3242	33.610	1063	52.0	-0.3	463.2	21.8	0.3	12.0	49.8	34888
6/2/2010 8:48	14.4	3413	33.696	1065	52.3	-0.3	463.2	18.8	0.3	12.0	44.5	34863
6/2/2010 8:49	11.8	3519	33.783	1061	52.7	-0.3	463.2	21.5	0.3	12.1	54.7	34837
6/2/2010 8:50	14.0	3454	33.870	1059	53.0	-0.3	463.2	20.5	0.3	12.1	68.5	34836
6/2/2010 8:51	15.7	3405	33.956	1062	53.8	-0.3	463.2	19.3	0.3	12.1	47.5	35061
6/2/2010 8:52	15.7	3419	34.043	1062	54.6	-0.3	463.1	20.6	0.3	12.2	48.2	34844
6/2/2010 8:53	15.6	3432	34.130	1060	52.6	-0.3	463.1	19.3	0.3	12.2	60.7	34670
6/2/2010 8:54	15.5	3447	34.216	1060	53.1	-0.3	463.1	20.9	0.3	12.2	49.0	34969
6/2/2010 8:55	24.1	3151	34.303	1062	53.3	-0.3	463.1	20.6	0.3	12.3	47.7	35269
6/2/2010 8:56	17.4	3355	33.950	1071	54.6	-0.3	463.1	20.2	0.3	12.3	41.0	35249
6/2/2010 8:57	15.1	3933	33.558	1068	53.1	-0.3	463.1	20.1	0.6	17.8	24.5	34782
6/2/2010 8:58	7.4	3646	33.165	1061	51.6	-0.3	463.1	20.7	0.2	12.7	71.7	34314
6/2/2010 8:59	15.0	3322	32.772	1054	51.6	-0.3	463.1	18.8	0.2	12.6	80.5	34477

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 9:00	19.1	3160	32.721	1056	52.6	-0.3	463.1	21.7	0.2	12.5	52.8	34849
6/2/2010 9:01	17.3	3227	32.784	1066	53.6	-0.3	463.1	20.7	0.2	12.4	46.9	35184
6/2/2010 9:02	16.1	3267	32.847	1068	51.9	-0.3	463.0	18.3	0.2	12.3	58.5	35105
6/2/2010 9:03	16.0	3273	32.909	1068	52.1	-0.3	463.0	21.2	0.2	12.2	55.5	35025
6/2/2010 9:04	15.9	3280	32.972	1068	52.2	-0.3	463.0	18.6	0.2	12.1	56.6	34945
6/2/2010 9:05	15.8	3287	33.035	1067	52.4	-0.3	463.0	19.9	0.2	12.1	50.3	34866
6/2/2010 9:06	20.7	3116	33.097	1070	54.0	-0.3	463.0	19.6	0.2	12.0	50.4	35382
6/2/2010 9:07	16.4	3267	33.116	1071	53.8	-0.3	463.0	20.4	0.2	11.9	57.0	34671
6/2/2010 9:08	16.4	3267	33.103	1067	53.6	-0.3	463.0	20.1	0.2	11.9	59.3	34541
6/2/2010 9:09	16.3	3268	33.090	1064	53.4	-0.3	463.0	20.7	0.2	11.9	54.5	34605
6/2/2010 9:10	16.2	3268	33.077	1064	53.2	-0.3	463.0	19.5	0.2	11.9	51.5	34669
6/2/2010 9:11	16.2	3269	33.065	1064	53.0	-0.3	462.9	20.5	0.2	11.9	55.3	34733
6/2/2010 9:12	16.1	3270	33.052	1066	52.8	-0.3	462.9	19.5	0.2	11.9	54.3	34797
6/2/2010 9:13	16.1	3270	33.039	1067	52.6	-0.3	462.9	20.8	0.2	11.9	52.4	34861
6/2/2010 9:14	16.0	3271	33.026	1069	52.4	-0.3	462.9	18.4	0.2	11.9	52.8	34939
6/2/2010 9:15	16.0	3271	33.013	1070	54.6	-0.3	462.9	19.5	0.2	11.9	49.7	35107
6/2/2010 9:16	15.9	3272	33.000	1069	52.4	-0.3	462.9	19.5	0.2	11.9	56.7	35059
6/2/2010 9:17	15.9	3273	32.987	1068	52.2	-0.3	462.9	21.5	0.2	11.9	55.8	35011
6/2/2010 9:18	15.8	3273	32.974	1065	52.1	-0.3	462.9	20.6	0.2	11.9	54.8	34964
6/2/2010 9:19	15.8	3274	32.962	1066	51.3	-0.3	462.9	19.0	0.2	11.9	54.1	34916
6/2/2010 9:20	15.7	3274	32.949	1066	52.5	-0.3	462.9	19.1	0.2	11.9	47.8	34868
6/2/2010 9:21	15.7	3275	32.936	1065	51.0	-0.3	462.8	19.9	0.2	11.9	58.0	34820
6/2/2010 9:22	9.7	3486	32.923	1062	52.1	-0.3	462.8	20.6	0.2	11.9	58.6	34772
6/2/2010 9:23	19.0	3153	32.910	1055	51.5	-0.3	462.8	19.6	0.2	11.9	83.3	34764
6/2/2010 9:24	17.8	3194	32.897	1062	52.3	-0.3	462.8	19.7	0.2	11.9	45.7	34877
6/2/2010 9:25	16.7	3234	32.884	1066	52.6	-0.3	462.8	22.2	0.2	11.9	53.3	34916
6/2/2010 9:26	15.9	3257	32.872	1066	52.1	-0.3	462.8	19.0	0.2	11.9	58.4	34902
6/2/2010 9:27	15.9	3257	32.859	1065	52.1	-0.3	462.8	16.9	0.2	11.9	55.9	34887
6/2/2010 9:28	15.8	3257	32.846	1064	52.1	-0.3	462.8	18.1	0.2	11.9	55.6	34873
6/2/2010 9:29	15.8	3258	32.833	1063	52.1	-0.3	462.8	20.6	0.2	11.9	52.0	34859

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 9:30	15.7	3258	32.820	1062	52.2	-0.3	462.7	21.0	0.2	11.9	52.9	34845
6/2/2010 9:31	15.7	3258	32.807	1062	52.3	-0.3	462.7	20.3	0.2	11.9	50.1	34831
6/2/2010 9:32	15.6	3258	32.794	1061	52.5	-0.3	462.7	20.1	0.2	11.9	49.7	34817
6/2/2010 9:33	15.6	3259	32.781	1061	52.7	-0.3	462.7	20.8	0.3	11.9	47.8	34803
6/2/2010 9:34	15.5	3260	32.769	1061	52.9	-0.3	462.7	21.1	0.3	11.9	49.2	34789
6/2/2010 9:35	9.4	3477	32.756	1061	53.0	-0.3	462.7	22.2	0.3	11.9	53.8	34775
6/2/2010 9:36	18.0	3177	32.801	1056	53.1	-0.3	462.7	20.9	0.3	11.9	73.2	35100
6/2/2010 9:37	17.5	3200	32.866	1058	53.1	-0.3	462.7	19.4	0.3	11.9	58.3	34672
6/2/2010 9:38	12.3	3392	32.932	1056	53.2	-0.3	462.7	20.2	0.3	11.9	58.1	34244
6/2/2010 9:39	24.5	2961	32.931	1054	53.2	-0.3	462.7	21.5	0.3	11.9	60.7	35355
6/2/2010 9:40	19.6	3131	32.909	1065	53.2	-0.3	462.6	18.4	0.3	11.9	44.0	35067
6/2/2010 9:41	16.0	3257	32.887	1063	53.1	-0.3	462.6	22.3	0.3	11.9	80.2	34638
6/2/2010 9:42	16.0	3256	32.865	1057	51.9	-0.3	462.6	19.9	0.3	11.9	83.2	34505
6/2/2010 9:43	16.0	3254	32.842	1057	52.2	-0.3	462.6	20.5	0.3	11.9	53.2	34581
6/2/2010 9:44	16.0	3252	32.820	1058	52.4	-0.3	462.6	19.1	0.3	11.9	54.6	34657
6/2/2010 9:45	15.9	3250	32.798	1056	52.7	-0.3	462.6	20.5	0.3	11.9	76.7	34734
6/2/2010 9:46	15.9	3248	32.776	1055	52.9	-0.3	462.6	20.2	0.3	12.0	66.9	34810
6/2/2010 9:47	15.9	3246	32.754	1057	53.2	-0.3	462.6	21.3	0.3	12.0	52.1	34816
6/2/2010 9:48	15.9	3244	32.731	1056	52.7	-0.3	462.6	21.7	0.3	12.0	63.2	34799
6/2/2010 9:49	15.9	3242	32.709	1054	51.7	-0.3	462.6	20.6	0.3	12.0	57.8	34781
6/2/2010 9:50	15.9	3240	32.687	1055	50.6	-0.3	462.5	18.5	0.3	12.0	55.3	34764
6/2/2010 9:51	15.9	3239	32.665	1058	51.5	-0.3	462.5	20.6	0.3	12.0	54.7	34747
6/2/2010 9:52	15.9	3237	32.643	1060	51.8	-0.3	462.5	20.0	0.3	12.0	55.9	34729
6/2/2010 9:53	15.8	3234	32.620	1059	52.2	-0.3	462.5	18.9	0.3	12.0	61.9	34712
6/2/2010 9:54	15.8	3227	32.598	1058	52.6	-0.3	462.5	20.1	0.3	12.0	59.0	34695
6/2/2010 9:55	20.0	3078	32.592	1060	51.5	-0.3	462.5	19.2	0.3	12.0	55.5	35232
6/2/2010 9:56	17.3	3173	32.597	1064	51.8	-0.3	462.5	20.4	0.3	12.0	54.7	34937
6/2/2010 9:57	16.4	3633	32.601	1064	52.0	-0.3	462.5	19.0	0.7	16.8	26.7	34872
6/2/2010 9:58	16.0	3270	32.606	1063	52.3	-0.3	462.5	19.7	0.7	12.7	55.9	34885
6/2/2010 9:59	11.7	3421	32.611	1062	52.6	-0.3	462.4	20.2	0.7	12.6	54.9	34898

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 10:00	16.5	3245	32.616	1058	52.9	-0.3	462.4	19.0	0.7	12.6	62.3	34911
6/2/2010 10:01	18.4	3179	32.621	1061	53.1	-0.3	462.4	19.3	0.7	12.6	49.2	34924
6/2/2010 10:02	17.1	3227	32.640	1065	53.0	-0.3	462.4	20.5	0.7	12.6	49.9	34883
6/2/2010 10:03	15.9	3292	32.811	1065	53.0	-0.3	462.4	20.5	0.7	12.5	56.7	34745
6/2/2010 10:04	15.3	3329	32.983	1063	53.0	-0.3	462.4	19.5	0.7	12.5	51.4	34819
6/2/2010 10:05	15.3	3347	33.154	1061	53.0	-0.3	462.4	19.6	0.7	12.5	48.3	34893
6/2/2010 10:06	15.3	3334	33.051	1060	53.2	-0.3	462.4	20.1	0.7	12.4	54.8	34854
6/2/2010 10:07	12.2	3421	32.857	1060	52.0	-0.3	462.4	21.5	0.7	12.4	48.0	34777
6/2/2010 10:08	15.1	3293	32.662	1057	52.3	-0.3	462.4	19.5	0.7	12.4	57.7	34887
6/2/2010 10:09	20.6	3071	32.468	1057	53.0	-0.3	462.3	19.7	0.7	12.4	47.6	35225
6/2/2010 10:10	18.5	3121	32.274	1063	53.8	-0.3	462.3	19.7	0.7	12.3	46.4	35238
6/2/2010 10:11	6.0	3576	32.355	1063	51.1	-0.3	462.3	19.5	0.7	12.3	76.6	34242
6/2/2010 10:12	15.2	3264	32.528	1056	51.4	-0.3	462.3	19.8	0.7	12.3	95.4	34709
6/2/2010 10:13	15.0	3286	32.702	1058	52.4	-0.3	462.3	18.0	0.7	12.2	53.5	35031
6/2/2010 10:14	14.8	3311	32.875	1061	52.6	-0.3	462.3	19.9	0.7	12.2	55.3	35339
6/2/2010 10:15	20.5	3127	33.048	1064	52.7	-0.3	462.3	21.1	0.7	12.2	50.9	34914
6/2/2010 10:16	17.7	3211	32.947	1066	52.8	-0.3	462.3	20.4	0.7	12.2	61.0	34685
6/2/2010 10:17	17.0	3224	32.821	1064	52.9	-0.3	462.3	19.8	0.7	12.2	57.7	34695
6/2/2010 10:18	16.3	3238	32.695	1063	53.0	-0.3	462.2	19.9	0.7	12.2	50.8	34706
6/2/2010 10:19	11.9	3379	32.569	1061	53.2	-0.3	462.2	20.4	0.7	12.2	56.6	34748
6/2/2010 10:20	13.2	3320	32.444	1055	53.3	-0.3	462.2	20.0	0.7	12.2	62.7	34834
6/2/2010 10:21	14.5	3261	32.318	1056	54.3	-0.3	462.2	20.2	0.7	12.2	48.8	34920
6/2/2010 10:22	15.7	3202	32.192	1058	53.6	-0.3	462.2	20.7	0.7	12.2	49.6	34952
6/2/2010 10:23	20.9	3006	32.066	1062	53.0	-0.3	462.2	21.0	0.7	12.3	50.3	34822
6/2/2010 10:24	18.6	3072	31.940	1065	52.8	-0.3	462.2	20.4	0.7	12.3	51.0	34765
6/2/2010 10:25	11.9	3298	31.828	1065	53.3	-0.3	462.2	18.0	0.7	12.3	52.8	34759
6/2/2010 10:26	12.0	3300	31.865	1062	53.8	-0.3	462.2	20.4	0.7	12.3	51.6	34763
6/2/2010 10:27	15.3	3189	31.902	1059	54.3	-0.3	462.2	19.4	0.7	12.3	50.2	34795
6/2/2010 10:28	15.3	3193	31.938	1058	53.3	-0.3	462.1	19.6	0.7	12.3	53.2	34831
6/2/2010 10:29	15.4	3196	31.975	1056	51.0	-0.3	462.1	18.8	0.7	12.3	56.2	34911

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 10:30	15.5	3198	32.012	1058	52.1	-0.3	462.1	20.1	0.7	12.3	49.3	34990
6/2/2010 10:31	17.4	3133	32.049	1060	52.1	-0.3	462.1	19.6	0.7	12.4	53.3	35070
6/2/2010 10:32	11.4	3351	32.086	1063	52.2	-0.3	462.1	21.0	0.7	12.4	54.3	35150
6/2/2010 10:33	18.4	3106	32.123	1065	52.4	-0.3	462.1	21.3	0.7	12.4	51.5	35143
6/2/2010 10:34	17.7	3138	32.160	1065	52.6	-0.3	462.1	19.7	0.7	12.4	50.5	35107
6/2/2010 10:35	17.0	3171	32.196	1063	52.8	-0.3	462.1	21.9	0.7	12.4	62.6	35072
6/2/2010 10:36	16.3	3203	32.233	1061	53.1	-0.3	462.1	19.5	0.7	12.4	54.8	35036
6/2/2010 10:37	15.6	3233	32.270	1060	53.3	-0.3	462.0	20.6	0.7	12.4	53.8	35001
6/2/2010 10:38	18.1	3146	32.307	1060	53.6	-0.3	462.0	20.3	0.7	12.5	49.6	34965
6/2/2010 10:39	17.5	3174	32.344	1061	51.3	-0.3	462.0	20.3	0.7	12.5	47.8	34930
6/2/2010 10:40	16.8	3203	32.381	1063	52.4	-0.3	462.0	19.8	0.7	12.5	49.4	34894
6/2/2010 10:41	16.2	3231	32.418	1064	52.8	-0.3	462.0	21.4	0.7	12.5	51.5	34858
6/2/2010 10:42	15.9	3246	32.454	1061	50.8	-0.3	462.0	20.4	0.7	12.5	67.6	34823
6/2/2010 10:43	15.9	3250	32.491	1058	52.6	-0.3	462.0	18.3	0.7	12.5	56.6	34787
6/2/2010 10:44	15.9	3255	32.528	1059	52.6	-0.3	462.0	19.3	0.7	12.5	53.3	34752
6/2/2010 10:45	15.9	3260	32.565	1060	52.1	-0.3	462.0	19.9	0.7	12.5	50.5	34716
6/2/2010 10:46	15.9	3263	32.602	1061	54.1	-0.3	462.0	20.7	0.7	12.6	49.3	34813
6/2/2010 10:47	15.9	3269	32.639	1061	52.9	-0.3	461.9	19.6	0.7	12.6	60.3	34861
6/2/2010 10:48	15.9	3275	32.676	1060	51.6	-0.3	461.9	20.7	0.7	12.6	50.5	34888
6/2/2010 10:49	15.9	3280	32.713	1059	51.4	-0.3	461.9	21.2	0.7	12.6	55.1	34898
6/2/2010 10:50	15.9	3286	32.749	1058	52.2	-0.3	461.9	22.6	0.7	12.6	55.8	34882
6/2/2010 10:51	15.9	3286	32.745	1055	51.7	-0.3	461.9	22.5	0.7	12.6	67.1	34867
6/2/2010 10:52	15.9	3287	32.737	1056	51.3	-0.3	461.9	23.2	0.7	12.6	56.5	34852
6/2/2010 10:53	15.9	3285	32.729	1058	50.9	-0.3	461.9	22.1	0.7	12.7	53.0	34805
6/2/2010 10:54	15.9	3280	32.720	1059	51.4	-0.3	461.9	22.5	0.7	12.7	58.8	34827
6/2/2010 10:55	15.9	3275	32.712	1060	52.8	-0.3	461.9	23.1	0.7	12.7	55.2	35101
6/2/2010 10:56	15.9	3271	32.704	1059	52.9	-0.3	461.8	22.2	0.7	12.7	59.5	34984
6/2/2010 10:57	15.9	3723	32.696	1061	52.7	-0.3	461.8	21.3	0.7	17.5	22.1	34867
6/2/2010 10:58	15.9	3298	32.687	1060	52.5	-0.3	461.8	21.7	0.7	13.2	60.5	34778
6/2/2010 10:59	16.0	3283	32.679	1057	52.3	-0.3	461.8	22.9	0.7	13.0	71.7	34774

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 11:00	13.8	3347	32.671	1053	52.1	-0.3	461.8	23.5	0.7	12.7	73.4	34771
6/2/2010 11:01	20.4	3098	32.663	1052	53.4	-0.3	461.8	23.5	0.7	12.5	61.8	34767
6/2/2010 11:02	21.6	3264	34.575	1063	55.0	-0.3	461.8	22.7	0.7	12.3	48.7	35475
6/2/2010 11:03	17.1	3311	33.692	1064	52.2	-0.3	461.8	24.0	0.7	12.1	87.7	34556
6/2/2010 11:04	16.1	3248	32.810	1061	52.3	-0.3	461.8	23.2	0.7	12.1	67.4	34672
6/2/2010 11:05	15.1	3263	32.617	1060	52.4	-0.3	461.8	23.2	0.7	12.1	54.1	34723
6/2/2010 11:06	8.7	3495	32.655	1058	52.5	-0.3	461.7	21.8	0.7	12.1	57.4	34753
6/2/2010 11:07	14.2	3306	32.693	1052	52.6	-0.3	461.7	22.9	0.7	12.1	79.5	34783
6/2/2010 11:08	15.6	3260	32.731	1056	53.0	-0.3	461.7	21.3	0.7	12.1	48.2	34813
6/2/2010 11:09	15.4	3269	32.769	1059	51.7	-0.3	461.7	20.8	0.7	12.1	55.1	34842
6/2/2010 11:10	15.2	3278	32.807	1057	53.7	-0.3	461.7	21.0	0.7	12.2	59.3	34860
6/2/2010 11:11	15.0	3292	32.844	1054	53.4	-0.3	461.7	20.5	0.7	12.2	65.7	34860
6/2/2010 11:12	14.9	3306	32.882	1055	53.0	-0.3	461.7	20.7	0.7	12.2	63.1	34861
6/2/2010 11:13	14.7	3319	32.920	1059	52.7	-0.3	461.7	21.5	0.7	12.2	53.1	34861
6/2/2010 11:14	14.5	3331	32.958	1063	52.4	-0.3	461.7	21.3	0.7	12.2	47.3	34924
6/2/2010 11:15	18.5	3186	32.996	1064	52.2	-0.3	461.7	20.1	0.7	12.2	50.3	34992
6/2/2010 11:16	17.3	3231	33.034	1067	52.1	-0.3	461.6	20.8	0.7	12.2	48.8	35003
6/2/2010 11:17	16.0	3278	33.072	1067	52.1	-0.3	461.6	20.6	0.7	12.2	53.2	34974
6/2/2010 11:18	14.8	3331	33.110	1068	53.8	-0.3	461.6	20.0	0.7	12.2	49.2	34945
6/2/2010 11:19	14.3	3358	33.147	1067	51.9	-0.3	461.6	20.6	0.7	12.2	53.6	34792
6/2/2010 11:20	14.4	3362	33.185	1063	51.0	-0.3	461.6	20.7	0.7	12.2	51.8	34599
6/2/2010 11:21	14.4	3364	33.223	1060	51.6	-0.3	461.6	19.2	0.7	12.2	60.1	34848
6/2/2010 11:22	14.5	3367	33.261	1061	52.2	-0.3	461.6	20.1	0.7	12.2	50.5	35080
6/2/2010 11:23	24.5	3014	33.299	1064	52.9	-0.3	461.6	20.8	0.7	12.2	53.7	35074
6/2/2010 11:24	18.5	3231	33.337	1070	53.0	-0.3	461.6	21.2	0.7	12.2	45.7	34672
6/2/2010 11:25	16.5	3309	33.375	1067	52.4	-0.3	461.5	20.0	0.7	12.2	62.0	34234
6/2/2010 11:26	15.0	3367	33.412	1064	51.9	-0.3	461.5	20.3	0.7	12.2	54.5	34708
6/2/2010 11:27	15.2	3362	33.450	1063	51.7	-0.3	461.5	19.1	0.7	12.2	52.9	34816

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM

Test 1 Run 1 Average

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
959	*3266*	*32.8*	*1061*	*52.6*	*-0.3*	*462.6*	*20.4*	*0.5*	*12.2*	*56.7*	*34859*

Test 1 Run 1 Minimum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
359	*2950*	*31.5*	*1048*	*50.6*	*-0.3*	*461.5*	*16.9*	*0.2*	*11.7*	*22.1*	*34154*

Test 1 Run 1 Maximum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
1470	*3933*	*34.6*	*1071*	*55.0*	*-0.3*	*463.7*	*24.0*	*0.7*	*17.8*	*133.5*	*35702*

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 12:00	17.2	3151	33.082	1064	52.5	-0.3	461.2	23.1	0.3	12.0	50.5	34985
6/2/2010 12:01	14.5	3248	33.104	1063	52.4	-0.3	461.2	22.7	0.3	12.0	65.2	34762
6/2/2010 12:02	14.6	3248	33.125	1061	52.4	-0.3	461.2	23.6	0.3	12.0	58.9	34517
6/2/2010 12:03	14.7	3248	33.146	1058	52.3	-0.3	461.1	21.7	0.3	12.0	59.2	34615
6/2/2010 12:04	14.8	3247	33.168	1056	52.3	-0.3	461.1	22.3	0.3	12.0	54.9	34827
6/2/2010 12:05	17.0	3170	33.189	1057	52.2	-0.3	461.1	23.1	0.3	12.0	53.0	34971
6/2/2010 12:06	16.9	3179	33.211	1058	52.2	-0.3	461.1	23.5	0.3	12.0	54.3	34907
6/2/2010 12:07	16.8	3188	33.232	1058	52.3	-0.3	461.1	22.5	0.3	12.0	58.0	34843
6/2/2010 12:08	16.6	3197	33.253	1057	52.7	-0.3	461.1	23.5	0.3	12.1	55.8	34808
6/2/2010 12:09	16.5	3206	33.275	1057	53.0	-0.3	461.1	22.3	0.3	12.1	55.5	34813
6/2/2010 12:10	16.3	3214	33.296	1058	53.4	-0.3	461.1	23.4	0.3	12.1	53.7	34818
6/2/2010 12:11	16.2	3223	33.318	1058	52.2	-0.3	461.1	23.3	0.3	12.1	59.8	34824
6/2/2010 12:12	16.0	3231	33.339	1057	52.0	-0.3	461.1	23.1	0.3	12.1	55.3	34829
6/2/2010 12:13	15.9	3239	33.360	1059	52.2	-0.3	461.0	22.2	0.3	12.1	53.7	34834
6/2/2010 12:14	15.7	3248	33.382	1060	52.4	-0.3	461.0	23.4	0.3	12.1	56.2	34839
6/2/2010 12:15	15.6	3256	33.403	1060	52.7	-0.3	461.0	23.6	0.3	12.1	59.0	34844
6/2/2010 12:16	15.4	3264	33.424	1061	52.7	-0.3	461.0	23.8	0.3	12.1	51.5	34849
6/2/2010 12:17	15.3	3272	33.446	1061	52.5	-0.3	461.0	22.9	0.3	12.2	60.2	34854
6/2/2010 12:18	15.1	3281	33.467	1061	52.4	-0.3	461.0	22.1	0.3	12.2	56.3	34859
6/2/2010 12:19	15.0	3289	33.489	1062	52.2	-0.3	461.0	22.8	0.3	12.2	56.9	34864
6/2/2010 12:20	14.8	3297	33.510	1063	52.7	-0.3	461.0	21.8	0.3	12.2	54.0	34869
6/2/2010 12:21	14.7	3307	33.531	1064	51.7	-0.3	461.0	23.6	0.4	12.2	49.2	35093
6/2/2010 12:22	17.2	3224	33.553	1064	53.8	-0.3	461.0	22.4	0.4	12.2	57.9	34987
6/2/2010 12:23	16.6	3250	33.574	1064	53.1	-0.3	460.9	22.4	0.4	12.2	48.6	35107
6/2/2010 12:24	16.0	3276	33.596	1063	51.3	-0.3	460.9	23.2	0.4	12.2	61.4	35079
6/2/2010 12:25	15.4	3300	33.617	1063	52.1	-0.3	460.9	23.6	0.4	12.2	55.3	35050
6/2/2010 12:26	14.8	3324	33.638	1065	52.9	-0.3	460.9	22.9	0.4	12.3	51.1	35021
6/2/2010 12:27	20.2	3138	33.656	1069	53.1	-0.3	460.9	23.6	0.4	12.3	49.9	35104
6/2/2010 12:28	17.7	3225	33.668	1073	54.3	-0.3	460.9	23.2	0.4	12.3	46.0	35090
6/2/2010 12:29	14.9	3327	33.681	1070	53.3	-0.3	460.9	22.0	0.4	12.3	56.8	35018

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 12:30	12.1	3428	33.693	1064	51.1	-0.3	460.9	23.0	0.4	12.3	55.0	34945
6/2/2010 12:31	16.0	3292	33.705	1058	52.6	-0.3	460.9	24.0	0.4	12.3	52.4	34872
6/2/2010 12:32	16.7	3270	33.718	1061	53.9	-0.3	460.8	23.2	0.4	12.3	46.2	34829
6/2/2010 12:33	16.1	3292	33.730	1064	54.5	-0.3	460.8	23.5	0.4	12.3	51.1	34875
6/2/2010 12:34	16.7	3275	33.742	1065	52.4	-0.3	460.8	22.9	0.4	12.3	52.5	34921
6/2/2010 12:35	16.6	3281	33.755	1064	51.3	-0.3	460.8	21.9	0.4	12.4	48.4	34967
6/2/2010 12:36	16.5	3286	33.767	1063	52.0	-0.3	460.8	23.2	0.4	12.4	52.6	34953
6/2/2010 12:37	16.4	3292	33.780	1063	51.9	-0.3	460.8	22.6	0.4	12.4	52.6	34853
6/2/2010 12:38	16.3	3297	33.792	1064	51.8	-0.3	460.8	23.1	0.4	12.4	50.4	34753
6/2/2010 12:39	16.2	3300	33.804	1061	51.7	-0.3	460.8	22.6	0.4	12.4	55.4	34654
6/2/2010 12:40	16.1	3303	33.817	1058	51.7	-0.3	460.8	24.2	0.4	12.4	60.1	34582
6/2/2010 12:41	20.2	3161	33.829	1060	51.6	-0.3	460.8	23.0	0.4	12.4	49.8	34825
6/2/2010 12:42	20.5	3149	33.846	1069	52.8	-0.3	460.7	23.1	0.5	12.4	44.5	35068
6/2/2010 12:43	16.4	3292	33.867	1070	53.6	-0.3	460.7	22.8	0.5	12.4	67.1	35012
6/2/2010 12:44	14.6	3360	33.888	1067	53.7	-0.3	460.7	22.2	0.5	12.5	68.6	34929
6/2/2010 12:45	14.4	3371	33.910	1062	53.7	-0.3	460.7	21.3	0.5	12.5	54.5	34864
6/2/2010 12:46	13.0	3425	33.931	1060	53.3	-0.3	460.7	23.3	0.5	12.5	55.5	34858
6/2/2010 12:47	15.2	3349	33.952	1058	52.3	-0.3	460.7	23.3	0.5	12.5	53.7	34851
6/2/2010 12:48	15.2	3353	33.973	1058	52.5	-0.3	460.7	23.1	0.5	12.5	52.6	34845
6/2/2010 12:49	15.2	3357	33.994	1059	52.6	-0.3	460.7	22.5	0.5	12.5	67.9	34941
6/2/2010 12:50	15.2	3360	34.015	1059	51.7	-0.3	460.7	22.6	0.5	12.5	50.2	35072
6/2/2010 12:51	15.2	3363	34.034	1061	53.8	-0.3	460.6	22.6	0.5	12.5	49.2	35158
6/2/2010 12:52	15.2	3363	34.029	1061	53.0	-0.3	460.6	21.9	0.5	12.6	49.7	35112
6/2/2010 12:53	15.2	3363	34.023	1060	52.1	-0.3	460.6	21.9	0.5	12.6	51.1	35066
6/2/2010 12:54	15.2	3363	34.018	1060	51.2	-0.3	460.6	22.6	0.5	12.6	54.8	35020
6/2/2010 12:55	15.2	3363	34.013	1059	50.3	-0.3	460.6	24.1	0.5	12.6	50.3	34974
6/2/2010 12:56	15.2	3363	34.007	1059	52.9	-0.3	460.6	23.7	0.5	12.6	47.3	34928
6/2/2010 12:57	15.2	3881	34.002	1057	52.7	-0.3	460.6	22.6	0.5	17.9	19.7	34881
6/2/2010 12:58	15.2	3322	33.997	1055	52.5	-0.3	460.6	23.4	0.5	12.0	49.8	34823
6/2/2010 12:59	15.2	3321	33.992	1057	53.5	-0.3	460.6	22.4	0.5	12.0	47.7	34766

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 13:00	15.2	3320	33.986	1058	53.6	-0.3	460.6	23.2	0.5	12.0	62.0	34742
6/2/2010 13:01	15.2	3319	33.981	1057	52.5	-0.3	460.5	22.3	0.5	12.0	62.9	34730
6/2/2010 13:02	15.2	3318	33.976	1058	51.4	-0.3	460.5	23.4	0.5	12.0	53.6	35050
6/2/2010 13:03	15.2	3322	33.971	1059	51.3	-0.3	460.5	22.7	0.5	12.1	78.6	34703
6/2/2010 13:04	15.2	3329	33.965	1063	52.1	-0.3	460.5	22.3	0.5	12.1	56.2	34748
6/2/2010 13:05	15.2	3329	33.960	1064	52.9	-0.3	460.5	23.4	0.5	12.1	52.7	34793
6/2/2010 13:06	15.2	3328	33.955	1062	52.5	-0.3	460.5	22.5	0.5	12.1	56.7	34839
6/2/2010 13:07	21.1	3122	33.949	1065	53.9	-0.3	460.5	23.7	0.5	12.1	53.1	34884
6/2/2010 13:08	17.1	3261	33.944	1070	51.6	-0.3	460.5	22.2	0.5	12.1	53.6	34917
6/2/2010 13:09	16.9	3267	33.939	1069	52.0	-0.3	460.5	21.9	0.5	12.1	55.6	34934
6/2/2010 13:10	16.7	3272	33.934	1067	51.1	-0.3	460.4	23.4	0.5	12.1	54.0	34950
6/2/2010 13:11	16.6	3278	33.928	1063	53.1	-0.3	460.4	22.2	0.5	12.1	56.9	34950
6/2/2010 13:12	16.4	3284	33.923	1059	53.0	-0.3	460.4	22.2	0.5	12.1	66.2	34936
6/2/2010 13:13	16.2	3290	33.918	1058	52.8	-0.3	460.4	23.3	0.4	12.1	55.5	34923
6/2/2010 13:14	16.0	3295	33.913	1057	53.2	-0.3	460.4	22.4	0.4	12.2	50.3	34929
6/2/2010 13:15	15.9	3301	33.907	1056	52.1	-0.3	460.4	23.0	0.4	12.2	58.0	34943
6/2/2010 13:16	15.7	3305	33.902	1054	52.8	-0.3	460.4	23.0	0.4	12.2	60.6	34956
6/2/2010 13:17	15.7	3301	33.897	1055	52.8	-0.3	460.4	22.2	0.4	12.2	58.7	34970
6/2/2010 13:18	15.7	3297	33.891	1055	51.9	-0.3	460.4	22.2	0.4	12.2	63.3	34983
6/2/2010 13:19	15.8	3300	33.886	1056	51.7	-0.3	460.4	23.5	0.4	12.2	54.4	34996
6/2/2010 13:20	15.8	3305	33.881	1057	51.6	-0.3	460.3	21.7	0.4	12.2	53.0	35010
6/2/2010 13:21	15.8	3304	33.876	1057	51.5	-0.3	460.3	24.4	0.4	12.2	65.1	35024
6/2/2010 13:22	15.8	3303	33.870	1058	51.5	-0.3	460.3	22.4	0.4	12.2	71.4	35038
6/2/2010 13:23	15.9	3302	33.865	1058	52.0	-0.3	460.3	21.7	0.4	12.2	62.1	34894
6/2/2010 13:24	15.9	3302	33.860	1059	52.7	-0.3	460.3	22.5	0.4	12.2	73.9	34917
6/2/2010 13:25	15.9	3302	33.870	1059	54.0	-0.3	460.3	23.3	0.4	12.2	51.6	34695
6/2/2010 13:26	15.9	3300	33.887	1059	53.6	-0.3	460.3	23.3	0.4	12.3	63.1	34708
6/2/2010 13:27	16.5	3278	33.903	1058	53.2	-0.3	460.3	22.4	0.4	12.3	67.4	34722
6/2/2010 13:28	17.5	3244	33.919	1056	52.8	-0.3	460.3	22.7	0.4	12.3	81.2	34799
6/2/2010 13:29	17.2	3258	33.935	1056	54.4	-0.3	460.2	22.4	0.4	12.3	61.6	34966

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 13:30	16.9	3271	33.951	1057	52.8	-0.3	460.2	22.6	0.4	12.3	61.4	34953
6/2/2010 13:31	13.5	3393	33.967	1059	52.3	-0.3	460.2	21.9	0.4	12.3	59.9	34881
6/2/2010 13:32	14.5	3358	33.983	1057	51.8	-0.3	460.2	22.9	0.4	12.3	59.8	34806
6/2/2010 13:33	18.9	3208	33.999	1054	52.6	-0.3	460.2	21.5	0.4	12.3	62.3	34730
6/2/2010 13:34	20.3	3154	33.917	1060	53.3	-0.3	460.2	22.3	0.4	12.3	48.9	34654
6/2/2010 13:35	18.5	3207	33.827	1062	52.7	-0.3	460.2	23.2	0.4	12.3	58.0	34578
6/2/2010 13:36	16.7	3260	33.736	1061	52.1	-0.3	460.2	23.8	0.3	12.3	71.2	34605
6/2/2010 13:37	15.6	3288	33.646	1059	52.0	-0.3	460.2	22.5	0.3	12.3	53.2	34666
6/2/2010 13:38	15.6	3280	33.555	1056	52.2	-0.3	460.2	21.6	0.3	12.4	62.7	34727
6/2/2010 13:39	15.6	3273	33.465	1055	52.4	-0.3	460.1	23.1	0.3	12.4	60.0	34778
6/2/2010 13:40	15.6	3269	33.374	1057	53.5	-0.3	460.1	23.0	0.3	12.4	45.6	34817
6/2/2010 13:41	15.6	3259	33.284	1057	52.4	-0.3	460.1	23.7	0.3	12.4	51.7	34823
6/2/2010 13:42	15.6	3242	33.193	1056	52.0	-0.3	460.1	22.5	0.3	12.4	52.9	34829
6/2/2010 13:43	15.6	3231	33.103	1055	51.7	-0.3	460.1	23.0	0.3	12.4	65.6	34835
6/2/2010 13:44	15.6	3219	33.012	1054	51.4	-0.3	460.1	21.7	0.3	12.4	59.8	34841
6/2/2010 13:45	15.6	3214	32.922	1055	51.1	-0.3	460.1	21.3	0.3	12.4	57.1	34847
6/2/2010 13:46	15.6	3215	32.909	1057	50.8	-0.3	460.1	23.6	0.3	12.4	48.7	34860
6/2/2010 13:47	15.6	3216	32.922	1059	54.2	-0.3	460.1	22.2	0.3	12.4	52.6	34958
6/2/2010 13:48	15.6	3218	32.936	1059	52.1	-0.3	460.1	22.2	0.3	12.4	53.0	35056
6/2/2010 13:49	15.6	3219	32.946	1059	51.8	-0.3	460.0	23.4	0.3	12.4	45.1	34843
6/2/2010 13:50	15.6	3216	32.918	1056	50.4	-0.3	460.0	23.1	0.3	12.5	57.6	34933
6/2/2010 13:51	15.6	3213	32.891	1058	50.5	-0.3	460.0	22.6	0.3	12.5	45.2	35023
6/2/2010 13:52	15.6	3211	32.864	1059	53.7	-0.3	460.0	24.4	0.3	12.5	44.1	35092
6/2/2010 13:53	15.6	3209	32.837	1059	51.3	-0.3	460.0	21.9	0.3	12.5	55.3	34963
6/2/2010 13:54	15.6	3208	32.810	1060	53.5	-0.3	460.0	22.5	0.3	12.5	53.3	34913
6/2/2010 13:55	15.6	3206	32.783	1061	52.0	-0.3	460.0	22.8	0.3	12.5	50.4	34864
6/2/2010 13:56	15.6	3202	32.756	1062	51.4	-0.3	460.0	22.5	0.3	12.5	48.0	34814
6/2/2010 13:57	15.6	3598	32.729	1061	51.6	-0.3	460.0	22.3	0.6	17.1	28.7	34764
6/2/2010 13:58	15.6	3208	32.701	1062	51.8	-0.3	459.9	22.8	0.6	12.7	55.2	35147
6/2/2010 13:59	15.6	3193	32.674	1062	53.1	-0.3	459.9	23.0	0.6	12.5	50.5	35406

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 14:00	15.6	3179	32.647	1062	52.8	-0.3	459.9	22.4	0.6	12.4	53.8	34862
6/2/2010 14:01	15.6	3167	32.620	1060	51.9	-0.3	459.9	21.6	0.6	12.2	50.8	34752
6/2/2010 14:02	15.6	3158	32.613	1059	51.1	-0.3	459.9	23.7	0.6	12.1	53.2	34680
6/2/2010 14:03	15.6	3149	32.613	1058	53.2	-0.3	459.9	23.2	0.6	12.0	50.8	34609
6/2/2010 14:04	15.6	3141	32.613	1059	51.8	-0.3	459.9	23.2	0.6	11.8	48.6	34587
6/2/2010 14:05	15.6	3145	32.721	1059	53.9	-0.3	459.9	22.4	0.6	11.7	47.6	35109
6/2/2010 14:06	20.1	3006	32.907	1060	54.1	-0.3	459.9	21.4	0.6	11.7	51.0	35089
6/2/2010 14:07	17.9	3105	33.092	1062	53.7	-0.3	459.9	21.7	0.6	11.7	49.3	34912
6/2/2010 14:08	15.9	3198	33.277	1062	50.9	-0.3	459.8	22.9	0.6	11.7	57.0	34994
6/2/2010 14:09	15.9	3221	33.462	1061	51.9	-0.3	459.8	23.0	0.6	11.7	48.6	35076
6/2/2010 14:10	15.9	3220	33.458	1060	52.2	-0.3	459.8	23.0	0.6	11.7	46.1	35008
6/2/2010 14:11	15.8	3218	33.436	1059	52.5	-0.3	459.8	22.9	0.6	11.7	49.6	34927
6/2/2010 14:12	15.8	3219	33.415	1056	51.9	-0.3	459.8	22.9	0.6	11.7	53.3	34845
6/2/2010 14:13	15.8	3221	33.393	1054	53.7	-0.3	459.8	21.6	0.6	11.8	48.2	34824
6/2/2010 14:14	15.7	3220	33.372	1055	51.0	-0.3	459.8	22.8	0.6	11.8	44.4	34809
6/2/2010 14:15	15.7	3219	33.350	1056	51.5	-0.3	459.8	22.5	0.6	11.8	50.1	34794
6/2/2010 14:16	15.7	3219	33.329	1057	52.0	-0.3	459.8	23.9	0.6	11.8	49.7	34779
6/2/2010 14:17	15.6	3218	33.307	1059	52.6	-0.3	459.7	23.0	0.6	11.8	48.7	34763
6/2/2010 14:18	15.6	3217	33.286	1058	53.1	-0.3	459.7	22.6	0.6	11.8	48.6	34762
6/2/2010 14:19	15.6	3217	33.264	1057	54.6	-0.3	459.7	21.4	0.6	11.8	51.1	34779
6/2/2010 14:20	15.5	3217	33.243	1056	51.6	-0.3	459.7	22.6	0.6	11.8	54.5	34796
6/2/2010 14:21	15.5	3219	33.221	1055	53.3	-0.3	459.7	24.0	0.6	11.9	48.1	34814
6/2/2010 14:22	15.5	3218	33.200	1057	53.3	-0.3	459.7	23.9	0.6	11.9	49.8	34831
6/2/2010 14:23	15.5	3219	33.178	1057	54.2	-0.3	459.7	23.5	0.6	11.9	51.2	34849
6/2/2010 14:24	15.4	3220	33.157	1056	53.1	-0.3	459.7	22.4	0.6	11.9	58.9	34866
6/2/2010 14:25	15.4	3217	33.135	1057	52.0	-0.3	459.7	23.2	0.6	11.9	54.3	34883
6/2/2010 14:26	15.4	3213	33.114	1058	53.6	-0.3	459.7	22.4	0.6	11.9	56.1	34901
6/2/2010 14:27	15.3	3213	33.092	1060	52.4	-0.3	459.6	22.0	0.6	11.9	43.1	34918
6/2/2010 14:28	15.3	3217	33.103	1059	52.5	-0.3	459.6	22.9	0.6	12.0	51.8	34874
6/2/2010 14:29	14.2	3259	33.124	1056	52.6	-0.3	459.6	23.3	0.6	12.0	64.4	34904

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 14:30	18.1	3128	33.145	1056	52.7	-0.3	459.6	22.7	0.6	12.0	56.9	34943
6/2/2010 14:31	17.9	3137	33.166	1059	52.7	-0.3	459.6	21.8	0.6	12.0	43.5	35139
6/2/2010 14:32	17.7	3145	33.187	1062	52.5	-0.3	459.6	23.1	0.6	12.0	49.0	35080
6/2/2010 14:33	17.6	3154	33.208	1061	52.3	-0.3	459.6	22.9	0.6	12.0	49.1	35021
6/2/2010 14:34	17.4	3164	33.228	1060	52.2	-0.3	459.6	23.5	0.6	12.0	49.1	34962
6/2/2010 14:35	17.2	3173	33.249	1059	52.7	-0.3	459.6	21.0	0.6	12.1	52.5	34903
6/2/2010 14:36	17.1	3182	33.270	1055	51.6	-0.3	459.5	23.6	0.6	12.1	58.9	34844
6/2/2010 14:37	16.9	3191	33.291	1055	52.6	-0.3	459.5	23.6	0.6	12.1	49.9	34785
6/2/2010 14:38	16.8	3198	33.312	1057	52.0	-0.3	459.5	22.3	0.6	12.1	47.4	34726
6/2/2010 14:39	16.6	3207	33.333	1059	53.5	-0.3	459.5	22.7	0.6	12.1	43.5	34667
6/2/2010 14:40	16.4	3219	33.354	1060	52.1	-0.3	459.5	23.0	0.6	12.1	48.5	34608
6/2/2010 14:41	16.3	3229	33.375	1059	52.4	-0.3	459.5	23.9	0.6	12.1	51.0	34548
6/2/2010 14:42	16.1	3237	33.396	1057	52.6	-0.3	459.5	23.7	0.6	12.2	49.7	34572
6/2/2010 14:43	15.9	3244	33.417	1055	52.4	-0.3	459.5	23.2	0.5	12.2	53.1	34845
6/2/2010 14:44	15.8	3253	33.438	1055	52.7	-0.3	459.5	22.5	0.5	12.2	53.3	35085
6/2/2010 14:45	13.0	3307	33.062	1057	53.0	-0.3	459.5	23.2	0.5	12.2	45.7	34661
6/2/2010 14:46	17.4	3123	32.763	1054	53.3	-0.3	459.4	23.6	0.5	12.2	78.4	35170
6/2/2010 14:47	17.4	3124	32.758	1057	52.3	-0.3	459.4	23.1	0.5	12.2	44.3	34997
6/2/2010 14:48	17.3	3126	32.752	1059	51.2	-0.3	459.4	22.7	0.5	12.2	47.7	34824
6/2/2010 14:49	17.3	3128	32.747	1057	52.3	-0.3	459.4	22.6	0.5	12.3	63.9	34733
6/2/2010 14:50	17.3	3130	32.742	1055	51.2	-0.3	459.4	24.3	0.5	12.3	47.2	34760
6/2/2010 14:51	17.3	3131	32.737	1055	53.4	-0.3	459.4	22.8	0.5	12.3	47.2	34786
6/2/2010 14:52	17.3	3133	32.732	1056	52.0	-0.3	459.4	23.7	0.5	12.3	40.7	34867
6/2/2010 14:53	17.2	3134	32.727	1057	53.7	-0.3	459.4	23.2	0.5	12.3	46.2	34977
6/2/2010 14:54	17.2	3135	32.722	1058	52.8	-0.3	459.4	21.6	0.5	12.3	44.4	34993
6/2/2010 14:55	17.2	3137	32.717	1057	50.4	-0.3	459.4	22.1	0.5	12.3	55.6	35008
6/2/2010 14:56	17.2	3138	32.712	1057	51.8	-0.3	459.4	22.8	0.5	12.4	46.3	35024
6/2/2010 14:57	17.1	3512	32.707	1057	52.0	-0.3	459.3	23.1	0.5	16.7	12.5	35040
6/2/2010 14:58	17.1	3127	32.702	1057	52.1	-0.3	459.3	22.5	0.5	12.2	47.3	35023
6/2/2010 14:59	17.1	3114	32.697	1058	52.2	-0.3	459.3	23.8	0.5	12.0	54.5	34962

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM

Test 1 Run 2 Average

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
965	*3249*	*33.4*	*1059*	*52.4*	*-0.3*	*460.2*	*22.8*	*0.5*	*12.3*	*53.7*	*34883*

Test 1 Run 2 Minimum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
723	*3006*	*32.6*	*1054*	*50.3*	*-0.3*	*459.3*	*21.0*	*0.3*	*11.7*	*12.5*	*34517*

Test 1 Run 2 Maximum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
1265	*3881*	*34.0*	*1073*	*54.6*	*-0.3*	*461.2*	*24.4*	*0.6*	*17.9*	*81.2*	*35406*

Prepared by FutureFuel Chemical Company, Batesville, Arkansas, and
Risk Management Engineering, Ltd., Dallas, Texas

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 15:35	16.3	3129	32.516	1062	52.5	-0.3	459.1	21.5	0.5	12.2	41.8	34989
6/2/2010 15:36	16.3	3130	32.511	1061	50.5	-0.3	459.1	22.5	0.5	12.2	48.6	34857
6/2/2010 15:37	16.2	3131	32.506	1060	53.5	-0.3	459.1	21.4	0.5	12.2	52.2	34725
6/2/2010 15:38	16.2	3131	32.501	1060	53.1	-0.3	459.0	22.5	0.5	12.2	49.5	34592
6/2/2010 15:39	16.2	3132	32.495	1059	52.2	-0.3	459.0	21.9	0.5	12.2	54.3	34734
6/2/2010 15:40	16.2	3132	32.490	1062	52.6	-0.3	459.0	22.8	0.5	12.2	45.0	34968
6/2/2010 15:41	16.1	3133	32.485	1066	52.8	-0.3	459.0	22.0	0.5	12.2	41.0	34907
6/2/2010 15:42	16.1	3133	32.480	1063	52.9	-0.3	459.0	23.2	0.5	12.2	50.0	34748
6/2/2010 15:43	16.1	3133	32.472	1058	53.0	-0.3	459.0	22.6	0.4	12.2	51.5	34593
6/2/2010 15:44	16.1	3132	32.453	1055	52.0	-0.3	459.0	21.7	0.4	12.2	60.3	34622
6/2/2010 15:45	16.1	3131	32.434	1056	53.3	-0.3	459.0	23.2	0.4	12.2	47.2	34773
6/2/2010 15:46	16.0	3130	32.416	1060	52.7	-0.3	459.0	23.1	0.4	12.2	45.9	34894
6/2/2010 15:47	9.4	3366	32.397	1059	54.7	-0.3	459.0	22.7	0.4	12.2	52.3	34676
6/2/2010 15:48	17.0	3091	32.378	1054	52.3	-0.3	459.0	23.3	0.4	12.3	68.2	35123
6/2/2010 15:49	15.9	3128	32.360	1058	51.7	-0.3	459.0	22.9	0.4	12.3	41.2	35251
6/2/2010 15:50	17.9	3054	32.341	1061	54.9	-0.3	459.0	24.1	0.4	12.3	52.0	35168
6/2/2010 15:51	17.4	3072	32.322	1064	51.0	-0.3	459.0	24.8	0.4	12.3	47.8	35084
6/2/2010 15:52	16.8	3089	32.304	1064	51.4	-0.3	458.9	24.0	0.4	12.3	50.8	35001
6/2/2010 15:53	16.3	3106	32.285	1064	51.7	-0.3	458.9	23.3	0.4	12.3	47.7	34835
6/2/2010 15:54	15.8	3126	32.280	1064	52.1	-0.3	458.9	22.9	0.4	12.3	55.1	34668
6/2/2010 15:55	15.1	3152	32.296	1063	52.5	-0.3	458.9	21.5	0.4	12.3	55.8	34837
6/2/2010 15:56	14.3	3182	32.312	1061	51.9	-0.3	458.9	22.5	0.4	12.3	55.3	34845
6/2/2010 15:57	16.3	3557	32.327	1061	52.6	-0.3	458.9	22.5	0.7	17.4	9.5	34851
6/2/2010 15:58	13.9	3190	32.343	1062	54.3	-0.3	458.9	22.4	0.3	12.1	47.0	34858
6/2/2010 15:59	14.2	3146	32.359	1063	52.0	-0.3	458.9	22.3	0.3	11.6	49.8	34913
6/2/2010 16:00	14.4	3141	32.374	1063	52.6	-0.3	458.9	21.8	0.3	11.6	45.1	34972
6/2/2010 16:01	14.7	3135	32.390	1064	52.6	-0.3	458.9	24.2	0.3	11.6	44.5	35031
6/2/2010 16:02	15.0	3128	32.406	1065	52.5	-0.3	458.9	23.3	0.3	11.7	54.2	34970
6/2/2010 16:03	15.3	3121	32.421	1065	54.6	-0.3	458.9	23.2	0.3	11.7	45.4	34868
6/2/2010 16:04	19.9	2961	32.437	1070	52.9	-0.3	458.9	22.2	0.3	11.7	44.5	35059

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 16:05	17.3	3054	32.453	1074	51.3	-0.3	458.9	22.8	0.3	11.7	47.7	34827
6/2/2010 16:06	15.4	3127	32.477	1073	50.5	-0.3	458.8	22.9	0.3	11.7	49.5	34420
6/2/2010 16:07	15.5	3132	32.529	1069	51.2	-0.3	458.8	23.2	0.3	11.8	51.9	34374
6/2/2010 16:08	15.5	3138	32.581	1068	52.9	-0.3	458.8	23.6	0.3	11.8	46.3	34585
6/2/2010 16:09	15.6	3144	32.633	1068	54.5	-0.3	458.8	24.1	0.3	11.8	43.2	34796
6/2/2010 16:10	15.6	3149	32.684	1065	50.9	-0.3	458.8	23.4	0.3	11.8	49.3	35007
6/2/2010 16:11	15.7	3155	32.736	1064	52.9	-0.3	458.8	23.1	0.3	11.8	46.8	34867
6/2/2010 16:12	15.7	3160	32.788	1063	53.7	-0.3	458.8	23.6	0.3	11.9	53.5	34611
6/2/2010 16:13	15.8	3166	32.840	1060	52.8	-0.3	458.8	22.9	0.3	11.9	61.5	34806
6/2/2010 16:14	15.8	3171	32.891	1059	52.0	-0.3	458.8	23.3	0.3	11.9	49.2	35111
6/2/2010 16:15	15.9	3176	32.943	1060	51.3	-0.3	458.8	22.2	0.3	11.9	45.9	35042
6/2/2010 16:16	15.9	3182	32.995	1061	52.6	-0.3	458.8	23.1	0.3	11.9	50.8	34973
6/2/2010 16:17	15.9	3187	33.047	1061	53.3	-0.3	458.8	22.1	0.3	12.0	50.9	34905
6/2/2010 16:18	19.9	3053	33.098	1062	53.9	-0.3	458.8	23.9	0.3	12.0	56.7	34836
6/2/2010 16:19	18.7	3101	33.150	1065	52.7	-0.3	458.8	22.7	0.3	12.0	50.8	34818
6/2/2010 16:20	17.6	3150	33.202	1064	52.4	-0.3	458.7	23.0	0.3	12.0	52.8	34872
6/2/2010 16:21	16.4	3199	33.254	1061	52.0	-0.3	458.7	21.4	0.4	12.0	63.4	34925
6/2/2010 16:22	15.6	3237	33.305	1059	51.3	-0.3	458.7	23.7	0.4	12.1	57.9	34979
6/2/2010 16:23	15.7	3240	33.357	1062	53.3	-0.3	458.7	22.2	0.4	12.1	49.0	35033
6/2/2010 16:24	15.8	3237	33.354	1062	53.7	-0.3	458.7	21.2	0.4	12.1	48.8	35042
6/2/2010 16:25	12.1	3370	33.332	1060	51.4	-0.3	458.7	22.8	0.4	12.1	66.3	35098
6/2/2010 16:26	14.6	3278	33.309	1056	52.2	-0.3	458.7	21.7	0.4	12.1	66.7	35160
6/2/2010 16:27	15.7	3238	33.287	1059	54.0	-0.3	458.7	22.6	0.4	12.2	48.4	35130
6/2/2010 16:28	15.7	3236	33.265	1063	53.9	-0.3	458.7	23.5	0.4	12.2	56.8	35033
6/2/2010 16:29	15.8	3233	33.243	1064	52.6	-0.3	458.7	24.1	0.4	12.2	55.6	34935
6/2/2010 16:30	15.8	3230	33.221	1064	53.0	-0.3	458.7	23.0	0.4	12.2	54.6	34838
6/2/2010 16:31	15.9	3228	33.199	1064	52.7	-0.3	458.7	23.3	0.4	12.2	61.1	34805
6/2/2010 16:32	18.3	3138	33.177	1063	51.6	-0.3	458.7	22.7	0.4	12.3	52.2	34793
6/2/2010 16:33	17.2	3178	33.155	1067	52.9	-0.3	458.6	23.0	0.4	12.3	45.7	34780
6/2/2010 16:34	16.1	3217	33.133	1069	52.4	-0.3	458.6	23.2	0.4	12.3	56.9	34768

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 16:35	14.9	3255	33.101	1068	53.4	-0.3	458.6	23.6	0.4	12.3	53.5	34755
6/2/2010 16:36	14.0	3286	33.063	1067	53.7	-0.3	458.6	22.3	0.4	12.3	53.5	34741
6/2/2010 16:37	19.4	3089	33.026	1065	54.3	-0.3	458.6	22.6	0.4	12.4	53.4	34727
6/2/2010 16:38	20.8	3035	32.988	1071	53.9	-0.3	458.6	22.4	0.4	12.4	46.9	35213
6/2/2010 16:39	9.5	3441	32.965	1072	52.1	-0.3	458.6	23.1	0.4	12.4	88.2	34171
6/2/2010 16:40	16.3	3196	32.944	1064	53.0	-0.3	458.6	23.0	0.4	12.4	76.1	34645
6/2/2010 16:41	16.3	3206	33.009	1062	51.6	-0.3	458.6	23.3	0.4	12.4	48.1	35119
6/2/2010 16:42	16.2	3223	33.135	1061	53.6	-0.3	458.6	22.0	0.4	12.5	57.9	35105
6/2/2010 16:43	16.2	3240	33.260	1060	52.6	-0.3	458.6	21.3	0.4	12.5	63.2	35046
6/2/2010 16:44	16.2	3240	33.239	1062	52.6	-0.3	458.6	20.7	0.4	12.5	53.8	34987
6/2/2010 16:45	16.1	3216	33.011	1067	51.9	-0.3	458.6	22.9	0.4	12.5	48.9	34965
6/2/2010 16:46	16.1	3193	32.784	1071	53.7	-0.3	458.6	22.6	0.4	12.5	45.7	35277
6/2/2010 16:47	16.1	3169	32.557	1071	52.8	-0.3	458.5	23.1	0.4	12.6	55.8	34755
6/2/2010 16:48	16.0	3146	32.330	1067	51.6	-0.3	458.5	23.7	0.5	12.6	68.5	34303
6/2/2010 16:49	16.0	3145	32.302	1067	51.9	-0.3	458.5	24.0	0.5	12.6	54.5	34617
6/2/2010 16:50	16.0	3147	32.292	1067	53.3	-0.3	458.5	23.7	0.5	12.6	47.7	34930
6/2/2010 16:51	15.9	3148	32.283	1067	50.9	-0.3	458.5	23.0	0.5	12.6	48.8	35038
6/2/2010 16:52	15.9	3150	32.273	1065	52.4	-0.3	458.5	21.6	0.5	12.7	48.9	34997
6/2/2010 16:53	15.8	3151	32.264	1061	52.0	-0.3	458.5	21.8	0.5	12.7	58.0	34874
6/2/2010 16:54	15.8	3152	32.254	1062	52.7	-0.3	458.5	23.5	0.5	12.7	49.2	34742
6/2/2010 16:55	15.8	3153	32.244	1063	53.0	-0.3	458.5	21.6	0.5	12.7	47.1	34611
6/2/2010 16:56	15.8	3153	32.235	1064	53.1	-0.3	458.5	23.8	0.5	12.7	53.8	34666
6/2/2010 16:57	15.8	3538	32.225	1065	53.3	-0.3	458.5	22.9	0.5	17.1	9.8	34854
6/2/2010 16:58	15.8	3110	32.216	1065	53.4	-0.3	458.5	22.7	0.5	12.1	48.2	34877
6/2/2010 16:59	15.8	3108	32.206	1066	51.7	-0.3	458.5	23.1	0.5	12.1	56.1	34855
6/2/2010 17:00	15.8	3107	32.197	1067	52.9	-0.3	458.5	24.0	0.5	12.1	48.7	34949
6/2/2010 17:01	15.8	3106	32.187	1067	51.7	-0.3	458.4	22.0	0.5	12.1	47.2	35043
6/2/2010 17:02	15.8	3104	32.177	1068	51.8	-0.3	458.4	22.0	0.5	12.1	44.7	35136
6/2/2010 17:03	15.8	3103	32.168	1068	51.9	-0.3	458.4	22.1	0.5	12.1	46.3	35117
6/2/2010 17:04	15.8	3102	32.158	1067	52.0	-0.3	458.4	24.0	0.5	12.1	53.8	34938

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 17:05	15.8	3101	32.149	1065	52.6	-0.3	458.4	22.8	0.5	12.1	47.6	34760
6/2/2010 17:06	15.8	3099	32.139	1067	51.9	-0.3	458.4	22.3	0.5	12.1	46.1	34605
6/2/2010 17:07	15.8	3098	32.130	1067	53.8	-0.3	458.4	21.4	0.5	12.1	54.4	34617
6/2/2010 17:08	15.8	3097	32.120	1066	51.6	-0.3	458.4	22.6	0.5	12.1	51.4	34827
6/2/2010 17:09	20.6	2923	32.111	1067	53.6	-0.3	458.4	24.0	0.4	12.1	55.1	34945
6/2/2010 17:10	18.8	2989	32.101	1072	53.3	-0.3	458.4	22.0	0.4	12.1	50.3	35063
6/2/2010 17:11	16.9	3055	32.091	1073	52.7	-0.3	458.4	23.3	0.4	12.1	51.5	35181
6/2/2010 17:12	12.5	3213	32.082	1072	53.8	-0.3	458.4	22.5	0.4	12.1	50.6	34799
6/2/2010 17:13	13.9	3210	32.503	1064	51.4	-0.3	458.4	23.2	0.4	12.1	78.4	34583
6/2/2010 17:14	15.2	3215	32.963	1061	52.4	-0.3	458.3	23.6	0.4	12.1	52.6	35096
6/2/2010 17:15	20.6	3075	33.423	1063	53.8	-0.3	458.3	23.2	0.4	12.1	50.0	35610
6/2/2010 17:16	18.3	3172	33.560	1069	52.9	-0.3	458.3	22.8	0.4	12.1	49.4	34966
6/2/2010 17:17	16.9	3212	33.466	1072	51.6	-0.3	458.3	23.2	0.4	12.1	59.5	34828
6/2/2010 17:18	16.6	3211	33.372	1073	51.8	-0.3	458.3	22.6	0.4	12.1	51.3	34771
6/2/2010 17:19	16.4	3209	33.279	1073	52.3	-0.3	458.3	22.4	0.4	12.1	52.2	34714
6/2/2010 17:20	16.1	3208	33.185	1072	53.3	-0.3	458.3	23.3	0.4	12.1	51.5	34657
6/2/2010 17:21	11.3	3374	33.113	1067	51.6	-0.3	458.3	23.0	0.4	12.1	53.0	34609
6/2/2010 17:22	18.6	3130	33.280	1060	50.4	-0.3	458.3	22.6	0.4	12.1	70.6	34968
6/2/2010 17:23	17.7	3182	33.447	1067	54.7	-0.3	458.3	22.4	0.4	12.0	45.3	34998
6/2/2010 17:24	16.7	3234	33.615	1070	51.5	-0.3	458.3	22.0	0.4	12.0	55.3	34702
6/2/2010 17:25	16.6	3256	33.782	1070	53.4	-0.3	458.3	23.7	0.4	12.0	53.4	34803
6/2/2010 17:26	16.6	3276	33.949	1068	51.7	-0.3	458.3	23.9	0.4	12.0	51.7	34903
6/2/2010 17:27	16.6	3296	34.116	1065	50.8	-0.3	458.3	22.6	0.4	12.0	55.0	34408
6/2/2010 17:28	16.6	3316	34.283	1063	52.5	-0.3	458.2	22.3	0.4	12.0	48.8	35087
6/2/2010 17:29	16.6	3300	34.140	1063	54.1	-0.3	458.2	22.5	0.4	12.0	39.3	35379
6/2/2010 17:30	16.5	3235	33.562	1064	52.5	-0.3	458.2	21.9	0.4	12.0	45.3	35130
6/2/2010 17:31	16.5	3170	32.984	1064	51.1	-0.3	458.2	21.8	0.4	12.0	48.2	34881
6/2/2010 17:32	16.5	3105	32.406	1064	52.3	-0.3	458.2	23.4	0.4	12.0	46.3	34766
6/2/2010 17:33	16.5	3068	32.074	1064	51.6	-0.3	458.2	22.8	0.4	12.0	53.6	34747
6/2/2010 17:34	16.4	3070	32.086	1062	51.7	-0.3	458.2	21.8	0.4	12.0	47.7	34728

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 17:35	16.4	3072	32.098	1062	52.5	-0.3	458.2	23.1	0.4	12.0	47.3	34709
6/2/2010 17:36	16.4	3074	32.110	1061	51.3	-0.3	458.2	23.8	0.4	12.0	59.7	34741
6/2/2010 17:37	16.4	3076	32.122	1060	51.5	-0.3	458.2	23.5	0.4	12.0	50.9	34846
6/2/2010 17:38	16.3	3079	32.134	1062	54.9	-0.3	458.2	23.4	0.4	12.0	48.9	34950
6/2/2010 17:39	16.3	3081	32.147	1063	52.1	-0.3	458.2	22.5	0.3	12.0	50.0	35002
6/2/2010 17:40	16.3	3083	32.159	1062	52.3	-0.3	458.2	21.1	0.3	12.0	56.8	34979
6/2/2010 17:41	16.3	3085	32.171	1061	50.8	-0.3	458.2	22.4	0.3	12.0	56.5	34957
6/2/2010 17:42	16.3	3087	32.183	1062	53.0	-0.3	458.1	22.9	0.3	12.0	49.7	34934
6/2/2010 17:43	16.2	3089	32.195	1061	52.7	-0.3	458.1	23.2	0.3	12.0	50.1	34912
6/2/2010 17:44	16.2	3092	32.207	1060	51.7	-0.3	458.1	23.1	0.3	12.0	67.8	34890
6/2/2010 17:45	16.2	3094	32.219	1059	51.6	-0.3	458.1	23.5	0.3	12.0	53.1	34867
6/2/2010 17:46	16.2	3096	32.231	1059	53.4	-0.3	458.1	22.6	0.3	12.0	50.9	34845
6/2/2010 17:47	16.1	3098	32.243	1060	52.7	-0.3	458.1	23.4	0.3	12.0	53.0	34823
6/2/2010 17:48	16.1	3099	32.256	1061	54.0	-0.3	458.1	23.7	0.3	12.0	54.4	34800
6/2/2010 17:49	16.1	3101	32.268	1062	51.9	-0.3	458.1	23.8	0.3	12.0	49.6	34770
6/2/2010 17:50	16.1	3103	32.280	1065	53.2	-0.3	458.1	21.7	0.3	12.0	49.4	34716
6/2/2010 17:51	16.0	3105	32.292	1064	52.8	-0.3	458.1	23.3	0.3	12.0	57.4	34662
6/2/2010 17:52	16.0	3107	32.304	1064	51.6	-0.3	458.1	21.5	0.3	12.0	63.8	34687
6/2/2010 17:53	16.0	3109	32.316	1063	53.4	-0.3	458.1	22.6	0.3	12.0	54.1	34768
6/2/2010 17:54	16.0	3111	32.328	1065	52.5	-0.3	458.1	20.8	0.3	12.0	48.9	34850
6/2/2010 17:55	16.0	3113	32.340	1068	52.7	-0.3	458.0	23.4	0.3	12.0	46.1	34931
6/2/2010 17:56	15.9	3115	32.353	1067	53.0	-0.3	458.0	22.8	0.3	11.9	52.2	35012
6/2/2010 17:57	15.9	3573	32.365	1064	52.6	-0.3	458.0	22.3	0.5	17.2	17.6	35093
6/2/2010 17:58	15.9	3202	32.377	1063	52.2	-0.3	458.0	23.1	0.3	13.2	55.8	35091
6/2/2010 17:59	15.9	3188	32.389	1062	52.1	-0.3	458.0	21.6	0.3	12.9	54.6	35029
6/2/2010 18:00	15.8	3174	32.401	1061	52.4	-0.3	458.0	22.6	0.3	12.7	55.2	34966
6/2/2010 18:01	15.8	3161	32.413	1061	52.5	-0.3	458.0	22.3	0.3	12.5	54.1	34904
6/2/2010 18:02	15.8	3148	32.425	1061	52.1	-0.3	458.0	22.4	0.3	12.3	53.1	34847
6/2/2010 18:03	13.4	3220	32.437	1061	51.8	-0.3	458.0	22.0	0.3	12.0	52.7	34841
6/2/2010 18:04	13.5	3202	32.449	1061	51.7	-0.3	458.0	22.1	0.3	11.8	49.5	34836

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/2/2010 18:05	13.7	3196	32.462	1062	51.9	-0.3	458.0	23.8	0.3	11.8	56.3	34830
6/2/2010 18:06	13.8	3190	32.474	1062	52.1	-0.3	458.0	22.9	0.3	11.7	63.7	34824
6/2/2010 18:07	13.9	3185	32.486	1060	54.1	-0.3	458.0	21.2	0.3	11.7	55.3	34807
6/2/2010 18:08	14.1	3175	32.457	1061	50.9	-0.3	458.0	21.7	0.3	11.6	59.7	34849
6/2/2010 18:09	14.2	3163	32.415	1062	51.9	-0.3	457.9	21.6	0.3	11.6	53.7	35020
6/2/2010 18:10	14.3	3151	32.372	1065	53.0	-0.3	457.9	22.4	0.3	11.6	49.6	35130
6/2/2010 18:11	14.4	3140	32.330	1064	53.4	-0.3	457.9	21.8	0.3	11.5	58.8	35198
6/2/2010 18:12	14.6	3130	32.301	1062	53.6	-0.3	457.9	22.7	0.3	11.5	57.0	35024
6/2/2010 18:13	14.7	3124	32.310	1061	53.7	-0.3	457.9	21.9	0.3	11.5	53.2	34851
6/2/2010 18:14	14.8	3118	32.319	1061	53.9	-0.3	457.9	23.2	0.3	11.4	47.1	34823
6/2/2010 18:15	14.9	3113	32.328	1061	52.2	-0.3	457.9	23.1	0.3	11.4	52.0	34923
6/2/2010 18:16	15.1	3107	32.337	1061	52.4	-0.3	457.9	22.8	0.3	11.4	49.3	34917
6/2/2010 18:17	15.2	3101	32.346	1061	52.6	-0.3	457.9	22.5	0.3	11.3	53.5	34910
6/2/2010 18:18	15.3	3096	32.355	1061	52.8	-0.3	457.9	22.0	0.3	11.3	60.9	34904
6/2/2010 18:19	15.4	3090	32.365	1062	52.5	-0.3	457.9	23.2	0.3	11.2	57.0	34898
6/2/2010 18:20	15.6	3084	32.374	1063	52.2	-0.3	457.9	22.9	0.3	11.2	60.5	34892
6/2/2010 18:21	15.7	3079	32.383	1064	51.9	-0.3	457.9	22.8	0.3	11.2	56.0	34760
6/2/2010 18:22	15.7	3079	32.392	1065	52.1	-0.3	457.9	23.1	0.3	11.1	53.6	34740
6/2/2010 18:23	15.1	3098	32.401	1066	50.6	-0.3	457.8	22.4	0.3	11.1	55.4	34882
6/2/2010 18:24	14.5	3118	32.410	1067	52.4	-0.3	457.8	22.5	0.3	11.1	55.1	34815
6/2/2010 18:25	22.0	2849	32.419	1070	53.7	-0.3	457.8	22.0	0.3	11.0	58.7	34943
6/2/2010 18:26	18.5	2974	32.428	1075	53.3	-0.3	457.8	21.7	0.3	11.0	59.8	34622
6/2/2010 18:27	15.8	3068	32.438	1073	52.9	-0.3	457.8	22.4	0.3	11.0	64.5	34618
6/2/2010 18:28	15.8	3067	32.447	1069	52.9	-0.3	457.8	22.5	0.3	10.9	62.8	34615
6/2/2010 18:29	15.8	3066	32.456	1064	51.7	-0.3	457.8	22.0	0.3	10.9	62.2	34612
6/2/2010 18:30	15.9	3064	32.465	1063	53.2	-0.3	457.8	22.3	0.3	10.8	53.6	34608
6/2/2010 18:31	15.9	3063	32.474	1062	52.2	-0.3	457.8	22.1	0.3	10.8	54.5	34605
6/2/2010 18:32	15.9	3062	32.483	1061	53.0	-0.3	457.8	23.1	0.3	10.8	60.1	34602
6/2/2010 18:33	15.9	3061	32.492	1062	53.1	-0.3	457.8	22.5	0.3	10.7	57.6	34598
6/2/2010 18:34	15.9	3059	32.501	1064	53.6	-0.3	457.8	22.2	0.3	10.7	56.9	34595

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	**LB/MIN**	**LB/HR**	**KPPH**	**DEG F**	**%**	**INWC**	**DEG F**	**KW**	**PPM**	**%**	**PPM**	**ACFM**
6/2/2010 18:35	15.9	3058	32.511	1068	52.0	-0.3	457.8	22.3	0.3	10.7	50.4	34591
6/2/2010 18:36	15.9	3057	32.520	1072	53.2	-0.3	457.7	23.0	0.3	10.6	51.3	34588
6/2/2010 18:37	15.9	3056	32.529	1075	50.9	-0.3	457.7	21.9	0.3	10.6	48.2	34585
6/2/2010 18:38	15.9	3055	32.538	1074	53.0	-0.3	457.7	22.0	0.3	10.6	48.0	34581
6/2/2010 18:39	16.0	3053	32.547	1074	52.0	-0.3	457.7	22.6	0.3	10.5	56.3	34655

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM

Test 1 Run 3 Average

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
956	*3148*	*32.6*	*1064*	*52.5*	*-0.3*	*458.4*	*22.7*	*0.4*	*12.0*	*52.4*	*34856*

Test 1 Run 3 Minimum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
563	*2849*	*32.1*	*1054*	*50.4*	*-0.3*	*457.7*	*20.7*	*0.3*	*10.5*	*9.5*	*34171*

Test 1 Run 3 Maximum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
1319	*3573*	*34.3*	*1075*	*54.9*	*-0.3*	*459.1*	*24.8*	*0.7*	*17.4*	*88.2*	*35610*

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 10:04	o server not	4483	50.321	1307	76.0	-0.4	510.5	8.4	0.5	9.4	75.9	41880
6/3/2010 10:05	o server not	4481	50.308	1307	76.1	-0.4	510.6	8.4	0.5	9.4	78.8	41895
6/3/2010 10:06	42.0	4488	50.372	1307	75.9	-0.4	510.7	8.4	0.5	9.4	84.2	41884
6/3/2010 10:07	42.0	4499	50.462	1307	76.3	-0.4	510.8	8.4	0.5	9.5	78.6	41872
6/3/2010 10:08	42.1	4510	50.553	1308	76.4	-0.4	510.9	8.4	0.5	9.5	77.4	41859
6/3/2010 10:09	42.1	4521	50.643	1309	76.1	-0.4	511.0	8.4	0.4	9.5	75.8	41846
6/3/2010 10:10	42.1	4531	50.734	1309	75.8	-0.4	511.1	8.4	0.4	9.5	75.3	41833
6/3/2010 10:11	42.1	4542	50.824	1307	75.3	-0.4	511.2	8.4	0.4	9.5	77.3	41821
6/3/2010 10:12	42.1	4553	50.915	1306	74.6	-0.4	511.3	8.4	0.4	9.5	77.8	41823
6/3/2010 10:13	42.2	4564	51.005	1307	75.0	-0.4	511.4	8.4	0.4	9.5	78.0	41847
6/3/2010 10:14	42.2	4576	51.095	1312	74.3	-0.4	511.5	8.4	0.4	9.5	76.2	41871
6/3/2010 10:15	42.2	4588	51.186	1314	76.8	-0.4	511.6	8.4	0.3	9.6	75.1	41894
6/3/2010 10:16	42.2	4600	51.276	1312	75.4	-0.4	511.7	8.4	0.3	9.6	82.9	41918
6/3/2010 10:17	42.2	4612	51.367	1310	73.9	-0.4	511.8	8.4	0.3	9.6	102.6	41942
6/3/2010 10:18	42.3	4624	51.457	1310	74.9	-0.4	511.8	8.4	0.3	9.6	89.8	41966
6/3/2010 10:19	42.3	4634	51.547	1309	77.4	-0.4	511.9	8.4	0.3	9.6	80.6	42044
6/3/2010 10:20	42.3	4645	51.638	1308	75.0	-0.4	512.0	8.4	0.3	9.6	78.1	42128
6/3/2010 10:21	42.3	4652	51.690	1308	76.2	-0.4	512.1	8.4	0.2	9.6	74.3	41508
6/3/2010 10:22	42.3	4641	51.626	1307	74.7	-0.4	512.2	8.4	0.2	9.6	76.0	41691
6/3/2010 10:23	42.4	4634	51.562	1306	74.3	-0.4	512.3	8.4	0.2	9.6	74.8	41873
6/3/2010 10:24	42.4	4628	51.498	1306	74.8	-0.4	512.4	8.4	0.2	9.7	82.9	41931
6/3/2010 10:25	42.4	4621	51.434	1306	73.8	-0.4	512.5	8.4	0.2	9.7	91.5	41901
6/3/2010 10:26	42.4	4615	51.370	1306	73.8	-0.4	512.6	8.4	0.1	9.7	87.8	41870
6/3/2010 10:27	42.5	4609	51.306	1305	73.9	-0.4	512.7	8.4	0.1	9.7	88.2	41839
6/3/2010 10:28	42.5	4601	51.242	1303	75.1	-0.4	512.8	8.4	0.1	9.7	85.5	41862
6/3/2010 10:29	42.5	4593	51.178	1304	75.3	-0.4	512.9	8.4	0.1	9.7	83.1	42045
6/3/2010 10:30	42.5	4585	51.114	1304	75.4	-0.4	513.0	8.4	0.1	9.7	78.0	42228
6/3/2010 10:31	42.5	4577	51.050	1303	74.5	-0.4	513.1	8.4	0.1	9.7	75.3	42247
6/3/2010 10:32	42.6	4569	50.987	1301	75.9	-0.4	513.2	8.4	0.1	9.8	73.0	42149
6/3/2010 10:33	42.6	4561	50.923	1299	75.6	-0.4	513.3	8.4	0.1	9.8	73.0	42051

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 10:34	42.6	4553	50.859	1298	74.0	-0.4	513.4	8.4	0.1	9.8	75.9	41953
6/3/2010 10:35	42.6	4546	50.795	1298	75.1	-0.4	513.5	8.4	0.1	9.8	72.1	41854
6/3/2010 10:36	42.6	4539	50.731	1298	75.3	-0.4	513.5	8.5	0.1	9.8	71.4	41756
6/3/2010 10:37	42.7	4532	50.667	1301	74.9	-0.4	513.6	8.5	0.1	9.8	75.9	41803
6/3/2010 10:38	42.6	4600	51.221	1305	76.4	-0.4	513.7	8.5	0.1	9.8	90.5	42290
6/3/2010 10:39	42.6	4693	51.982	1302	76.4	-0.4	513.8	8.5	0.1	9.8	83.6	41937
6/3/2010 10:40	42.6	4658	51.675	1298	76.2	-0.4	513.9	8.5	0.1	9.8	82.3	42406
6/3/2010 10:41	42.6	4612	51.272	1295	75.7	-0.4	513.9	8.4	0.1	9.9	85.1	41842
6/3/2010 10:42	42.6	4564	50.868	1297	76.9	-0.4	513.9	8.4	0.1	9.9	83.9	41627
6/3/2010 10:43	42.6	4539	50.694	1300	74.4	-0.4	513.9	8.4	0.1	9.9	80.2	41722
6/3/2010 10:44	42.5	4542	50.684	1303	75.7	-0.4	514.0	7.5	0.1	9.9	80.8	41881
6/3/2010 10:45	42.5	4545	50.674	1301	75.6	-0.4	514.0	8.5	0.1	9.9	80.7	42041
6/3/2010 10:46	42.5	4548	50.664	1299	75.3	-0.4	514.0	8.5	0.1	9.9	81.9	42200
6/3/2010 10:47	42.5	4552	50.654	1298	75.4	-0.4	514.0	8.5	0.2	9.9	85.1	41630
6/3/2010 10:48	42.5	4554	50.645	1299	73.4	-0.4	514.0	8.5	0.2	9.9	80.7	41678
6/3/2010 10:49	42.5	4554	50.635	1301	75.2	-0.4	514.0	8.5	0.2	10.0	78.5	41871
6/3/2010 10:50	42.4	4555	50.625	1303	76.1	-0.4	514.0	8.5	0.2	10.0	77.6	42063
6/3/2010 10:51	42.4	4555	50.615	1304	74.6	-0.4	514.0	8.5	0.2	10.0	78.6	42133
6/3/2010 10:52	42.4	4555	50.605	1303	75.6	-0.4	514.0	8.5	0.2	10.0	78.4	41836
6/3/2010 10:53	42.4	4556	50.595	1303	74.6	-0.4	514.1	8.5	0.2	10.0	85.4	42119
6/3/2010 10:54	42.4	4556	50.585	1302	75.0	-0.4	514.1	8.0	0.2	10.0	81.9	41697
6/3/2010 10:55	42.4	4557	50.575	1301	74.1	-0.4	514.1	8.6	0.2	10.0	85.1	41721
6/3/2010 10:56	42.3	4557	50.565	1305	73.3	-0.4	514.1	8.5	0.2	10.0	80.2	41844
6/3/2010 10:57	42.3	5199	50.556	1310	75.6	-0.4	514.1	8.5	0.3	14.8	22.4	41967
6/3/2010 10:58	42.3	4578	50.546	1311	75.9	-0.4	514.1	8.4	0.4	10.4	89.5	42090
6/3/2010 10:59	42.3	4544	50.536	1310	76.6	-0.4	514.1	7.7	0.4	10.0	87.0	42060
6/3/2010 11:00	42.3	4545	50.526	1305	74.4	-0.4	514.1	8.4	0.4	10.0	89.7	41817
6/3/2010 11:01	42.3	4545	50.516	1305	74.8	-0.4	514.2	8.4	0.4	10.0	92.1	41835
6/3/2010 11:02	42.2	4543	50.506	1307	75.9	-0.4	514.2	8.4	0.4	9.9	91.2	42039
6/3/2010 11:03	42.2	4539	50.496	1305	74.2	-0.4	514.2	8.4	0.4	9.9	94.9	42043

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 11:04	42.2	4536	50.486	1307	74.9	-0.4	514.2	7.8	0.4	9.9	91.6	42028
6/3/2010 11:05	42.2	4532	50.476	1309	75.3	-0.4	514.2	8.5	0.4	9.8	90.5	42015
6/3/2010 11:06	42.2	4529	50.467	1310	75.6	-0.4	514.2	8.5	0.4	9.8	85.3	42011
6/3/2010 11:07	42.2	4526	50.457	1307	76.0	-0.4	514.2	8.4	0.4	9.8	89.4	41995
6/3/2010 11:08	42.1	4523	50.447	1305	74.3	-0.4	514.2	8.4	0.4	9.8	93.5	41849
6/3/2010 11:09	42.1	4523	50.468	1306	75.3	-0.4	514.3	7.3	0.4	9.7	85.6	41703
6/3/2010 11:10	42.1	4529	50.532	1307	76.2	-0.4	514.3	8.3	0.4	9.7	89.3	41845
6/3/2010 11:11	42.1	4535	50.597	1309	74.8	-0.4	514.3	8.1	0.4	9.7	88.1	42013
6/3/2010 11:12	42.1	4540	50.662	1309	75.3	-0.4	514.3	8.0	0.4	9.7	87.8	42011
6/3/2010 11:13	42.1	4546	50.726	1308	74.8	-0.4	514.3	8.2	0.4	9.6	94.7	41994
6/3/2010 11:14	42.1	4552	50.791	1308	74.9	-0.4	514.3	8.4	0.3	9.6	96.3	41976
6/3/2010 11:15	42.0	4559	50.855	1308	75.4	-0.4	514.3	8.2	0.3	9.6	102.1	41995
6/3/2010 11:16	41.4	4586	50.920	1308	75.6	-0.4	514.3	8.4	0.3	9.6	97.5	41870
6/3/2010 11:17	41.3	4593	50.984	1306	76.4	-0.4	514.4	8.4	0.3	9.5	100.7	41719
6/3/2010 11:18	41.4	4590	51.014	1308	75.8	-0.4	514.4	8.4	0.3	9.5	97.3	41918
6/3/2010 11:19	41.6	4580	50.994	1308	75.2	-0.4	514.4	8.4	0.3	9.5	102.2	41898
6/3/2010 11:20	41.7	4571	50.974	1308	75.2	-0.4	514.4	8.4	0.3	9.5	100.7	41875
6/3/2010 11:21	41.8	4562	50.953	1309	75.1	-0.5	514.4	8.4	0.3	9.4	101.3	41852
6/3/2010 11:22	41.9	4553	50.933	1309	75.1	-0.5	514.4	8.4	0.3	9.4	103.0	41828
6/3/2010 11:23	42.0	4544	50.913	1309	76.2	-0.5	514.4	8.4	0.3	9.4	100.6	41805
6/3/2010 11:24	50.9	4236	50.972	1313	75.6	-0.5	514.4	7.9	0.3	9.3	101.9	41789
6/3/2010 11:25	46.0	4421	51.088	1318	75.8	-0.5	514.4	8.6	0.3	9.3	112.5	41775
6/3/2010 11:26	44.6	4480	51.203	1316	75.8	-0.5	514.5	8.6	0.3	9.3	103.5	41761
6/3/2010 11:27	43.3	4538	51.318	1313	75.8	-0.5	514.5	8.6	0.3	9.3	113.3	41900
6/3/2010 11:28	4.6	5225	45.609	1291	76.8	-0.5	514.5	8.6	0.3	9.2	118.8	39909
6/3/2010 11:29	4.4	5610	48.803	1248	73.0	-0.5	514.5	8.2	1.1	9.2	166.4	40731
6/3/2010 11:30	38.9	4904	53.166	1237	75.6	-0.5	514.5	8.5	0.0	9.2	95.0	42795
6/3/2010 11:31	42.5	4811	53.477	1275	80.9	-0.5	514.5	8.5	0.0	9.2	94.5	43687
6/3/2010 11:32	42.5	4670	52.251	1298	79.2	-0.5	514.5	8.5	0.1	9.2	93.9	42926
6/3/2010 11:33	42.5	4529	51.025	1302	77.6	-0.5	514.5	8.5	0.1	9.3	101.6	42077

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 11:34	42.5	4477	50.555	1302	76.0	-0.5	514.6	8.5	0.1	9.3	108.5	41839
6/3/2010 11:35	42.5	4489	50.625	1308	74.7	-0.5	514.6	8.5	0.1	9.3	102.3	41805
6/3/2010 11:36	42.5	4501	50.696	1312	73.9	-0.5	514.6	8.5	0.1	9.4	96.6	41770
6/3/2010 11:37	42.5	4513	50.766	1311	75.9	-0.5	514.6	8.4	0.1	9.4	104.4	41748
6/3/2010 11:38	42.4	4525	50.836	1311	75.2	-0.5	514.6	8.4	0.2	9.4	112.0	41862
6/3/2010 11:39	42.4	4537	50.907	1311	75.1	-0.5	514.6	8.4	0.2	9.5	113.1	41976
6/3/2010 11:40	42.4	4549	50.977	1311	75.9	-0.5	514.6	8.4	0.2	9.5	109.6	42090
6/3/2010 11:41	42.4	4561	51.047	1313	76.7	-0.5	514.6	8.4	0.2	9.6	102.7	42204
6/3/2010 11:42	42.4	4577	51.117	1315	76.6	-0.5	514.7	8.4	0.2	9.6	97.0	42318
6/3/2010 11:43	42.4	4593	51.188	1313	76.2	-0.5	514.7	8.4	0.3	9.6	95.5	42525
6/3/2010 11:44	42.4	4593	51.150	1307	76.4	-0.5	514.7	8.4	0.3	9.7	97.9	41706
6/3/2010 11:45	42.3	4588	51.077	1306	75.9	-0.5	514.7	8.4	0.3	9.7	97.4	42000
6/3/2010 11:46	42.3	4583	51.004	1304	75.4	-0.5	514.7	8.4	0.3	9.7	98.0	41707
6/3/2010 11:47	42.3	4578	50.931	1306	76.4	-0.5	514.7	8.4	0.3	9.8	99.2	42079
6/3/2010 11:48	42.3	4573	50.857	1309	77.4	-0.5	514.7	8.4	0.4	9.8	104.8	41696
6/3/2010 11:49	42.3	4571	50.800	1312	74.8	-0.5	514.7	8.0	0.4	9.9	97.4	41842
6/3/2010 11:50	42.3	4588	50.914	1311	77.2	-0.5	514.7	8.4	0.4	9.9	96.1	41812
6/3/2010 11:51	42.2	4606	51.028	1307	74.5	-0.5	514.8	8.4	0.4	9.9	102.2	41670
6/3/2010 11:52	42.2	4623	51.142	1304	74.4	-0.5	514.8	8.4	0.4	10.0	98.5	41772
6/3/2010 11:53	42.2	4641	51.256	1307	75.2	-0.5	514.8	8.4	0.5	10.0	96.6	42028
6/3/2010 11:54	42.2	4655	51.337	1309	75.0	-0.5	514.8	7.7	0.5	10.1	109.6	42015
6/3/2010 11:55	42.2	4658	51.317	1308	75.9	-0.5	514.8	8.4	0.5	10.1	101.1	42032
6/3/2010 11:56	42.2	4660	51.297	1304	75.6	-0.5	514.8	8.4	0.5	10.1	106.8	42050
6/3/2010 11:57	42.2	5677	51.277	1304	75.3	-0.5	514.8	8.4	0.5	16.5	32.6	42071
6/3/2010 11:58	42.1	4731	51.258	1305	76.8	-0.5	514.8	8.4	0.5	10.8	102.6	42100
6/3/2010 11:59	42.1	4631	51.238	1309	75.7	-0.5	514.9	8.4	0.5	9.9	100.8	42050
6/3/2010 12:00	42.1	4630	51.218	1307	75.8	-0.5	514.9	8.4	0.5	9.9	104.8	41890
6/3/2010 12:01	42.1	4628	51.198	1306	75.8	-0.5	514.9	8.4	0.5	9.9	107.0	41730
6/3/2010 12:02	42.1	4625	51.169	1307	76.4	-0.5	514.9	8.4	0.5	9.9	104.6	41947
6/3/2010 12:03	40.8	4666	51.111	1309	76.9	-0.5	514.9	8.4	0.5	9.9	96.9	42291

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 12:04	42.1	4610	51.053	1306	74.9	-0.5	514.9	8.4	0.5	9.9	97.7	42283
6/3/2010 12:05	42.1	4603	50.994	1306	75.1	-0.5	514.9	8.4	0.5	9.9	94.4	42158
6/3/2010 12:06	42.1	4597	50.936	1305	75.2	-0.5	514.9	8.4	0.5	9.9	96.3	42022
6/3/2010 12:07	42.1	4590	50.878	1303	75.3	-0.5	515.0	8.4	0.5	9.9	97.5	41904
6/3/2010 12:08	39.6	4672	50.820	1300	75.1	-0.5	515.0	8.4	0.5	9.9	91.6	41884
6/3/2010 12:09	39.9	4656	50.762	1298	75.0	-0.5	515.0	8.0	0.4	9.9	89.5	41864
6/3/2010 12:10	40.2	4639	50.704	1299	75.0	-0.5	515.0	8.2	0.4	9.9	88.7	41901
6/3/2010 12:11	40.5	4622	50.646	1301	75.0	-0.5	515.0	8.4	0.4	10.0	87.1	41944
6/3/2010 12:12	40.8	4606	50.588	1301	75.0	-0.5	515.0	8.4	0.4	10.0	88.9	41940
6/3/2010 12:13	41.0	4589	50.530	1300	75.2	-0.5	515.0	8.4	0.4	10.0	92.7	41871
6/3/2010 12:14	41.3	4572	50.472	1300	75.5	-0.5	515.0	8.4	0.4	10.0	100.3	41801
6/3/2010 12:15	41.6	4556	50.414	1297	75.7	-0.5	515.1	8.4	0.4	10.0	98.4	41397
6/3/2010 12:16	41.8	4542	50.355	1300	75.6	-0.5	515.1	8.4	0.4	10.0	93.6	41990
6/3/2010 12:17	41.8	4541	50.353	1303	73.8	-0.5	515.1	7.6	0.4	10.0	95.9	42020
6/3/2010 12:18	41.9	4541	50.356	1303	73.8	-0.5	515.1	8.4	0.4	10.0	97.4	42049
6/3/2010 12:19	41.9	4540	50.358	1303	73.8	-0.5	515.1	8.4	0.4	10.0	98.9	42023
6/3/2010 12:20	41.9	4540	50.361	1303	75.5	-0.5	515.1	8.4	0.4	10.0	97.2	41991
6/3/2010 12:21	42.0	4539	50.364	1303	75.4	-0.5	515.1	8.4	0.4	10.0	96.9	41960
6/3/2010 12:22	42.0	4537	50.366	1302	75.2	-0.5	515.1	8.3	0.4	10.0	99.3	41928
6/3/2010 12:23	42.0	4535	50.369	1301	75.1	-0.5	515.1	8.3	0.3	10.0	102.0	41897
6/3/2010 12:24	42.0	4533	50.372	1302	75.1	-0.5	515.2	8.3	0.3	10.0	95.8	41910
6/3/2010 12:25	42.1	4530	50.374	1306	75.3	-0.5	515.2	8.4	0.3	10.0	92.7	41956
6/3/2010 12:26	42.1	4528	50.377	1306	75.5	-0.5	515.2	8.4	0.3	10.0	100.9	41968
6/3/2010 12:27	42.1	4526	50.380	1306	75.2	-0.5	515.2	8.4	0.3	10.0	95.3	41969
6/3/2010 12:28	42.2	4523	50.382	1306	74.9	-0.5	515.2	8.4	0.3	10.0	105.5	41970
6/3/2010 12:29	42.2	4521	50.385	1306	74.8	-0.5	515.2	8.4	0.3	10.0	96.4	41971
6/3/2010 12:30	42.2	4522	50.388	1306	74.8	-0.5	515.2	8.4	0.3	10.1	95.4	41971
6/3/2010 12:31	42.2	4523	50.390	1305	74.9	-0.5	515.2	8.4	0.3	10.1	92.5	41933
6/3/2010 12:32	42.2	4525	50.393	1305	75.0	-0.5	515.3	8.4	0.3	10.1	90.7	41774
6/3/2010 12:33	42.2	4529	50.417	1305	75.7	-0.5	515.3	8.4	0.3	10.1	89.7	41380

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 12:34	42.2	4537	50.470	1306	76.1	-0.5	515.3	8.4	0.3	10.1	93.8	42116
6/3/2010 12:35	42.2	4544	50.524	1306	76.6	-0.5	515.3	8.4	0.3	10.1	93.9	41924
6/3/2010 12:36	42.2	4552	50.578	1306	77.0	-0.5	515.3	8.4	0.3	10.1	91.7	41800
6/3/2010 12:37	42.2	4560	50.631	1306	75.5	-0.5	515.3	8.4	0.2	10.1	93.4	41772
6/3/2010 12:38	42.2	4567	50.685	1309	74.6	-0.5	515.3	8.4	0.2	10.1	93.6	42036
6/3/2010 12:39	42.2	4574	50.738	1311	75.3	-0.5	515.3	8.4	0.2	10.1	90.9	42300
6/3/2010 12:40	42.2	4581	50.792	1310	75.7	-0.5	515.4	8.4	0.2	10.1	97.5	42243
6/3/2010 12:41	42.2	4588	50.845	1308	75.4	-0.5	515.4	8.4	0.2	10.1	98.1	42157
6/3/2010 12:42	42.2	4594	50.899	1308	75.1	-0.5	515.4	8.4	0.2	10.1	94.0	42089
6/3/2010 12:43	42.2	4596	50.953	1310	74.7	-0.5	515.4	8.4	0.2	10.1	94.4	42033
6/3/2010 12:44	42.2	4603	51.006	1311	75.4	-0.5	515.4	8.4	0.2	10.1	98.6	41976
6/3/2010 12:45	42.2	4611	51.060	1310	76.1	-0.5	515.4	8.4	0.2	10.1	91.5	41920
6/3/2010 12:46	42.2	4624	51.113	1309	76.2	-0.5	515.4	8.4	0.2	10.1	95.9	41864
6/3/2010 12:47	42.2	4630	51.167	1308	76.4	-0.5	515.4	8.4	0.2	10.1	93.8	41856
6/3/2010 12:48	42.2	4635	51.220	1307	75.1	-0.5	515.5	8.3	0.2	10.1	101.9	41865
6/3/2010 12:49	42.2	4641	51.274	1307	75.2	-0.5	515.5	8.3	0.2	10.2	93.1	41806
6/3/2010 12:50	42.1	4648	51.327	1308	75.5	-0.5	515.5	8.4	0.2	10.2	90.1	41700
6/3/2010 12:51	42.1	4655	51.381	1310	75.8	-0.5	515.5	8.4	0.1	10.2	86.2	41733
6/3/2010 12:52	42.1	4661	51.435	1311	76.1	-0.5	515.5	8.4	0.1	10.2	90.2	41779
6/3/2010 12:53	42.1	4668	51.488	1310	76.3	-0.5	515.5	8.4	0.1	10.2	91.8	41825
6/3/2010 12:54	42.1	4675	51.542	1310	76.6	-0.5	515.5	8.4	0.1	10.2	92.5	41871
6/3/2010 12:55	42.1	4682	51.595	1309	76.9	-0.5	515.5	8.4	0.1	10.2	92.4	41783
6/3/2010 12:56	42.1	4688	51.649	1311	74.6	-0.5	515.5	8.4	0.1	10.2	93.8	41842
6/3/2010 12:57	42.1	5645	51.702	1310	74.9	-0.5	515.6	8.3	0.1	16.3	21.6	42013
6/3/2010 12:58	42.1	4728	51.756	1309	75.1	-0.5	515.6	8.3	0.1	10.5	96.5	41888
6/3/2010 12:59	42.1	4734	51.809	1308	75.4	-0.5	515.6	8.3	0.1	10.4	90.3	41736
6/3/2010 13:00	42.1	4655	51.155	1307	75.6	-0.5	515.6	8.2	0.1	10.4	94.5	41698
6/3/2010 13:01	42.1	4625	50.895	1303	75.9	-0.5	515.6	8.2	0.1	10.4	95.6	41999
6/3/2010 13:02	42.1	4619	50.845	1302	75.8	-0.5	515.6	8.4	0.1	10.4	91.7	42158
6/3/2010 13:03	42.1	4614	50.795	1300	75.6	-0.5	515.6	8.4	0.1	10.4	96.6	42042

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 13:04	42.1	4609	50.746	1298	75.5	-0.5	515.6	8.3	0.2	10.4	88.2	42121
6/3/2010 13:05	42.1	4603	50.696	1298	75.4	-0.5	515.7	8.4	0.2	10.4	90.5	42008
6/3/2010 13:06	42.1	4599	50.655	1299	75.2	-0.5	515.7	8.4	0.2	10.4	85.1	41913
6/3/2010 13:07	42.1	4605	50.708	1300	75.1	-0.5	515.7	8.4	0.2	10.4	81.5	41902
6/3/2010 13:08	42.1	4610	50.761	1300	74.9	-0.5	515.7	8.4	0.2	10.4	77.3	41951
6/3/2010 13:09	42.1	4616	50.814	1297	74.8	-0.5	515.7	8.4	0.2	10.4	75.8	42001
6/3/2010 13:10	42.1	4622	50.868	1293	74.6	-0.5	515.7	8.3	0.2	10.4	78.1	42050
6/3/2010 13:11	42.1	4624	50.887	1289	76.0	-0.5	515.7	8.0	0.2	10.4	76.9	41449
6/3/2010 13:12	42.1	4614	50.807	1288	75.9	-0.5	515.7	8.0	0.2	10.4	77.2	42087
6/3/2010 13:13	42.1	4604	50.727	1288	76.0	-0.5	515.8	8.2	0.2	10.3	73.9	41967
6/3/2010 13:14	42.1	4594	50.647	1288	76.1	-0.5	515.8	8.0	0.2	10.3	73.9	41847
6/3/2010 13:15	42.1	4584	50.567	1288	75.9	-0.5	515.8	8.0	0.2	10.3	73.3	41733
6/3/2010 13:16	42.1	4574	50.487	1288	75.2	-0.5	515.8	8.2	0.2	10.3	75.8	41679
6/3/2010 13:17	42.1	4564	50.407	1288	74.4	-0.5	515.8	8.3	0.2	10.3	75.4	41653
6/3/2010 13:18	42.1	4554	50.327	1292	76.0	-0.5	515.8	8.3	0.2	10.3	72.2	41630
6/3/2010 13:19	42.1	4544	50.247	1295	75.4	-0.5	515.8	8.3	0.2	10.3	74.1	41607
6/3/2010 13:20	42.1	4535	50.167	1296	75.7	-0.5	515.8	8.3	0.3	10.3	74.4	41584
6/3/2010 13:21	42.1	4526	50.087	1297	74.8	-0.5	515.8	8.3	0.3	10.3	75.8	41561

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM

Test 1 Run 1 Average											
Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
2509	*4603*	*50.9*	*1304*	*75.5*	*-0.5*	*514.4*	*8.4*	*0.3*	*10.0*	*90.0*	*41917*

Test 1 Run 1 Minimum											
Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
261	*4236*	*45.6*	*1237*	*73.0*	*-0.5*	*510.5*	*7.3*	*0.0*	*9.2*	*21.6*	*39909*

Test 1 Run 1 Maximum											
Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
3054	*5677*	*53.5*	*1318*	*80.9*	*-0.4*	*515.8*	*8.6*	*1.1*	*16.5*	*166.4*	*43687*

Prepared by FutureFuel Chemical Company, Batesville, Arkansas, and
Risk Management Engineering, Ltd., Dallas, Texas

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 14:13	42.0	4670	51.676	1301	75.6	-0.5	516.5	8.3	0.5	10.1	91.0	41966
6/3/2010 14:14	42.0	4664	51.623	1300	75.5	-0.5	516.5	8.3	0.5	10.1	90.3	41965
6/3/2010 14:15	42.0	4658	51.570	1300	75.3	-0.5	516.5	8.2	0.5	10.1	93.2	41984
6/3/2010 14:16	42.0	4651	51.517	1300	75.1	-0.5	516.5	8.1	0.5	10.1	90.1	42003
6/3/2010 14:17	42.0	4645	51.464	1301	74.9	-0.5	516.5	7.8	0.5	10.1	86.7	42022
6/3/2010 14:18	42.0	4638	51.411	1302	75.1	-0.5	516.5	7.7	0.5	10.1	85.7	41658
6/3/2010 14:19	42.0	4633	51.358	1301	76.1	-0.5	516.5	7.8	0.5	10.1	86.1	41823
6/3/2010 14:20	42.0	4628	51.305	1301	75.9	-0.5	516.6	7.9	0.5	10.1	84.4	41763
6/3/2010 14:21	42.0	4624	51.252	1300	75.6	-0.5	516.6	7.9	0.5	10.1	83.3	41703
6/3/2010 14:22	42.0	4619	51.199	1298	74.6	-0.5	516.6	8.0	0.5	10.1	80.3	41656
6/3/2010 14:23	42.0	4614	51.146	1298	74.8	-0.5	516.6	8.1	0.5	10.1	79.4	41741
6/3/2010 14:24	42.0	4607	51.093	1299	74.9	-0.5	516.6	8.1	0.5	10.1	79.4	41827
6/3/2010 14:25	42.0	4601	51.042	1299	75.0	-0.5	516.6	7.6	0.5	10.1	77.0	41909
6/3/2010 14:26	42.0	4598	51.024	1300	75.2	-0.5	516.6	8.3	0.5	10.1	74.5	41956
6/3/2010 14:27	41.9	4595	51.005	1300	75.3	-0.5	516.6	8.3	0.5	10.1	76.5	42002
6/3/2010 14:28	41.9	4592	50.986	1299	75.3	-0.5	516.7	8.3	0.5	10.1	76.5	42034
6/3/2010 14:29	41.9	4590	50.967	1298	75.2	-0.5	516.7	8.3	0.5	10.1	75.5	41898
6/3/2010 14:30	41.9	4587	50.949	1296	75.1	-0.5	516.7	8.3	0.5	10.1	74.4	41762
6/3/2010 14:31	41.9	4584	50.930	1292	74.9	-0.5	516.7	8.3	0.5	10.1	77.4	41625
6/3/2010 14:32	41.9	4583	50.911	1288	74.8	-0.5	516.7	8.3	0.5	10.1	76.4	41560
6/3/2010 14:33	41.9	4582	50.893	1285	74.8	-0.5	516.7	8.3	0.5	10.1	77.3	41959
6/3/2010 14:34	41.9	4580	50.874	1284	74.8	-0.5	516.7	8.3	0.5	10.1	75.0	41915
6/3/2010 14:35	41.9	4579	50.855	1286	74.9	-0.5	516.7	8.3	0.5	10.1	71.6	41858
6/3/2010 14:36	41.9	4577	50.836	1285	74.9	-0.5	516.8	8.3	0.5	10.1	75.7	41794
6/3/2010 14:37	41.9	4576	50.818	1285	75.0	-0.5	516.8	8.3	0.5	10.1	72.4	41761
6/3/2010 14:38	41.9	4574	50.799	1286	75.0	-0.5	516.8	8.3	0.5	10.1	72.7	41971
6/3/2010 14:39	41.9	4572	50.780	1287	75.2	-0.5	516.8	8.3	0.5	10.1	75.0	41581
6/3/2010 14:40	41.9	4570	50.761	1289	75.5	-0.5	516.8	8.3	0.5	10.1	73.2	41819
6/3/2010 14:41	41.9	4568	50.743	1292	75.8	-0.5	516.8	8.2	0.5	10.1	72.1	42001
6/3/2010 14:42	41.9	4566	50.724	1293	76.2	-0.5	516.8	8.2	0.5	10.1	72.8	41948

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 14:43	41.9	4564	50.705	1293	75.0	-0.5	516.8	8.2	0.5	10.1	75.5	41874
6/3/2010 14:44	41.9	4562	50.686	1293	74.8	-0.5	516.9	8.2	0.5	10.1	75.2	41799
6/3/2010 14:45	41.9	4564	50.698	1293	74.6	-0.5	516.9	8.2	0.5	10.1	75.0	41725
6/3/2010 14:46	41.9	4571	50.754	1295	75.0	-0.5	516.9	8.2	0.5	10.1	74.4	41944
6/3/2010 14:47	41.9	4578	50.809	1296	75.6	-0.5	516.9	8.2	0.5	10.1	76.2	42088
6/3/2010 14:48	41.9	4585	50.864	1298	75.5	-0.5	516.9	8.2	0.5	10.1	77.2	42222
6/3/2010 14:49	41.9	4592	50.920	1300	75.6	-0.5	516.9	8.2	0.5	10.1	75.3	41882
6/3/2010 14:50	41.9	4599	50.975	1302	74.8	-0.5	516.9	8.2	0.5	10.1	76.6	41757
6/3/2010 14:51	41.9	4606	51.030	1304	75.8	-0.5	516.9	8.2	0.5	10.1	76.8	41718
6/3/2010 14:52	41.9	4612	51.085	1302	76.8	-0.5	516.9	8.2	0.5	10.1	84.1	41412
6/3/2010 14:53	41.9	4619	51.141	1300	76.9	-0.5	517.0	8.2	0.5	10.1	79.3	41808
6/3/2010 14:54	41.9	4623	51.171	1302	75.2	-0.5	517.0	8.2	0.5	10.1	73.3	41660
6/3/2010 14:55	41.9	4624	51.185	1304	75.8	-0.5	517.0	7.6	0.5	10.1	73.5	42213
6/3/2010 14:56	41.9	4626	51.198	1303	75.3	-0.5	517.0	8.3	0.5	10.1	73.4	42110
6/3/2010 14:57	41.9	5343	51.211	1302	75.6	-0.5	517.0	8.2	0.5	15.1	20.4	42007
6/3/2010 14:58	41.9	4628	51.225	1300	75.9	-0.5	517.0	8.2	0.5	10.1	72.0	41905
6/3/2010 14:59	41.9	4630	51.238	1299	75.2	-0.5	517.0	8.1	0.4	10.0	70.9	41969
6/3/2010 15:00	41.9	4631	51.251	1298	75.3	-0.5	517.0	7.5	0.4	10.0	70.1	42089
6/3/2010 15:01	41.9	4632	51.265	1298	75.9	-0.5	517.1	8.2	0.4	10.0	72.8	42069
6/3/2010 15:02	41.9	4633	51.278	1297	75.2	-0.5	517.1	8.2	0.4	10.0	72.1	42036
6/3/2010 15:03	41.9	4634	51.291	1297	75.6	-0.5	517.1	8.2	0.4	10.0	73.3	42003
6/3/2010 15:04	41.9	4635	51.304	1296	76.3	-0.5	517.1	8.2	0.4	10.0	74.3	41970
6/3/2010 15:05	41.9	4636	51.318	1293	75.4	-0.5	517.1	8.2	0.4	10.0	73.7	41938
6/3/2010 15:06	41.9	4637	51.331	1293	75.9	-0.5	517.1	8.2	0.4	10.0	74.9	41909
6/3/2010 15:07	41.9	4638	51.344	1292	74.8	-0.5	517.1	8.2	0.4	10.0	73.3	41880
6/3/2010 15:08	41.9	4638	51.358	1292	75.8	-0.5	517.1	8.2	0.4	10.0	69.8	41850
6/3/2010 15:09	41.9	4639	51.371	1291	75.9	-0.5	517.2	8.2	0.4	10.0	67.6	41878
6/3/2010 15:10	41.9	4640	51.384	1292	76.6	-0.5	517.2	8.2	0.4	10.0	69.8	41948
6/3/2010 15:11	41.9	4642	51.398	1292	75.6	-0.5	517.2	8.2	0.4	10.0	70.2	42005
6/3/2010 15:12	41.9	4643	51.411	1290	75.2	-0.5	517.2	8.2	0.4	10.0	69.3	41923

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 15:13	41.9	4644	51.424	1289	74.7	-0.5	517.2	8.2	0.4	10.0	68.1	41840
6/3/2010 15:14	41.9	4645	51.437	1290	74.9	-0.5	517.2	8.2	0.4	10.0	71.0	41788
6/3/2010 15:15	41.9	4646	51.451	1290	75.9	-0.5	517.2	8.2	0.4	10.0	66.0	41779
6/3/2010 15:16	41.9	4647	51.464	1290	75.4	-0.5	517.2	8.2	0.4	9.9	67.0	41770
6/3/2010 15:17	41.9	4648	51.477	1289	73.8	-0.5	517.2	8.2	0.4	9.9	67.8	41754
6/3/2010 15:18	41.9	4650	51.491	1289	75.3	-0.5	517.3	8.2	0.3	9.9	66.8	41669
6/3/2010 15:19	41.9	4651	51.504	1291	74.2	-0.5	517.3	8.2	0.3	9.9	65.1	41892
6/3/2010 15:20	41.8	4652	51.517	1292	75.9	-0.5	517.3	8.2	0.3	9.9	62.3	42205
6/3/2010 15:21	41.8	4651	51.512	1293	75.9	-0.5	517.3	8.2	0.3	9.9	65.6	42121
6/3/2010 15:22	41.8	4647	51.482	1293	75.8	-0.5	517.3	8.1	0.3	9.9	63.3	42038
6/3/2010 15:23	41.8	4643	51.451	1293	76.0	-0.5	517.3	8.1	0.3	9.9	62.1	41953
6/3/2010 15:24	41.8	4639	51.421	1295	76.3	-0.5	517.3	8.1	0.3	9.9	63.3	41863
6/3/2010 15:25	41.8	4635	51.390	1297	76.4	-0.5	517.3	7.6	0.3	9.9	65.9	41815
6/3/2010 15:26	41.8	4630	51.360	1300	76.3	-0.5	517.4	8.2	0.3	9.9	64.6	41768
6/3/2010 15:27	41.8	4626	51.330	1301	76.2	-0.5	517.4	8.2	0.3	9.9	64.1	41721
6/3/2010 15:28	41.8	4622	51.299	1301	76.1	-0.5	517.4	8.2	0.3	9.9	62.7	41673
6/3/2010 15:29	41.8	4618	51.269	1302	77.3	-0.5	517.4	8.2	0.3	9.9	65.1	41659
6/3/2010 15:30	41.8	4614	51.238	1302	75.2	-0.5	517.4	8.2	0.3	9.9	67.1	41742
6/3/2010 15:31	41.8	4610	51.208	1303	75.4	-0.5	517.4	8.2	0.3	9.9	67.5	41825
6/3/2010 15:32	41.8	4606	51.177	1305	76.7	-0.5	517.4	8.2	0.3	9.9	67.5	41908
6/3/2010 15:33	41.8	4602	51.147	1306	75.2	-0.5	517.4	8.2	0.3	9.9	71.0	41992
6/3/2010 15:34	41.8	4598	51.116	1308	74.4	-0.5	517.5	8.2	0.3	9.8	70.6	42075
6/3/2010 15:35	41.8	4594	51.086	1309	76.8	-0.5	517.5	8.2	0.3	9.8	72.2	41837
6/3/2010 15:36	41.8	4590	51.055	1309	74.0	-0.5	517.5	8.1	0.3	9.8	75.2	41741
6/3/2010 15:37	41.8	4586	51.025	1311	75.7	-0.5	517.5	8.2	0.3	9.8	76.7	41995
6/3/2010 15:38	41.8	4582	50.994	1312	75.5	-0.5	517.5	8.2	0.2	9.8	77.8	41929
6/3/2010 15:39	41.8	4578	50.964	1311	75.3	-0.5	517.5	8.2	0.2	9.8	76.0	41999
6/3/2010 15:40	41.8	4573	50.934	1312	75.1	-0.5	517.5	8.2	0.2	9.8	76.3	42068
6/3/2010 15:41	41.8	4568	50.903	1313	75.3	-0.5	517.5	8.2	0.2	9.8	73.4	42000
6/3/2010 15:42	41.8	4563	50.883	1313	75.5	-0.5	517.6	8.2	0.2	9.8	79.5	41948

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 15:43	41.8	4560	50.877	1312	75.9	-0.5	517.6	8.2	0.2	9.8	85.9	41880
6/3/2010 15:44	41.8	4557	50.871	1312	75.0	-0.5	517.6	8.2	0.2	9.8	77.6	41915
6/3/2010 15:45	41.8	4555	50.865	1311	75.3	-0.5	517.6	8.2	0.2	9.8	79.4	41878
6/3/2010 15:46	41.8	4554	50.859	1311	75.7	-0.5	517.6	8.2	0.2	9.8	79.6	41492
6/3/2010 15:47	41.8	4553	50.853	1311	76.2	-0.5	517.6	8.2	0.2	9.8	78.6	41582
6/3/2010 15:48	41.8	4552	50.847	1310	75.9	-0.5	517.6	8.2	0.2	9.8	80.2	41913
6/3/2010 15:49	41.8	4551	50.841	1311	75.0	-0.5	517.6	8.2	0.2	9.8	77.9	42228
6/3/2010 15:50	41.8	4550	50.835	1312	75.0	-0.5	517.6	8.2	0.2	9.8	78.5	42050
6/3/2010 15:51	41.8	4549	50.829	1312	75.2	-0.5	517.7	8.2	0.2	9.8	84.6	41872
6/3/2010 15:52	41.8	4547	50.823	1313	75.9	-0.5	517.7	8.2	0.2	9.7	83.9	41694
6/3/2010 15:53	41.8	4546	50.817	1314	76.0	-0.5	517.7	8.2	0.2	9.7	85.0	41623
6/3/2010 15:54	41.8	4548	50.830	1315	75.8	-0.5	517.7	8.2	0.2	9.7	81.0	41875
6/3/2010 15:55	41.8	4550	50.855	1318	75.3	-0.5	517.7	8.2	0.2	9.7	74.8	42092
6/3/2010 15:56	41.8	4553	50.881	1318	76.0	-0.5	517.7	8.2	0.2	9.7	78.4	41958
6/3/2010 15:57	41.8	5619	50.907	1317	76.4	-0.5	517.7	8.2	0.2	16.7	18.6	41888
6/3/2010 15:58	41.8	4571	50.933	1314	74.4	-0.5	517.7	8.2	0.2	9.8	74.7	41819
6/3/2010 15:59	41.8	4575	50.959	1310	75.7	-0.5	517.8	8.2	0.2	9.9	78.0	41749
6/3/2010 16:00	41.8	4579	50.985	1307	75.5	-0.5	517.8	8.2	0.2	9.9	74.8	41723
6/3/2010 16:01	41.8	4583	51.010	1304	75.2	-0.5	517.8	8.2	0.2	9.9	80.7	41759
6/3/2010 16:02	41.8	4587	51.036	1302	75.0	-0.5	517.8	8.2	0.2	9.9	77.4	41831
6/3/2010 16:03	41.8	4592	51.062	1302	74.7	-0.5	517.8	8.2	0.2	9.9	74.8	41955
6/3/2010 16:04	41.8	4591	51.048	1304	74.7	-0.5	517.8	8.2	0.2	9.9	73.6	41873
6/3/2010 16:05	41.8	4589	51.021	1302	74.9	-0.5	517.8	8.2	0.2	9.9	76.9	41784
6/3/2010 16:06	41.8	4587	50.993	1300	75.0	-0.5	517.8	8.2	0.2	9.9	74.1	41783
6/3/2010 16:07	41.8	4585	50.966	1299	75.2	-0.5	517.9	8.2	0.2	9.9	76.4	41816
6/3/2010 16:08	41.8	4582	50.939	1300	75.2	-0.5	517.9	8.2	0.2	9.9	74.1	41850
6/3/2010 16:09	41.8	4580	50.911	1300	74.8	-0.5	517.9	8.2	0.2	10.0	74.5	41883
6/3/2010 16:10	41.8	4578	50.884	1299	74.4	-0.5	517.9	8.2	0.2	10.0	74.6	41917
6/3/2010 16:11	41.8	4575	50.857	1298	74.0	-0.5	517.9	8.2	0.2	10.0	75.0	41950
6/3/2010 16:12	41.8	4573	50.829	1299	74.4	-0.5	517.9	8.2	0.2	10.0	75.1	41984

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 16:13	41.7	4571	50.802	1301	75.8	-0.5	517.9	8.2	0.2	10.0	73.7	42010
6/3/2010 16:14	41.7	4568	50.775	1302	76.6	-0.5	517.9	8.2	0.3	10.0	74.9	41949
6/3/2010 16:15	41.7	4566	50.747	1303	75.5	-0.5	518.0	8.2	0.3	10.0	76.9	41888
6/3/2010 16:16	41.7	4563	50.720	1303	73.6	-0.5	518.0	8.1	0.3	10.0	78.2	41827
6/3/2010 16:17	41.7	4562	50.693	1306	74.8	-0.5	518.0	8.1	0.3	10.0	77.5	41939
6/3/2010 16:18	41.7	4561	50.665	1308	76.4	-0.5	518.0	8.1	0.3	10.0	79.2	42158
6/3/2010 16:19	41.7	4559	50.638	1307	76.2	-0.5	518.0	8.1	0.3	10.1	77.5	42082
6/3/2010 16:20	41.7	4558	50.611	1304	76.0	-0.5	518.0	8.1	0.3	10.1	79.7	42005
6/3/2010 16:21	41.7	4556	50.584	1302	75.8	-0.5	518.0	8.1	0.3	10.1	77.6	41929
6/3/2010 16:22	41.7	4554	50.556	1302	75.6	-0.5	518.0	8.2	0.3	10.1	78.0	41874
6/3/2010 16:23	41.7	4553	50.529	1302	74.8	-0.5	518.0	8.2	0.3	10.1	78.9	41441
6/3/2010 16:24	41.7	4551	50.502	1302	75.0	-0.5	518.1	8.2	0.3	10.1	73.7	42315
6/3/2010 16:25	41.7	4549	50.474	1302	75.1	-0.5	518.1	8.2	0.3	10.1	73.8	42132
6/3/2010 16:26	41.7	4548	50.447	1302	75.3	-0.5	518.1	8.2	0.3	10.1	76.0	41948
6/3/2010 16:27	41.7	4546	50.420	1300	75.5	-0.5	518.1	8.2	0.3	10.1	75.4	41765
6/3/2010 16:28	41.7	4544	50.392	1299	75.7	-0.5	518.1	8.2	0.3	10.2	77.2	41629
6/3/2010 16:29	41.7	4543	50.365	1298	75.9	-0.5	518.1	8.2	0.3	10.2	80.6	41850
6/3/2010 16:30	41.7	4541	50.338	1299	76.1	-0.5	518.1	8.2	0.3	10.2	76.8	41835
6/3/2010 16:31	41.7	4541	50.325	1298	73.6	-0.5	518.1	8.2	0.4	10.2	78.3	41820
6/3/2010 16:32	41.7	4542	50.322	1298	74.9	-0.5	518.2	8.2	0.4	10.2	75.9	41805
6/3/2010 16:33	41.7	4543	50.320	1299	75.8	-0.5	518.2	8.2	0.4	10.2	77.4	41791
6/3/2010 16:34	41.7	4544	50.317	1299	75.7	-0.5	518.2	8.2	0.4	10.2	74.3	41776
6/3/2010 16:35	41.7	4545	50.314	1299	75.8	-0.5	518.2	8.2	0.4	10.2	74.0	41761
6/3/2010 16:36	41.7	4546	50.312	1300	74.6	-0.5	518.2	8.2	0.4	10.2	74.7	41781
6/3/2010 16:37	41.7	4547	50.309	1300	75.0	-0.5	518.2	8.2	0.4	10.2	74.9	41849
6/3/2010 16:38	41.7	4548	50.307	1301	75.8	-0.5	518.2	8.2	0.4	10.3	78.5	41917
6/3/2010 16:39	41.7	4549	50.304	1303	75.6	-0.5	518.2	8.2	0.4	10.3	76.5	41985
6/3/2010 16:40	41.7	4550	50.301	1304	75.2	-0.5	518.3	8.2	0.4	10.3	79.8	42053
6/3/2010 16:41	41.7	4551	50.299	1305	74.8	-0.5	518.3	8.2	0.4	10.3	80.5	41826
6/3/2010 16:42	41.7	4552	50.296	1305	74.7	-0.5	518.3	8.2	0.4	10.3	84.1	41501

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/3/2010 16:43	41.7	4553	50.294	1306	74.7	-0.5	518.3	8.2	0.4	10.3	84.3	41961
6/3/2010 16:44	41.7	4554	50.291	1310	76.4	-0.5	518.3	8.2	0.4	10.3	81.2	41990
6/3/2010 16:45	41.7	4555	50.288	1309	75.5	-0.5	518.3	8.2	0.4	10.3	84.6	41957
6/3/2010 16:46	41.7	4556	50.286	1308	76.8	-0.5	518.3	8.2	0.4	10.3	79.1	41960
6/3/2010 16:47	41.7	4557	50.283	1309	74.9	-0.5	518.3	8.2	0.4	10.3	78.3	42014
6/3/2010 16:48	41.7	4558	50.281	1311	75.2	-0.5	518.3	8.2	0.5	10.4	75.8	42069
6/3/2010 16:49	41.7	4559	50.278	1315	75.5	-0.5	518.4	8.2	0.5	10.4	77.8	42097
6/3/2010 16:50	41.7	4560	50.276	1313	75.5	-0.5	518.4	8.2	0.5	10.4	79.4	42090
6/3/2010 16:51	41.7	4561	50.273	1311	75.5	-0.5	518.4	8.2	0.5	10.4	78.9	42083
6/3/2010 16:52	41.7	4562	50.270	1308	75.4	-0.5	518.4	8.2	0.5	10.4	78.4	42076
6/3/2010 16:53	41.7	4563	50.268	1307	75.3	-0.5	518.4	8.2	0.5	10.4	79.3	42104
6/3/2010 16:54	41.7	4564	50.265	1307	75.2	-0.5	518.4	8.2	0.5	10.4	76.8	42157
6/3/2010 16:55	41.7	4565	50.263	1306	75.2	-0.5	518.4	8.2	0.5	10.4	78.2	42161
6/3/2010 16:56	41.7	4566	50.260	1305	75.1	-0.5	518.4	8.2	0.5	10.4	76.7	42162
6/3/2010 16:57	41.7	5587	50.257	1303	75.1	-0.5	518.5	8.2	0.5	16.8	20.1	42162
6/3/2010 16:58	41.7	4569	50.266	1305	75.1	-0.5	518.5	8.2	0.5	10.5	74.5	42162
6/3/2010 16:59	41.7	4507	50.308	1306	75.7	-0.5	518.5	8.2	0.5	9.8	71.1	42162
6/3/2010 17:00	41.7	4516	50.351	1305	76.4	-0.5	518.5	8.2	0.5	9.8	77.3	42162
6/3/2010 17:01	41.7	4525	50.393	1306	75.9	-0.5	518.5	8.2	0.5	9.9	78.5	42162
6/3/2010 17:02	41.7	4534	50.436	1306	74.8	-0.5	518.5	8.2	0.5	9.9	76.1	42163
6/3/2010 17:03	41.7	4543	50.478	1306	75.4	-0.5	518.5	8.2	0.4	9.9	76.7	42163
6/3/2010 17:04	41.7	4553	50.520	1306	75.7	-0.5	518.5	8.3	0.4	10.0	75.4	42150
6/3/2010 17:05	41.7	4562	50.563	1305	76.0	-0.5	518.6	8.3	0.4	10.0	73.9	42097
6/3/2010 17:06	41.7	4571	50.605	1304	74.8	-0.5	518.6	8.3	0.4	10.1	74.0	42044
6/3/2010 17:07	41.7	4580	50.648	1304	75.8	-0.5	518.6	8.3	0.4	10.1	69.1	41992
6/3/2010 17:08	41.8	4589	50.690	1303	75.7	-0.5	518.6	8.3	0.4	10.1	74.2	41939
6/3/2010 17:09	41.8	4599	50.732	1302	75.6	-0.5	518.6	8.3	0.4	10.2	71.6	41886
6/3/2010 17:10	41.8	4608	50.775	1301	75.5	-0.5	518.6	8.3	0.4	10.2	72.2	41833
6/3/2010 17:11	41.8	4617	50.817	1300	75.4	-0.5	518.6	8.3	0.4	10.3	70.2	41814
6/3/2010 17:12	41.8	4626	50.859	1302	75.4	-0.5	518.6	8.3	0.4	10.3	66.9	41840

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	**LB/MIN**	**LB/HR**	**KPPH**	**DEG F**	**%**	**INWC**	**DEG F**	**KW**	**PPM**	**%**	**PPM**	**ACFM**
6/3/2010 17:13	41.8	4636	50.902	1304	75.3	-0.5	518.7	8.3	0.3	10.3	65.3	41867

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM

Test 2 Run 2 Average

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
2509	*4603*	*50.9*	*1301*	*75.4*	*-0.5*	*517.6*	*8.2*	*0.4*	*10.1*	*74.5*	*41906*

Test 2 Run 2 Minimum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
2502	*4507*	*50.3*	*1284*	*73.6*	*-0.5*	*516.5*	*7.5*	*0.2*	*9.7*	*18.6*	*41412*

Test 2 Run 2 Maximum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
2518	*5619*	*51.7*	*1318*	*77.3*	*-0.5*	*518.7*	*8.3*	*0.5*	*16.8*	*93.2*	*42315*

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/4/2010 7:00	42.0	4904	52.483	1302	77.5	-0.4	513.6	8.1	0.5	10.7	75.8	42264
6/4/2010 7:01	42.0	4897	52.465	1301	77.6	-0.4	513.6	8.1	0.5	10.7	78.8	42288
6/4/2010 7:02	42.0	4890	52.446	1301	77.5	-0.4	513.6	8.1	0.5	10.6	78.9	42311
6/4/2010 7:03	42.0	4883	52.427	1301	77.5	-0.4	513.6	8.1	0.5	10.6	79.3	42335
6/4/2010 7:04	42.0	4875	52.408	1300	77.4	-0.4	513.6	8.1	0.5	10.5	77.8	42358
6/4/2010 7:05	42.0	4868	52.389	1300	77.3	-0.4	513.6	8.1	0.5	10.5	76.4	42382
6/4/2010 7:06	42.0	4861	52.370	1299	77.3	-0.4	513.6	8.1	0.5	10.5	80.9	42405
6/4/2010 7:07	42.0	4853	52.351	1299	77.2	-0.4	513.6	8.1	0.5	10.4	73.5	42429
6/4/2010 7:08	42.0	4846	52.333	1299	77.2	-0.4	513.6	8.1	0.5	10.4	75.1	42452
6/4/2010 7:09	42.0	4838	52.311	1298	77.1	-0.4	513.6	8.1	0.5	10.3	75.4	42476
6/4/2010 7:10	42.0	4830	52.281	1296	77.0	-0.4	513.7	8.1	0.5	10.3	76.5	42500
6/4/2010 7:11	42.0	4821	52.252	1296	76.8	-0.4	513.7	8.1	0.5	10.3	75.4	42523
6/4/2010 7:12	42.0	4813	52.222	1295	76.7	-0.4	513.7	8.1	0.5	10.2	77.9	42547
6/4/2010 7:13	42.1	4804	52.192	1295	76.6	-0.4	513.7	7.3	0.5	10.2	78.6	42570
6/4/2010 7:14	42.1	4796	52.162	1294	76.4	-0.4	513.7	7.4	0.5	10.1	79.1	42594
6/4/2010 7:15	42.1	4788	52.133	1292	76.8	-0.4	513.7	8.2	0.5	10.1	82.6	42617
6/4/2010 7:16	42.1	4779	52.103	1293	77.5	-0.4	513.7	8.1	0.5	10.0	80.6	42608
6/4/2010 7:17	42.1	4771	52.073	1291	76.6	-0.4	513.7	8.0	0.5	10.0	85.2	42242
6/4/2010 7:18	42.1	4763	52.043	1292	76.2	-0.4	513.7	8.0	0.5	10.0	82.3	42271
6/4/2010 7:19	42.1	4755	52.014	1296	75.6	-0.4	513.7	7.9	0.5	9.9	81.4	42336
6/4/2010 7:20	42.1	4747	51.984	1299	76.7	-0.4	513.7	7.9	0.5	9.9	79.1	42396
6/4/2010 7:21	42.1	4739	51.954	1297	77.9	-0.4	513.7	7.8	0.5	9.8	78.6	42450
6/4/2010 7:22	42.1	4733	51.924	1295	77.8	-0.4	513.7	7.7	0.5	9.8	82.1	42455
6/4/2010 7:23	42.1	4725	51.895	1296	77.5	-0.4	513.7	7.7	0.5	9.8	80.3	42390
6/4/2010 7:24	42.1	4725	51.865	1296	77.2	-0.4	513.7	7.6	0.5	9.8	81.2	42325
6/4/2010 7:25	42.1	4725	51.835	1298	77.0	-0.4	513.7	7.6	0.5	9.9	81.1	42260
6/4/2010 7:26	42.1	4726	51.805	1300	76.8	-0.4	513.7	7.5	0.5	9.9	80.1	42195
6/4/2010 7:27	42.1	4723	51.776	1300	76.8	-0.4	513.7	7.4	0.4	9.9	83.5	42130
6/4/2010 7:28	42.1	4721	51.746	1300	76.9	-0.4	513.7	7.8	0.4	9.9	88.0	42065
6/4/2010 7:29	42.1	4718	51.716	1300	76.9	-0.4	513.7	8.1	0.4	9.9	84.3	42384

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/4/2010 7:30	42.1	4715	51.686	1300	76.8	-0.4	513.7	8.1	0.4	9.9	89.2	42100
6/4/2010 7:31	42.1	4713	51.656	1301	75.3	-0.4	513.7	8.1	0.4	9.9	87.3	42244
6/4/2010 7:32	42.1	4710	51.625	1303	76.5	-0.4	513.7	7.8	0.4	9.9	88.3	42523
6/4/2010 7:33	42.1	4707	51.594	1304	76.6	-0.4	513.7	8.1	0.4	9.9	85.8	42562
6/4/2010 7:34	42.1	4704	51.563	1304	75.2	-0.4	513.8	8.1	0.4	10.0	90.6	42602
6/4/2010 7:35	42.1	4701	51.532	1303	76.6	-0.4	513.8	8.1	0.4	10.0	93.0	42014
6/4/2010 7:36	42.1	4698	51.501	1305	76.8	-0.4	513.8	8.1	0.4	10.0	88.5	42017
6/4/2010 7:37	42.1	4696	51.470	1307	77.8	-0.4	513.8	8.1	0.4	10.0	88.8	42493
6/4/2010 7:38	42.1	4693	51.439	1306	77.4	-0.4	513.8	8.0	0.4	10.0	88.8	42336
6/4/2010 7:39	42.1	4690	51.408	1305	77.0	-0.4	513.8	8.0	0.4	10.0	93.2	42198
6/4/2010 7:40	42.1	4687	51.377	1305	76.6	-0.4	513.8	8.0	0.4	10.0	90.9	42066
6/4/2010 7:41	42.1	4684	51.346	1307	76.2	-0.4	513.8	8.0	0.4	10.0	87.8	41934
6/4/2010 7:42	42.1	4682	51.315	1308	76.4	-0.4	513.8	8.0	0.4	10.0	87.8	42629
6/4/2010 7:43	42.1	4679	51.284	1308	76.7	-0.4	513.8	8.0	0.4	10.1	90.9	42426
6/4/2010 7:44	42.1	4676	51.253	1310	76.9	-0.4	513.8	8.0	0.4	10.1	90.4	42368
6/4/2010 7:45	42.1	4673	51.222	1312	77.0	-0.4	513.8	8.0	0.4	10.1	91.6	42311
6/4/2010 7:46	42.1	4670	51.191	1311	77.1	-0.4	513.8	8.0	0.4	10.1	96.2	42254
6/4/2010 7:47	42.1	4668	51.159	1311	77.3	-0.4	513.8	8.0	0.4	10.1	96.7	42197
6/4/2010 7:48	42.1	4665	51.128	1310	77.4	-0.4	513.8	8.0	0.4	10.1	96.8	42140
6/4/2010 7:49	42.1	4663	51.097	1310	77.5	-0.4	513.8	8.0	0.4	10.1	99.5	42083
6/4/2010 7:50	42.1	4660	51.066	1310	76.7	-0.4	513.8	7.9	0.4	10.1	108.2	42537
6/4/2010 7:51	42.1	4658	51.035	1311	76.2	-0.4	513.8	7.9	0.4	10.2	101.3	42632
6/4/2010 7:52	42.2	4656	51.004	1309	77.2	-0.4	513.8	7.8	0.4	10.2	101.4	42662
6/4/2010 7:53	42.2	4655	50.988	1308	76.4	-0.4	513.8	8.0	0.4	10.2	97.4	42301
6/4/2010 7:54	42.2	4674	51.136	1308	75.8	-0.4	513.8	8.0	0.4	10.2	96.3	42289
6/4/2010 7:55	42.2	4692	51.284	1310	75.3	-0.4	513.8	7.8	0.4	10.2	98.9	42438
6/4/2010 7:56	42.2	4710	51.432	1312	76.4	-0.4	513.8	8.0	0.4	10.2	98.4	42439
6/4/2010 7:57	42.2	5691	51.580	1312	76.4	-0.4	513.8	8.0	1.0	16.2	23.2	42362
6/4/2010 7:58	42.2	4722	51.729	1313	76.4	-0.4	513.9	8.0	0.4	10.0	95.7	42328
6/4/2010 7:59	42.2	4738	51.867	1313	76.5	-0.4	513.9	8.0	0.4	10.0	95.2	42172

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/4/2010 8:00	42.2	4740	51.898	1312	76.5	-0.4	513.9	8.0	0.4	10.0	101.3	42084
6/4/2010 8:01	42.2	4743	51.930	1312	76.8	-0.4	513.9	8.0	0.4	10.0	100.8	42467
6/4/2010 8:02	42.2	4746	51.961	1312	77.2	-0.4	513.9	8.0	0.4	10.0	105.5	42608
6/4/2010 8:03	42.2	4750	51.992	1312	77.6	-0.4	513.9	8.0	0.4	10.0	103.9	42575
6/4/2010 8:04	42.2	4755	52.024	1312	78.1	-0.4	513.9	8.0	0.4	10.0	99.8	42542
6/4/2010 8:05	42.2	4757	52.055	1312	76.0	-0.4	513.9	8.1	0.4	10.0	107.3	42509
6/4/2010 8:06	42.2	4759	52.086	1312	78.2	-0.4	513.9	8.1	0.4	10.0	99.7	42476
6/4/2010 8:07	42.2	4762	52.118	1312	77.9	-0.4	513.9	8.0	0.4	10.0	100.4	42443
6/4/2010 8:08	42.2	4764	52.149	1311	77.5	-0.4	513.9	8.0	0.4	10.0	101.0	42428
6/4/2010 8:09	42.2	4767	52.180	1311	77.2	-0.4	513.9	8.0	0.4	10.0	97.4	42415
6/4/2010 8:10	42.2	4770	52.212	1313	76.9	-0.4	513.9	8.0	0.4	10.0	92.7	42401
6/4/2010 8:11	42.2	4774	52.243	1314	76.8	-0.4	513.9	7.5	0.4	10.0	94.4	42388
6/4/2010 8:12	42.2	4779	52.275	1313	76.6	-0.4	513.9	8.1	0.4	10.0	96.2	42374
6/4/2010 8:13	42.2	4783	52.306	1310	76.5	-0.4	513.9	8.1	0.4	10.0	97.5	42361
6/4/2010 8:14	42.2	4788	52.337	1310	76.4	-0.4	513.9	8.1	0.4	10.0	108.6	42348
6/4/2010 8:15	42.2	4792	52.369	1312	76.3	-0.4	513.9	8.1	0.4	10.0	95.7	42359
6/4/2010 8:16	42.2	4795	52.387	1312	79.0	-0.4	513.9	8.1	0.4	10.0	99.2	42512
6/4/2010 8:17	42.2	4796	52.389	1310	77.7	-0.4	513.9	8.1	0.4	10.0	96.0	42485
6/4/2010 8:18	42.2	4799	52.390	1310	76.5	-0.4	513.9	8.0	0.4	10.0	92.4	42459
6/4/2010 8:19	42.2	4801	52.391	1310	76.8	-0.4	513.9	8.0	0.4	10.0	90.0	42432
6/4/2010 8:20	42.2	4801	52.393	1310	77.3	-0.4	513.9	8.0	0.4	10.0	89.6	42406
6/4/2010 8:21	42.2	4800	52.394	1308	77.8	-0.4	513.9	8.0	0.4	10.0	93.7	42379
6/4/2010 8:22	42.2	4800	52.395	1306	75.8	-0.4	514.0	8.0	0.4	10.0	93.2	42352
6/4/2010 8:23	42.2	4799	52.396	1307	75.9	-0.4	514.0	8.0	0.4	10.0	95.3	42408
6/4/2010 8:24	42.2	4799	52.398	1308	76.0	-0.4	514.0	8.0	0.4	10.0	95.9	42523
6/4/2010 8:25	42.2	4798	52.399	1306	76.2	-0.4	514.0	8.1	0.4	10.0	90.0	42638
6/4/2010 8:26	42.2	4798	52.400	1305	76.3	-0.4	514.0	8.1	0.4	10.0	87.7	42244
6/4/2010 8:27	42.2	4797	52.402	1305	76.4	-0.4	514.0	8.1	0.4	10.0	92.0	42137
6/4/2010 8:28	42.2	4797	52.403	1305	76.6	-0.4	514.0	8.1	0.3	10.0	91.0	42247
6/4/2010 8:29	42.2	4796	52.404	1306	76.7	-0.4	514.0	8.1	0.3	10.0	95.3	42346

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/4/2010 8:30	42.2	4796	52.406	1307	77.1	-0.4	514.0	8.1	0.3	10.0	97.1	42441
6/4/2010 8:31	42.2	4795	52.407	1308	77.5	-0.4	514.0	8.1	0.3	10.0	93.9	42536
6/4/2010 8:32	42.3	4795	52.408	1309	77.6	-0.4	514.0	8.1	0.3	10.0	98.7	42631
6/4/2010 8:33	42.3	4794	52.409	1305	77.4	-0.4	514.0	8.1	0.3	10.0	97.0	42726
6/4/2010 8:34	42.3	4794	52.411	1303	77.1	-0.4	514.0	8.1	0.3	9.9	99.4	42379
6/4/2010 8:35	42.3	4793	52.412	1303	76.9	-0.4	514.0	8.1	0.3	9.9	97.1	42047
6/4/2010 8:36	42.3	4793	52.413	1308	76.6	-0.4	514.0	8.1	0.3	9.9	95.8	42322
6/4/2010 8:37	42.3	4793	52.415	1310	76.4	-0.4	514.0	8.1	0.3	9.9	102.8	42429
6/4/2010 8:38	42.3	4793	52.416	1309	76.4	-0.4	514.0	8.1	0.3	9.9	106.8	42291
6/4/2010 8:39	42.3	4792	52.417	1307	76.9	-0.4	514.0	8.1	0.3	9.9	107.7	42339
6/4/2010 8:40	42.3	4792	52.418	1307	77.3	-0.4	514.0	7.5	0.3	9.9	110.2	42387
6/4/2010 8:41	42.3	4792	52.420	1309	76.1	-0.4	514.0	7.8	0.3	9.9	111.9	42407
6/4/2010 8:42	42.3	4792	52.421	1310	75.4	-0.4	514.0	7.5	0.3	9.9	108.8	42408
6/4/2010 8:43	42.3	4790	52.422	1311	75.8	-0.4	514.0	8.1	0.3	9.9	106.9	42408
6/4/2010 8:44	42.3	4789	52.424	1311	75.8	-0.4	514.0	8.1	0.3	9.9	110.0	42409
6/4/2010 8:45	42.3	4788	52.425	1311	75.7	-0.4	514.0	8.0	0.3	9.9	112.5	42409
6/4/2010 8:46	42.3	4789	52.426	1311	75.7	-0.4	514.1	8.0	0.3	9.9	113.1	42410
6/4/2010 8:47	42.3	4790	52.428	1312	77.8	-0.4	514.1	8.0	0.3	9.9	120.2	42560
6/4/2010 8:48	42.3	4790	52.429	1312	76.0	-0.4	514.1	8.0	0.3	9.9	117.8	42472
6/4/2010 8:49	42.3	4791	52.430	1311	76.9	-0.4	514.1	8.0	0.3	9.9	117.5	42355
6/4/2010 8:50	42.3	4792	52.431	1310	76.9	-0.4	514.1	7.3	0.3	9.9	116.3	42259
6/4/2010 8:51	42.3	4791	52.433	1310	76.7	-0.4	514.1	8.1	0.3	9.9	121.0	42164
6/4/2010 8:52	42.3	4790	52.443	1311	78.5	-0.4	514.1	7.5	0.3	9.9	120.1	42548
6/4/2010 8:53	42.3	4790	52.461	1313	77.5	-0.4	514.1	8.0	0.3	9.9	119.9	42526
6/4/2010 8:54	42.3	4790	52.478	1312	76.4	-0.4	514.1	8.0	0.3	9.9	119.7	42452
6/4/2010 8:55	42.3	4791	52.495	1310	76.5	-0.4	514.1	7.9	0.3	9.9	124.2	42379
6/4/2010 8:56	42.3	4794	52.513	1310	76.6	-0.4	514.1	8.1	0.3	9.9	124.7	42317
6/4/2010 8:57	42.3	6047	52.530	1311	76.7	-0.4	514.1	8.1	0.6	17.2	30.2	42256
6/4/2010 8:58	42.3	4857	52.547	1312	76.9	-0.4	514.1	8.1	0.3	10.5	117.3	42194
6/4/2010 8:59	42.3	4859	52.565	1313	77.0	-0.4	514.1	8.1	0.3	10.5	119.4	42133

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/4/2010 9:00	42.3	4861	52.582	1311	77.8	-0.4	514.1	7.6	0.3	10.5	118.5	42237
6/4/2010 9:01	42.3	4863	52.599	1311	77.1	-0.4	514.1	8.1	0.3	10.5	121.2	42356
6/4/2010 9:02	42.3	4865	52.616	1310	77.6	-0.4	514.1	7.3	0.3	10.4	116.2	41735
6/4/2010 9:03	42.3	4867	52.634	1312	75.5	-0.4	514.1	8.0	0.3	10.4	106.3	42189
6/4/2010 9:04	42.3	4869	52.651	1315	76.2	-0.4	514.1	8.0	0.3	10.4	103.9	42466
6/4/2010 9:05	42.3	4871	52.668	1314	76.6	-0.4	514.1	8.0	0.3	10.4	100.5	42291
6/4/2010 9:06	42.3	4872	52.686	1313	76.6	-0.4	514.1	7.9	0.3	10.4	97.8	42115
6/4/2010 9:07	42.3	4873	52.703	1312	76.5	-0.4	514.1	7.9	0.3	10.4	97.9	42056
6/4/2010 9:08	42.3	4874	52.720	1310	76.5	-0.4	514.1	7.9	0.3	10.4	98.1	42113
6/4/2010 9:09	42.3	4874	52.738	1309	76.4	-0.4	514.1	7.9	0.3	10.4	95.6	42205
6/4/2010 9:10	42.3	4875	52.755	1307	76.4	-0.4	514.2	7.7	0.3	10.4	95.8	42258
6/4/2010 9:11	42.4	4875	52.772	1307	75.2	-0.4	514.2	8.0	0.3	10.4	94.6	42255
6/4/2010 9:12	42.4	4876	52.790	1308	76.7	-0.4	514.2	8.0	0.3	10.4	95.4	42252
6/4/2010 9:13	42.4	4876	52.807	1308	76.1	-0.4	514.2	8.0	0.3	10.4	98.7	42250
6/4/2010 9:14	42.4	4878	52.824	1306	75.4	-0.4	514.2	8.0	0.3	10.4	100.3	42247
6/4/2010 9:15	42.4	4880	52.842	1305	77.1	-0.4	514.2	8.0	0.3	10.4	99.6	42244
6/4/2010 9:16	42.4	4882	52.859	1305	76.6	-0.4	514.2	8.0	0.3	10.4	97.9	42227
6/4/2010 9:17	42.4	4885	52.876	1305	76.2	-0.4	514.2	8.0	0.3	10.4	105.0	42205
6/4/2010 9:18	42.4	4886	52.893	1308	75.7	-0.4	514.2	8.0	0.3	10.4	105.1	42183
6/4/2010 9:19	42.4	4887	52.911	1309	75.3	-0.4	514.2	8.0	0.3	10.4	106.1	42161
6/4/2010 9:20	42.4	4889	52.928	1309	75.9	-0.4	514.2	8.0	0.3	10.4	106.5	42139
6/4/2010 9:21	42.4	4869	52.773	1308	76.7	-0.4	514.2	8.0	0.3	10.4	109.1	42707
6/4/2010 9:22	42.4	4787	52.102	1307	77.1	-0.4	514.2	8.0	0.3	10.4	114.8	42078
6/4/2010 9:23	42.4	4705	51.430	1308	77.1	-0.4	514.2	8.0	0.3	10.4	115.5	42227
6/4/2010 9:24	42.4	4658	51.042	1309	77.0	-0.4	514.2	8.0	0.3	10.4	123.2	42010
6/4/2010 9:25	42.4	4846	52.601	1310	76.9	-0.4	514.2	8.0	0.3	10.4	122.0	42017
6/4/2010 9:26	42.4	4836	52.528	1311	76.8	-0.4	514.2	8.0	0.3	10.4	128.6	42119
6/4/2010 9:27	42.4	4828	52.455	1313	77.1	-0.4	514.2	8.0	0.3	10.4	122.2	42220
6/4/2010 9:28	42.4	4819	52.382	1314	77.4	-0.4	514.2	8.0	0.3	10.3	124.5	42321
6/4/2010 9:29	42.4	4808	52.309	1315	76.5	-0.4	514.2	8.0	0.3	10.3	122.4	42423

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
6/4/2010 9:30	42.4	4797	52.236	1315	75.7	-0.4	514.2	7.8	0.3	10.3	117.9	42362
6/4/2010 9:31	42.4	4785	52.163	1315	76.0	-0.4	514.2	8.0	0.3	10.3	117.5	42362
6/4/2010 9:32	42.4	4774	52.091	1315	76.4	-0.4	514.2	8.0	0.3	10.3	114.9	42459
6/4/2010 9:33	42.4	4766	52.018	1315	76.8	-0.4	514.2	8.0	0.3	10.3	115.5	42506
6/4/2010 9:34	42.4	4764	51.945	1314	77.0	-0.4	514.3	8.0	0.3	10.3	115.5	42536
6/4/2010 9:35	42.4	4757	51.872	1313	77.1	-0.4	514.3	8.0	0.3	10.3	111.2	42566
6/4/2010 9:36	42.4	4748	51.799	1313	77.2	-0.4	514.3	7.9	0.3	10.3	111.1	42596
6/4/2010 9:37	42.4	4738	51.726	1314	77.3	-0.4	514.3	7.9	0.3	10.3	114.1	42552
6/4/2010 9:38	42.4	4729	51.653	1314	76.7	-0.4	514.3	7.9	0.3	10.3	116.8	42456
6/4/2010 9:39	42.4	4720	51.580	1315	75.7	-0.4	514.3	7.9	0.3	10.3	118.1	42360
6/4/2010 9:40	42.4	4710	51.507	1315	77.8	-0.4	514.3	7.6	0.3	10.3	114.6	42500
6/4/2010 9:41	42.4	4701	51.435	1315	77.6	-0.4	514.3	7.8	0.3	10.3	121.9	42662
6/4/2010 9:42	42.4	4692	51.362	1313	77.3	-0.4	514.3	7.8	0.3	10.3	121.0	42434
6/4/2010 9:43	42.4	4682	51.289	1314	77.0	-0.4	514.3	7.9	0.3	10.3	120.5	42139
6/4/2010 9:44	42.4	4672	51.216	1315	76.9	-0.4	514.3	7.8	0.3	10.3	122.1	42185
6/4/2010 9:45	42.4	4662	51.143	1314	76.8	-0.4	514.3	8.0	0.3	10.3	123.8	42231
6/4/2010 9:46	42.4	4652	51.070	1314	76.7	-0.4	514.3	7.9	0.3	10.3	124.5	42277
6/4/2010 9:47	42.4	4641	50.997	1313	76.6	-0.4	514.3	7.8	0.3	10.3	127.7	42266
6/4/2010 9:48	42.4	4630	50.924	1312	76.6	-0.4	514.3	7.8	0.3	10.3	124.0	42251
6/4/2010 9:49	42.4	4625	50.852	1311	76.5	-0.4	514.3	7.9	0.3	10.3	118.7	42236
6/4/2010 9:50	42.4	4615	50.779	1307	76.4	-0.4	514.3	7.8	0.3	10.3	117.0	42221
6/4/2010 9:51	42.5	4605	50.706	1305	76.3	-0.4	514.3	7.6	0.3	10.3	117.8	42209
6/4/2010 9:52	42.5	4611	50.772	1305	76.2	-0.4	514.3	7.9	0.3	10.3	117.6	42230
6/4/2010 9:53	42.5	4620	50.851	1305	76.2	-0.4	514.3	7.9	0.3	10.2	115.8	42251
6/4/2010 9:54	42.5	4628	50.930	1305	76.1	-0.4	514.3	7.9	0.3	10.2	111.7	42271
6/4/2010 9:55	42.5	4636	51.009	1304	76.0	-0.4	514.3	7.5	0.3	10.2	101.1	42292
6/4/2010 9:56	42.5	4644	51.087	1304	78.4	-0.4	514.3	7.3	0.3	10.2	103.5	42313
6/4/2010 9:57	42.5	5841	51.166	1302	77.6	-0.4	514.3	7.4	0.8	17.2	23.4	42328

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3

Parameter	Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM

Test 2 Run 3 Average

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
2535	*4787*	*52.0*	*1308*	*76.8*	*-0.4*	*514.0*	*7.9*	*0.4*	*10.3*	*99.4*	*42346*

Test 2 Run 3 Minimum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
2521	*4605*	*50.7*	*1291*	*75.2*	*-0.4*	*513.6*	*7.3*	*0.3*	*9.8*	*23.2*	*41735*

Test 2 Run 3 Maximum

Waste Feed	Coal Feed	Steam Production	Combustion Temperature	Air Flow Control	Furnace Pressure	Precipitator Inlet Temperature	Precipitator Power	THC Conc.	O2 Conc.	CO Conc.	Flue Gas Flow Rate
LB/MIN	LB/HR	KPPH	DEG F	%	INWC	DEG F	KW	PPM	%	PPM	ACFM
2548	*6047*	*52.9*	*1315*	*79.0*	*-0.4*	*514.3*	*8.2*	*1.0*	*17.2*	*128.6*	*42726*

Prepared by FutureFuel Chemical Company, Batesville Arkansas, and
Risk Management Engineering, Ltd., Dallas, Texas

Attachment E-6

Coal Feed Rate Data

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 8:00	19.5	3043	31.567	382	6460	10890	637	88	12	80	2957
6/2/2010 8:01	17.9	3164	31.467	382	6460	10890	637	87	12	80	3004
6/2/2010 8:02	7.3	3391	31.498	382	6460	10890	637	87	12	80	3385
6/2/2010 8:03	20.9	3008	32.600	382	6460	10890	637	87	12	80	3028
6/2/2010 8:04	17.3	3064	32.597	382	6460	10890	637	87	12	80	3156
6/2/2010 8:05	16.6	3068	32.593	382	6460	10890	637	87	12	80	3180
6/2/2010 8:06	16.2	3103	32.589	382	6460	10890	637	87	12	80	3194
6/2/2010 8:07	12.3	3294	32.586	382	6460	10890	637	88	12	80	3332
6/2/2010 8:08	10.3	3471	32.582	382	6460	10890	637	88	12	80	3404
6/2/2010 8:09	15.1	3256	32.578	382	6460	10890	638	88	12	80	3234
6/2/2010 8:10	15.4	3295	32.575	382	6460	10890	638	89	12	80	3221
6/2/2010 8:11	15.6	3224	32.571	382	6460	10890	638	88	12	80	3212
6/2/2010 8:12	15.9	3274	32.567	382	6460	10890	638	88	12	80	3202
6/2/2010 8:13	14.3	3296	32.564	382	6460	10890	638	87	12	80	3262
6/2/2010 8:14	15.0	3196	32.560	382	6460	10890	638	85	12	80	3240
6/2/2010 8:15	23.0	3120	32.556	382	6460	10890	638	88	12	80	2950
6/2/2010 8:16	16.2	3272	32.553	382	6460	10890	638	89	12	80	3189
6/2/2010 8:17	12.7	3316	32.646	382	6460	10890	638	88	12	80	3325
6/2/2010 8:18	15.1	3299	32.749	382	6460	10890	638	86	12	80	3255
6/2/2010 8:19	14.8	3282	32.852	382	6460	10890	638	87	12	80	3276
6/2/2010 8:20	20.6	3103	32.955	382	6460	10890	638	86	12	80	3084
6/2/2010 8:21	18.7	3128	33.058	382	6460	10890	638	88	12	80	3162
6/2/2010 8:22	16.7	3153	33.160	382	6460	10890	638	88	12	80	3245
6/2/2010 8:23	15.5	3298	33.263	382	6460	10890	638	86	12	80	3301

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 8:24	15.5	3352	33.366	382	6460	10890	638	86	12	80	3315
6/2/2010 8:25	14.4	3406	33.469	382	6460	10890	638	86	12	80	3363
6/2/2010 8:26	13.4	3266	33.571	382	6460	10890	638	87	12	80	3413
6/2/2010 8:27	19.7	3143	33.355	382	6460	10890	638	87	12	80	3163
6/2/2010 8:28	17.7	3156	32.910	382	6460	10890	638	85	12	80	3183
6/2/2010 8:29	15.8	3233	32.465	382	6460	10890	638	83	12	80	3203
6/2/2010 8:30	13.7	3354	32.071	382	6460	10890	638	83	12	80	3234
6/2/2010 8:31	17.2	3223	32.243	382	6460	10890	638	84	12	80	3129
6/2/2010 8:32	17.0	3125	32.416	382	6460	10890	638	82	12	80	3156
6/2/2010 8:33	16.9	3253	32.588	382	6460	10890	638	81	12	80	3184
6/2/2010 8:34	16.7	3271	32.761	382	6460	10890	638	81	12	80	3211
6/2/2010 8:35	16.5	3199	32.933	382	6460	10890	638	81	12	80	3236
6/2/2010 8:36	16.4	3227	33.106	382	6460	10890	638	82	12	80	3261
6/2/2010 8:37	16.2	3229	33.278	382	6460	10890	638	82	12	80	3286
6/2/2010 8:38	10.5	3482	33.451	382	6460	10890	638	83	12	80	3507
6/2/2010 8:39	23.8	3086	33.543	382	6460	10890	638	83	12	80	3045
6/2/2010 8:40	17.9	3187	33.422	382	6460	10890	638	84	12	80	3241
6/2/2010 8:41	13.9	3349	33.386	382	6460	10890	638	86	12	80	3377
6/2/2010 8:42	10.4	3317	33.350	382	6460	10890	638	87	12	80	3498
6/2/2010 8:43	15.1	3339	33.314	382	6460	10890	638	88	12	80	3329
6/2/2010 8:44	15.4	3398	33.350	382	6460	10890	638	85	12	80	3329
6/2/2010 8:45	15.6	3213	33.437	382	6460	10890	638	87	12	80	3328
6/2/2010 8:46	21.0	3165	33.523	382	6460	10890	638	86	12	80	3152
6/2/2010 8:47	18.9	3017	33.610	382	6460	10890	638	85	12	79	3242

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 8:48	14.4	3259	33.696	382	6460	10890	638	85	12	79	3413
6/2/2010 8:49	11.8	3325	33.783	382	6460	10890	638	85	12	79	3519
6/2/2010 8:50	14.0	3266	33.870	382	6460	10890	638	84	12	79	3454
6/2/2010 8:51	15.7	3289	33.956	382	6460	10890	638	83	12	79	3405
6/2/2010 8:52	15.7	3232	34.043	382	6460	10890	638	84	12	79	3419
6/2/2010 8:53	15.6	3220	34.130	382	6460	10890	638	86	12	79	3432
6/2/2010 8:54	15.5	3253	34.216	382	6460	10890	638	86	12	79	3447
6/2/2010 8:55	24.1	2980	34.303	382	6460	10890	638	86	12	79	3151
6/2/2010 8:56	17.4	3259	33.950	382	6460	10890	638	85	12	79	3355
6/2/2010 8:57	15.1	3713	33.558	382	6460	10890	639	84	18	69	3933
6/2/2010 8:58	7.4	3358	33.165	382	6460	10890	639	84	13	78	3646
6/2/2010 8:59	15.0	3254	32.772	382	6460	10890	639	85	13	79	3322
6/2/2010 9:00	19.1	3098	32.721	382	6460	10890	639	86	12	79	3160
6/2/2010 9:01	17.3	3278	32.784	382	6460	10890	639	86	12	79	3227
6/2/2010 9:02	16.1	3274	32.847	382	6460	10890	639	87	12	79	3267
6/2/2010 9:03	16.0	3269	32.909	382	6460	10890	639	87	12	79	3273
6/2/2010 9:04	15.9	3223	32.972	382	6460	10890	639	86	12	79	3280
6/2/2010 9:05	15.8	3259	33.035	382	6460	10890	639	85	12	79	3287
6/2/2010 9:06	20.7	3214	33.097	382	6460	10890	639	84	12	79	3116
6/2/2010 9:07	16.4	3163	33.116	382	6460	10890	639	84	12	80	3267
6/2/2010 9:08	16.4	3147	33.103	382	6460	10890	639	84	12	80	3267
6/2/2010 9:09	16.3	3157	33.090	382	6460	10890	639	84	12	80	3268
6/2/2010 9:10	16.2	3290	33.077	382	6460	10890	639	84	12	80	3268
6/2/2010 9:11	16.2	3306	33.065	382	6460	10890	639	84	12	80	3269

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 9:12	16.1	3321	33.052	382	6460	10890	639	84	12	80	3270
6/2/2010 9:13	16.1	3305	33.039	382	6460	10890	639	84	12	80	3270
6/2/2010 9:14	16.0	3265	33.026	382	6460	10890	639	84	12	80	3271
6/2/2010 9:15	16.0	3253	33.013	382	6460	10890	639	84	12	80	3271
6/2/2010 9:16	15.9	3241	33.000	382	6460	10890	639	83	12	80	3272
6/2/2010 9:17	15.9	3226	32.987	382	6460	10890	639	83	12	80	3273
6/2/2010 9:18	15.8	3223	32.974	382	6460	10890	639	83	12	80	3273
6/2/2010 9:19	15.8	3239	32.962	382	6460	10890	639	83	12	79	3274
6/2/2010 9:20	15.7	3254	32.949	382	6460	10890	639	83	12	79	3274
6/2/2010 9:21	15.7	3215	32.936	382	6460	10890	639	83	12	79	3275
6/2/2010 9:22	9.7	3289	32.923	382	6460	10890	639	83	12	79	3486
6/2/2010 9:23	19.0	3289	32.910	382	6460	10890	639	83	12	79	3153
6/2/2010 9:24	17.8	3246	32.897	382	6460	10890	639	83	12	79	3194
6/2/2010 9:25	16.7	3202	32.884	382	6460	10890	639	84	12	79	3234
6/2/2010 9:26	15.9	3308	32.872	382	6460	10890	639	84	12	79	3257
6/2/2010 9:27	15.9	3295	32.859	382	6460	10890	639	84	12	79	3257
6/2/2010 9:28	15.8	3245	32.846	382	6460	10890	639	84	12	80	3257
6/2/2010 9:29	15.8	3311	32.833	382	6460	10890	639	85	12	80	3258
6/2/2010 9:30	15.7	3178	32.820	382	6460	10890	639	85	12	80	3258
6/2/2010 9:31	15.7	3199	32.807	382	6460	10890	639	85	12	80	3258
6/2/2010 9:32	15.6	3220	32.794	382	6460	10890	639	85	12	80	3258
6/2/2010 9:33	15.6	3218	32.781	382	6460	10890	639	85	12	80	3259
6/2/2010 9:34	15.5	3247	32.769	382	6460	10890	639	85	12	80	3260
6/2/2010 9:35	9.4	3533	32.756	382	6460	10890	639	85	12	80	3477

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 9:36	18.0	3263	32.801	382	6460	10890	639	85	12	79	3177
6/2/2010 9:37	17.5	3155	32.866	382	6460	10890	639	85	12	79	3200
6/2/2010 9:38	12.3	3314	32.932	382	6460	10890	639	85	12	79	3392
6/2/2010 9:39	24.5	3200	32.931	382	6460	10890	639	85	12	79	2961
6/2/2010 9:40	19.6	3186	32.909	382	6460	10890	639	85	12	79	3131
6/2/2010 9:41	16.0	3190	32.887	382	6460	10890	639	85	12	79	3257
6/2/2010 9:42	16.0	3346	32.865	382	6460	10890	640	85	12	79	3256
6/2/2010 9:43	16.0	3305	32.842	382	6460	10890	640	85	12	79	3254
6/2/2010 9:44	16.0	3335	32.820	382	6460	10890	640	85	12	79	3252
6/2/2010 9:45	15.9	3303	32.798	382	6460	10890	640	85	12	79	3250
6/2/2010 9:46	15.9	3251	32.776	382	6460	10890	640	85	12	79	3248
6/2/2010 9:47	15.9	3404	32.754	382	6460	10890	640	85	12	79	3246
6/2/2010 9:48	15.9	3238	32.731	382	6460	10890	640	85	12	79	3244
6/2/2010 9:49	15.9	3205	32.709	382	6460	10890	640	85	12	79	3242
6/2/2010 9:50	15.9	3201	32.687	382	6460	10890	640	85	12	79	3240
6/2/2010 9:51	15.9	3264	32.665	382	6460	10890	640	85	12	79	3239
6/2/2010 9:52	15.9	3267	32.643	382	6460	10890	640	85	12	79	3237
6/2/2010 9:53	15.8	3263	32.620	382	6460	10890	640	85	12	79	3234
6/2/2010 9:54	15.8	3217	32.598	382	6460	10890	640	88	12	80	3227
6/2/2010 9:55	20.0	3272	32.592	382	6460	10890	640	88	12	80	3078
6/2/2010 9:56	17.3	3128	32.597	382	6460	10890	640	88	12	80	3173
6/2/2010 9:57	16.4	3789	32.601	382	6460	10890	640	88	17	72	3633
6/2/2010 9:58	16.0	3228	32.606	382	6460	10890	640	89	13	79	3270
6/2/2010 9:59	11.7	3388	32.611	382	6460	10890	640	89	13	79	3421

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 10:00	16.5	3385	32.616	382	6460	10890	640	89	13	79	3245
6/2/2010 10:01	18.4	3209	32.621	382	6460	10890	640	88	13	79	3179
6/2/2010 10:02	17.1	3171	32.640	382	6460	10890	640	87	13	79	3227
6/2/2010 10:03	15.9	3175	32.811	382	6460	10890	640	86	13	79	3292
6/2/2010 10:04	15.3	3303	32.983	382	6460	10890	640	87	13	79	3329
6/2/2010 10:05	15.3	3392	33.154	382	6460	10890	640	87	12	79	3347
6/2/2010 10:06	15.3	3232	33.051	382	6460	10890	640	87	12	79	3334
6/2/2010 10:07	12.2	3271	32.857	382	6460	10890	640	86	12	79	3421
6/2/2010 10:08	15.1	3382	32.662	382	6460	10890	640	86	12	79	3293
6/2/2010 10:09	20.6	3227	32.468	382	6460	10890	640	86	12	79	3071
6/2/2010 10:10	18.5	3219	32.274	382	6460	10890	640	86	12	79	3121
6/2/2010 10:11	6.0	3328	32.355	382	6460	10890	640	86	12	79	3576
6/2/2010 10:12	15.2	3310	32.528	382	6460	10890	640	86	12	79	3264
6/2/2010 10:13	15.0	3235	32.702	382	6460	10890	640	88	12	79	3286
6/2/2010 10:14	14.8	3323	32.875	382	6460	10890	640	89	12	79	3311
6/2/2010 10:15	20.5	3126	33.048	382	6460	10890	640	90	12	79	3127
6/2/2010 10:16	17.7	3182	32.947	382	6460	10890	640	89	12	79	3211
6/2/2010 10:17	17.0	3188	32.821	382	6460	10890	640	88	12	79	3224
6/2/2010 10:18	16.3	3235	32.695	382	6460	10890	641	88	12	79	3238
6/2/2010 10:19	11.9	3314	32.569	382	6460	10890	641	88	12	79	3379
6/2/2010 10:20	13.2	3382	32.444	382	6460	10890	641	88	12	79	3320
6/2/2010 10:21	14.5	3343	32.318	382	6460	10890	641	88	12	79	3261
6/2/2010 10:22	15.7	3273	32.192	382	6460	10890	641	88	12	79	3202
6/2/2010 10:23	20.9	3131	32.066	382	6460	10890	641	88	12	79	3006

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 10:24	18.6	3091	31.940	382	6460	10890	641	88	12	79	3072
6/2/2010 10:25	11.9	3347	31.828	382	6460	10890	641	88	12	79	3298
6/2/2010 10:26	12.0	3409	31.865	382	6460	10890	641	88	12	79	3300
6/2/2010 10:27	15.3	3358	31.902	382	6460	10890	641	88	12	79	3189
6/2/2010 10:28	15.3	3304	31.938	382	6460	10890	641	88	12	79	3193
6/2/2010 10:29	15.4	3139	31.975	382	6460	10890	641	87	12	79	3196
6/2/2010 10:30	15.5	3209	32.012	382	6460	10890	641	88	12	79	3198
6/2/2010 10:31	17.4	3241	32.049	382	6460	10890	641	89	12	79	3133
6/2/2010 10:32	11.4	3281	32.086	382	6460	10890	641	90	12	79	3351
6/2/2010 10:33	18.4	3245	32.123	382	6460	10890	641	91	12	79	3106
6/2/2010 10:34	17.7	3246	32.160	382	6460	10890	641	89	12	79	3138
6/2/2010 10:35	17.0	3247	32.196	382	6460	10890	641	88	12	79	3171
6/2/2010 10:36	16.3	3228	32.233	382	6460	10890	641	87	12	79	3203
6/2/2010 10:37	15.6	3250	32.270	382	6460	10890	641	87	12	79	3233
6/2/2010 10:38	18.1	3207	32.307	382	6460	10890	641	87	12	79	3146
6/2/2010 10:39	17.5	3175	32.344	382	6460	10890	641	88	12	79	3174
6/2/2010 10:40	16.8	3143	32.381	382	6460	10890	641	88	12	79	3203
6/2/2010 10:41	16.2	3266	32.418	382	6460	10890	641	88	12	79	3231
6/2/2010 10:42	15.9	3259	32.454	382	6460	10890	641	88	13	79	3246
6/2/2010 10:43	15.9	3252	32.491	382	6460	10890	641	89	13	79	3250
6/2/2010 10:44	15.9	3238	32.528	382	6460	10890	641	89	13	79	3255
6/2/2010 10:45	15.9	3204	32.565	382	6460	10890	641	89	13	79	3260
6/2/2010 10:46	15.9	3322	32.602	382	6460	10890	641	90	13	79	3263
6/2/2010 10:47	15.9	3193	32.639	382	6460	10890	641	90	13	79	3269

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 10:48	15.9	3182	32.676	382	6460	10890	641	89	13	79	3275
6/2/2010 10:49	15.9	3344	32.713	382	6460	10890	641	89	13	79	3280
6/2/2010 10:50	15.9	3281	32.749	382	6460	10890	641	89	13	79	3286
6/2/2010 10:51	15.9	3217	32.745	382	6460	10890	641	89	13	79	3286
6/2/2010 10:52	15.9	3177	32.737	382	6460	10890	641	89	13	79	3287
6/2/2010 10:53	15.9	3205	32.729	383	6460	10890	641	89	13	79	3285
6/2/2010 10:54	15.9	3324	32.720	385	6460	10890	641	89	13	79	3280
6/2/2010 10:55	15.9	3283	32.712	387	6460	10890	642	89	13	79	3275
6/2/2010 10:56	15.9	3259	32.704	389	6460	10890	642	90	13	79	3271
6/2/2010 10:57	15.9	3808	32.696	388	6460	10890	642	93	18	70	3723
6/2/2010 10:58	15.9	3231	32.687	388	6460	10890	642	94	13	78	3298
6/2/2010 10:59	16.0	3244	32.679	387	6460	10890	642	94	13	78	3283
6/2/2010 11:00	13.8	3299	32.671	387	6460	10890	642	93	13	79	3347
6/2/2010 11:01	20.4	3334	32.663	386	6460	10890	642	92	13	79	3098
6/2/2010 11:02	21.6	3104	34.575	386	6460	10890	642	91	12	79	3264
6/2/2010 11:03	17.1	3103	33.692	385	6460	10890	642	90	12	79	3311
6/2/2010 11:04	16.1	3085	32.810	385	6460	10890	642	89	12	79	3248
6/2/2010 11:05	15.1	3230	32.617	384	6460	10890	642	89	12	79	3263
6/2/2010 11:06	8.7	3459	32.655	384	6460	10890	642	90	12	79	3495
6/2/2010 11:07	14.2	3298	32.693	384	6460	10890	642	90	12	79	3306
6/2/2010 11:08	15.6	3309	32.731	383	6460	10890	642	90	12	79	3260
6/2/2010 11:09	15.4	3238	32.769	383	6460	10890	642	92	12	79	3269
6/2/2010 11:10	15.2	3280	32.807	382	6460	10890	642	94	12	79	3278
6/2/2010 11:11	15.0	3202	32.844	382	6460	10890	642	93	12	79	3292

Start Time 6/2/2010 8:00
End Time 6/2/2010 11:27

Boiler CPT Test 1 Run 1 Coal Data

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
959	*3251*	*33*	*382*	*6460*	*10890*	*640*	*87*	*12*	*79*	*3266*

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 11:12	14.9	3154	32.882	381	6460	10890	642	92	12	79	3306
6/2/2010 11:13	14.7	3199	32.920	381	6460	10890	642	92	12	79	3319
6/2/2010 11:14	14.5	3244	32.958	380	6460	10890	642	92	12	79	3331
6/2/2010 11:15	18.5	3182	32.996	380	6460	10890	642	95	12	79	3186
6/2/2010 11:16	17.3	3122	33.034	380	6460	10890	642	97	12	80	3231
6/2/2010 11:17	16.0	3148	33.072	381	6460	10890	642	98	12	80	3278
6/2/2010 11:18	14.8	3316	33.110	381	6460	10890	642	95	12	79	3331
6/2/2010 11:19	14.3	3236	33.147	381	6460	10890	642	93	12	79	3358
6/2/2010 11:20	14.4	3264	33.185	381	6460	10890	642	91	12	79	3362
6/2/2010 11:21	14.4	3446	33.223	381	6460	10890	642	91	12	79	3364
6/2/2010 11:22	14.5	3263	33.261	382	6460	10890	642	91	12	79	3367
6/2/2010 11:23	24.5	2983	33.299	382	6460	10890	642	91	12	79	3014
6/2/2010 11:24	18.5	3069	33.337	382	6460	10890	642	91	12	79	3231
6/2/2010 11:25	16.5	3114	33.375	382	6460	10890	642	91	12	79	3309
6/2/2010 11:26	15.0	3274	33.412	383	6460	10890	642	91	12	79	3367
6/2/2010 11:27	15.2	3291	33.450	383	6460	10890	642	93	12	79	3362

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 12:00	17.2	3157	33.082	390	6482	11090	643	94	12	80	3151
6/2/2010 12:01	14.5	3233	33.104	391	6482	11090	643	94	12	80	3248
6/2/2010 12:02	14.6	3313	33.125	391	6482	11090	643	95	12	80	3248
6/2/2010 12:03	14.7	3331	33.146	391	6482	11090	643	95	12	80	3248
6/2/2010 12:04	14.8	3294	33.168	391	6482	11090	643	96	12	80	3247
6/2/2010 12:05	17.0	3249	33.189	391	6482	11090	643	96	12	80	3170
6/2/2010 12:06	16.9	3193	33.211	391	6482	11090	643	96	12	80	3179
6/2/2010 12:07	16.8	3267	33.232	391	6482	11090	644	96	12	80	3188
6/2/2010 12:08	16.6	3152	33.253	391	6482	11090	644	95	12	80	3197
6/2/2010 12:09	16.5	3268	33.275	391	6482	11090	644	95	12	80	3206
6/2/2010 12:10	16.3	3229	33.296	390	6482	11090	644	95	12	80	3214
6/2/2010 12:11	16.2	3128	33.318	390	6482	11090	644	95	12	80	3223
6/2/2010 12:12	16.0	3184	33.339	390	6482	11090	644	95	12	79	3231
6/2/2010 12:13	15.9	3293	33.360	390	6482	11090	644	95	12	79	3239
6/2/2010 12:14	15.7	3139	33.382	390	6482	11090	644	95	12	79	3248
6/2/2010 12:15	15.6	3296	33.403	390	6482	11090	644	95	12	79	3256
6/2/2010 12:16	15.4	3267	33.424	390	6482	11090	644	95	12	79	3264
6/2/2010 12:17	15.3	3219	33.446	390	6482	11090	644	95	12	79	3272
6/2/2010 12:18	15.1	3223	33.467	390	6482	11090	644	95	12	79	3281
6/2/2010 12:19	15.0	3178	33.489	390	6482	11090	644	95	12	79	3289
6/2/2010 12:20	14.8	3191	33.510	390	6482	11090	644	95	12	79	3297
6/2/2010 12:21	14.7	3334	33.531	390	6482	11090	644	95	12	79	3307
6/2/2010 12:22	17.2	3184	33.553	390	6482	11090	644	94	12	79	3224
6/2/2010 12:23	16.6	3265	33.574	390	6482	11090	644	93	12	79	3250
6/2/2010 12:24	16.0	3215	33.596	390	6482	11090	644	92	12	79	3276
6/2/2010 12:25	15.4	3214	33.617	390	6482	11090	644	93	12	79	3300
6/2/2010 12:26	14.8	3213	33.638	390	6482	11090	644	93	12	79	3324
6/2/2010 12:27	20.2	3141	33.656	390	6482	11090	644	93	12	79	3138
6/2/2010 12:28	17.7	3188	33.668	390	6482	11090	644	93	12	79	3225
6/2/2010 12:29	14.9	3306	33.681	390	6482	11090	644	93	12	79	3327

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 12:30	12.1	3362	33.693	390	6482	11090	644	93	12	79	3428
6/2/2010 12:31	16.0	3227	33.705	390	6482	11090	644	93	12	79	3292
6/2/2010 12:32	16.7	3100	33.718	390	6482	11090	644	93	12	79	3270
6/2/2010 12:33	16.1	3269	33.730	390	6482	11090	644	93	12	79	3292
6/2/2010 12:34	16.7	3114	33.742	390	6482	11090	644	93	12	79	3275
6/2/2010 12:35	16.6	3214	33.755	390	6482	11090	644	93	12	79	3281
6/2/2010 12:36	16.5	3270	33.767	390	6482	11090	644	93	12	79	3286
6/2/2010 12:37	16.4	3240	33.780	390	6482	11090	644	93	12	79	3292
6/2/2010 12:38	16.3	3198	33.792	390	6482	11090	644	93	12	79	3297
6/2/2010 12:39	16.2	3236	33.804	390	6482	11090	644	94	12	79	3300
6/2/2010 12:40	16.1	3276	33.817	390	6482	11090	644	95	12	79	3303
6/2/2010 12:41	20.2	3092	33.829	390	6482	11090	644	97	12	79	3161
6/2/2010 12:42	20.5	3112	33.846	390	6482	11090	644	99	12	79	3149
6/2/2010 12:43	16.4	3060	33.867	390	6482	11090	644	100	12	79	3292
6/2/2010 12:44	14.6	3216	33.888	390	6482	11090	644	100	12	79	3360
6/2/2010 12:45	14.4	3260	33.910	390	6482	11090	644	100	12	79	3371
6/2/2010 12:46	13.0	3318	33.931	390	6482	11090	644	99	12	79	3425
6/2/2010 12:47	15.2	3291	33.952	390	6482	11090	644	99	12	79	3349
6/2/2010 12:48	15.2	3314	33.973	390	6482	11090	644	99	13	79	3353
6/2/2010 12:49	15.2	3194	33.994	390	6482	11090	644	98	13	79	3357
6/2/2010 12:50	15.2	3262	34.015	390	6482	11090	644	98	13	79	3360
6/2/2010 12:51	15.2	3254	34.034	390	6482	11090	644	99	13	79	3363
6/2/2010 12:52	15.2	3144	34.029	390	6482	11090	644	99	13	79	3363
6/2/2010 12:53	15.2	3136	34.023	390	6482	11090	644	99	13	79	3363
6/2/2010 12:54	15.2	3172	34.018	390	6482	11090	644	99	13	79	3363
6/2/2010 12:55	15.2	3110	34.013	390	6482	11090	644	99	13	79	3363
6/2/2010 12:56	15.2	3182	34.007	390	6482	11090	644	99	13	79	3363
6/2/2010 12:57	15.2	3772	34.002	390	6482	11090	644	99	18	70	3881
6/2/2010 12:58	15.2	3195	33.997	390	6482	11090	644	100	12	80	3322
6/2/2010 12:59	15.2	3287	33.992	390	6482	11090	644	100	12	80	3321

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 13:00	15.2	3215	33.986	390	6482	11090	644	101	12	80	3320
6/2/2010 13:01	15.2	3213	33.981	390	6482	11090	644	101	12	80	3319
6/2/2010 13:02	15.2	3264	33.976	390	6482	11090	644	102	12	80	3318
6/2/2010 13:03	15.2	3161	33.971	390	6482	11090	644	100	12	80	3322
6/2/2010 13:04	15.2	3275	33.965	390	6482	11090	644	96	12	80	3329
6/2/2010 13:05	15.2	3306	33.960	390	6482	11090	644	96	12	80	3329
6/2/2010 13:06	15.2	3329	33.955	390	6482	11090	644	96	12	80	3328
6/2/2010 13:07	21.1	3078	33.949	390	6482	11090	644	96	12	80	3122
6/2/2010 13:08	17.1	3129	33.944	390	6482	11090	644	97	12	80	3261
6/2/2010 13:09	16.9	3170	33.939	390	6482	11090	644	97	12	80	3267
6/2/2010 13:10	16.7	3183	33.934	390	6482	11090	644	97	12	80	3272
6/2/2010 13:11	16.6	3232	33.928	390	6482	11090	644	97	12	80	3278
6/2/2010 13:12	16.4	3166	33.923	390	6482	11090	644	97	12	80	3284
6/2/2010 13:13	16.2	3263	33.918	390	6482	11090	644	98	12	80	3290
6/2/2010 13:14	16.0	3372	33.913	390	6482	11090	644	98	12	80	3295
6/2/2010 13:15	15.9	3235	33.907	390	6482	11090	644	98	12	80	3301
6/2/2010 13:16	15.7	3298	33.902	390	6482	11090	644	99	12	80	3305
6/2/2010 13:17	15.7	3266	33.897	390	6482	11090	644	101	12	80	3301
6/2/2010 13:18	15.7	3237	33.891	390	6482	11090	644	103	12	80	3297
6/2/2010 13:19	15.8	3242	33.886	390	6482	11090	644	101	12	80	3300
6/2/2010 13:20	15.8	3248	33.881	390	6482	11090	644	97	12	79	3305
6/2/2010 13:21	15.8	3254	33.876	390	6482	11090	644	97	12	79	3304
6/2/2010 13:22	15.8	3214	33.870	390	6482	11090	644	97	12	79	3303
6/2/2010 13:23	15.9	3282	33.865	390	6482	11090	644	97	12	79	3302
6/2/2010 13:24	15.9	3228	33.860	390	6482	11090	644	97	12	79	3302
6/2/2010 13:25	15.9	3163	33.870	390	6482	11090	644	97	12	79	3302
6/2/2010 13:26	15.9	3202	33.887	390	6482	11090	644	100	12	79	3300
6/2/2010 13:27	16.5	3239	33.903	390	6482	11090	644	102	12	80	3278
6/2/2010 13:28	17.5	3235	33.919	390	6482	11090	644	103	12	80	3244
6/2/2010 13:29	17.2	3174	33.935	390	6482	11090	644	102	12	80	3258

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 13:30	16.9	3163	33.951	390	6482	11090	644	102	12	79	3271
6/2/2010 13:31	13.5	3251	33.967	390	6482	11090	644	102	12	79	3393
6/2/2010 13:32	14.5	3340	33.983	390	6482	11090	644	102	12	79	3358
6/2/2010 13:33	18.9	3188	33.999	390	6482	11090	644	103	12	79	3208
6/2/2010 13:34	20.3	3112	33.917	390	6482	11090	644	100	12	79	3154
6/2/2010 13:35	18.5	3156	33.827	389	6482	11090	644	101	12	79	3207
6/2/2010 13:36	16.7	3201	33.736	389	6482	11090	644	101	12	79	3260
6/2/2010 13:37	15.6	3246	33.646	389	6482	11090	644	101	12	79	3288
6/2/2010 13:38	15.6	3267	33.555	389	6482	11090	644	100	12	79	3280
6/2/2010 13:39	15.6	3198	33.465	389	6482	11090	644	99	12	79	3273
6/2/2010 13:40	15.6	3242	33.374	389	6482	11090	644	95	12	79	3269
6/2/2010 13:41	15.6	3322	33.284	389	6482	11090	644	95	12	79	3259
6/2/2010 13:42	15.6	3276	33.193	389	6482	11090	644	99	12	79	3242
6/2/2010 13:43	15.6	3218	33.103	389	6482	11090	644	100	12	79	3231
6/2/2010 13:44	15.6	3151	33.012	389	6482	11090	644	101	12	79	3219
6/2/2010 13:45	15.6	3101	32.922	389	6482	11090	644	99	12	79	3214
6/2/2010 13:46	15.6	3196	32.909	389	6482	11090	644	98	12	79	3215
6/2/2010 13:47	15.6	3317	32.922	389	6482	11090	644	98	12	79	3216
6/2/2010 13:48	15.6	3243	32.936	389	6482	11090	644	98	12	79	3218
6/2/2010 13:49	15.6	3209	32.946	389	6482	11090	644	99	12	79	3219
6/2/2010 13:50	15.6	3185	32.918	389	6482	11090	644	99	12	79	3216
6/2/2010 13:51	15.6	3195	32.891	389	6482	11090	644	99	12	79	3213
6/2/2010 13:52	15.6	3202	32.864	389	6482	11090	644	99	12	79	3211
6/2/2010 13:53	15.6	3155	32.837	389	6482	11090	644	99	12	79	3209
6/2/2010 13:54	15.6	3222	32.810	389	6482	11090	644	98	12	79	3208
6/2/2010 13:55	15.6	3179	32.783	389	6482	11090	644	98	12	79	3206
6/2/2010 13:56	15.6	3136	32.756	389	6482	11090	644	99	13	79	3202
6/2/2010 13:57	15.6	3657	32.729	389	6482	11090	644	100	17	71	3598
6/2/2010 13:58	15.6	3272	32.701	389	6482	11090	644	98	13	79	3208
6/2/2010 13:59	15.6	3394	32.674	389	6482	11090	644	99	13	79	3193

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 14:00	15.6	3213	32.647	389	6482	11090	644	100	12	79	3179
6/2/2010 14:01	15.6	3272	32.620	389	6482	11090	644	100	12	79	3167
6/2/2010 14:02	15.6	3224	32.613	389	6482	11090	643	99	12	80	3158
6/2/2010 14:03	15.6	3184	32.613	389	6482	11090	643	99	12	80	3149
6/2/2010 14:04	15.6	3189	32.613	389	6482	11090	643	99	12	80	3141
6/2/2010 14:05	15.6	3385	32.721	389	6482	11090	643	99	12	80	3145
6/2/2010 14:06	20.1	3129	32.907	389	6482	11090	643	99	12	80	3006
6/2/2010 14:07	17.9	3125	33.092	389	6482	11090	643	98	12	80	3105
6/2/2010 14:08	15.9	3197	33.277	389	6482	11090	643	98	12	80	3198
6/2/2010 14:09	15.9	3252	33.462	389	6482	11090	643	98	12	80	3221
6/2/2010 14:10	15.9	3220	33.458	389	6482	11090	643	99	12	80	3220
6/2/2010 14:11	15.8	3194	33.436	389	6482	11090	643	100	12	80	3218
6/2/2010 14:12	15.8	3260	33.415	389	6482	11090	643	99	12	80	3219
6/2/2010 14:13	15.8	3326	33.393	389	6482	11090	643	98	12	80	3221
6/2/2010 14:14	15.7	3289	33.372	389	6482	11090	643	98	12	80	3220
6/2/2010 14:15	15.7	3180	33.350	389	6482	11090	643	99	12	80	3219
6/2/2010 14:16	15.7	3299	33.329	389	6482	11090	643	99	12	80	3219
6/2/2010 14:17	15.6	3195	33.307	389	6482	11090	643	99	12	80	3218
6/2/2010 14:18	15.6	3100	33.286	389	6482	11090	643	99	12	80	3217
6/2/2010 14:19	15.6	3186	33.264	389	6482	11090	643	99	12	80	3217
6/2/2010 14:20	15.5	3224	33.243	389	6482	11090	643	98	12	80	3217
6/2/2010 14:21	15.5	3176	33.221	389	6482	11090	643	97	12	80	3219
6/2/2010 14:22	15.5	3253	33.200	389	6482	11090	643	97	12	80	3218
6/2/2010 14:23	15.5	3185	33.178	389	6482	11090	643	97	12	80	3219
6/2/2010 14:24	15.4	3164	33.157	389	6482	11090	643	96	12	80	3220
6/2/2010 14:25	15.4	3216	33.135	389	6482	11090	643	97	12	80	3217
6/2/2010 14:26	15.4	3215	33.114	389	6482	11090	643	99	12	80	3213
6/2/2010 14:27	15.3	3201	33.092	389	6482	11090	643	99	12	80	3213
6/2/2010 14:28	15.3	3303	33.103	389	6482	11090	643	98	12	80	3217
6/2/2010 14:29	14.2	3272	33.124	389	6482	11090	643	98	12	80	3259

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 14:30	18.1	3094	33.145	389	6482	11090	643	98	12	80	3128
6/2/2010 14:31	17.9	3265	33.166	389	6482	11090	643	98	12	80	3137
6/2/2010 14:32	17.7	3140	33.187	389	6482	11090	643	98	12	80	3145
6/2/2010 14:33	17.6	3182	33.208	389	6482	11090	643	98	12	80	3154
6/2/2010 14:34	17.4	3217	33.228	389	6482	11090	643	98	12	80	3164
6/2/2010 14:35	17.2	3204	33.249	389	6482	11090	643	98	12	80	3173
6/2/2010 14:36	17.1	3121	33.270	389	6482	11090	643	98	12	80	3182
6/2/2010 14:37	16.9	3230	33.291	389	6482	11090	643	98	12	80	3191
6/2/2010 14:38	16.8	3240	33.312	389	6482	11090	643	99	12	80	3198
6/2/2010 14:39	16.6	3206	33.333	389	6482	11090	643	99	12	80	3207
6/2/2010 14:40	16.4	3254	33.354	389	6482	11090	643	97	12	80	3219
6/2/2010 14:41	16.3	3220	33.375	389	6482	11090	643	96	12	79	3229
6/2/2010 14:42	16.1	3105	33.396	389	6482	11090	643	97	12	80	3237
6/2/2010 14:43	15.9	3257	33.417	389	6482	11090	643	98	12	80	3244
6/2/2010 14:44	15.8	3216	33.438	389	6482	11090	643	98	12	80	3253
6/2/2010 14:45	13.0	3287	33.062	389	6482	11090	643	98	12	79	3307
6/2/2010 14:46	17.4	3263	32.763	389	6482	11090	643	98	12	79	3123
6/2/2010 14:47	17.4	3238	32.758	389	6482	11090	643	97	12	79	3124
6/2/2010 14:48	17.3	3214	32.752	389	6482	11090	643	97	12	79	3126
6/2/2010 14:49	17.3	3280	32.747	389	6482	11090	643	97	12	79	3128
6/2/2010 14:50	17.3	3142	32.742	389	6482	11090	643	96	12	79	3130
6/2/2010 14:51	17.3	3153	32.737	389	6482	11090	643	96	12	79	3131
6/2/2010 14:52	17.3	3349	32.732	389	6482	11090	643	96	12	79	3133
6/2/2010 14:53	17.2	3241	32.727	389	6482	11090	643	96	12	79	3134
6/2/2010 14:54	17.2	3231	32.722	389	6482	11090	643	96	12	79	3135
6/2/2010 14:55	17.2	3142	32.717	389	6482	11090	643	96	12	79	3137
6/2/2010 14:56	17.2	3200	32.712	389	6482	11090	643	96	12	79	3138
6/2/2010 14:57	17.1	3502	32.707	389	6482	11090	643	96	17	72	3512
6/2/2010 14:58	17.1	3296	32.702	389	6482	11090	643	96	12	79	3127
6/2/2010 14:59	17.1	3197	32.697	388	6482	11090	643	96	12	80	3114

Start Time 6/2/2010 12:00
End Time 6/2/2010 14:59

Boiler CPT Test 1 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR

Boiler CPT Test 1 Run 2 Coal Data Averages

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
965	*3227*	*33*	*390*	*6482*	*11090*	*644*	*98*	*12*	*79*	*3249*

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 15:35	16.3	3266	32.516	388	6622	11070	643	96	12	79	3129
6/2/2010 15:36	16.3	3254	32.511	388	6622	11070	643	96	12	79	3130
6/2/2010 15:37	16.2	3215	32.506	388	6622	11070	643	96	12	79	3131
6/2/2010 15:38	16.2	3285	32.501	388	6622	11070	643	96	12	79	3131
6/2/2010 15:39	16.2	3136	32.495	388	6622	11070	643	96	12	79	3132
6/2/2010 15:40	16.2	3147	32.490	388	6622	11070	643	96	12	79	3132
6/2/2010 15:41	16.1	3252	32.485	388	6622	11070	643	96	12	79	3133
6/2/2010 15:42	16.1	3287	32.480	388	6622	11070	643	96	12	79	3133
6/2/2010 15:43	16.1	3058	32.472	388	6622	11070	643	96	12	79	3133
6/2/2010 15:44	16.1	3179	32.453	388	6622	11070	643	96	12	79	3132
6/2/2010 15:45	16.1	3217	32.434	388	6622	11070	643	97	12	79	3131
6/2/2010 15:46	16.0	3225	32.416	388	6622	11070	643	97	12	79	3130
6/2/2010 15:47	9.4	3390	32.397	388	6622	11070	643	97	12	79	3366
6/2/2010 15:48	17.0	3256	32.378	388	6622	11070	643	97	12	79	3091
6/2/2010 15:49	15.9	3327	32.360	388	6622	11070	643	97	12	79	3128
6/2/2010 15:50	17.9	3208	32.341	388	6622	11070	643	97	12	79	3054
6/2/2010 15:51	17.4	3175	32.322	388	6622	11070	643	97	12	79	3072
6/2/2010 15:52	16.8	3149	32.304	388	6622	11070	643	97	12	79	3089
6/2/2010 15:53	16.3	3127	32.285	388	6622	11070	643	97	12	79	3106
6/2/2010 15:54	15.8	3103	32.280	388	6622	11070	643	97	12	79	3126
6/2/2010 15:55	15.1	3351	32.296	388	6622	11070	643	98	12	79	3152
6/2/2010 15:56	14.3	3417	32.312	388	6622	11070	643	98	12	79	3182
6/2/2010 15:57	16.3	3486	32.327	388	6622	11070	643	98	17	71	3557
6/2/2010 15:58	13.9	3358	32.343	388	6622	11070	643	98	12	80	3190
6/2/2010 15:59	14.2	3177	32.359	388	6622	11070	643	100	12	80	3146
6/2/2010 16:00	14.4	3213	32.374	388	6622	11070	643	98	12	80	3141
6/2/2010 16:01	14.7	3291	32.390	388	6622	11070	643	97	12	80	3135
6/2/2010 16:02	15.0	3167	32.406	388	6622	11070	643	97	12	80	3128
6/2/2010 16:03	15.3	3120	32.421	388	6622	11070	643	97	12	80	3121
6/2/2010 16:04	19.9	3026	32.437	388	6622	11070	643	97	12	80	2961

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 16:05	17.3	3115	32.453	388	6622	11070	643	97	12	80	3054
6/2/2010 16:06	15.4	3146	32.477	388	6622	11070	643	96	12	80	3127
6/2/2010 16:07	15.5	3184	32.529	388	6622	11070	643	96	12	80	3132
6/2/2010 16:08	15.5	3270	32.581	388	6622	11070	643	96	12	80	3138
6/2/2010 16:09	15.6	3276	32.633	388	6622	11070	643	96	12	80	3144
6/2/2010 16:10	15.6	3270	32.684	388	6622	11070	643	96	12	80	3149
6/2/2010 16:11	15.7	3214	32.736	388	6622	11070	643	96	12	80	3155
6/2/2010 16:12	15.7	3158	32.788	388	6622	11070	643	96	12	80	3160
6/2/2010 16:13	15.8	3237	32.840	388	6622	11070	643	96	12	80	3166
6/2/2010 16:14	15.8	3165	32.891	388	6622	11070	643	96	12	80	3171
6/2/2010 16:15	15.9	3252	32.943	388	6622	11070	643	96	12	80	3176
6/2/2010 16:16	15.9	3205	32.995	388	6622	11070	643	96	12	80	3182
6/2/2010 16:17	15.9	3252	33.047	388	6622	11070	643	96	12	80	3187
6/2/2010 16:18	19.9	3038	33.098	388	6622	11070	643	96	12	80	3053
6/2/2010 16:19	18.7	3096	33.150	388	6622	11070	643	96	12	80	3101
6/2/2010 16:20	17.6	3117	33.202	388	6622	11070	643	96	12	80	3150
6/2/2010 16:21	16.4	3169	33.254	388	6622	11070	643	97	12	80	3199
6/2/2010 16:22	15.6	3105	33.305	388	6622	11070	643	97	12	80	3237
6/2/2010 16:23	15.7	3192	33.357	387	6622	11070	643	97	12	80	3240
6/2/2010 16:24	15.8	3348	33.354	387	6622	11070	643	96	12	80	3237
6/2/2010 16:25	12.1	3289	33.332	387	6622	11070	643	96	12	80	3370
6/2/2010 16:26	14.6	3335	33.309	387	6622	11070	643	96	12	79	3278
6/2/2010 16:27	15.7	3273	33.287	387	6622	11070	643	96	12	79	3238
6/2/2010 16:28	15.7	3249	33.265	387	6622	11070	643	96	12	79	3236
6/2/2010 16:29	15.8	3245	33.243	387	6622	11070	643	96	12	79	3233
6/2/2010 16:30	15.8	3203	33.221	387	6622	11070	643	96	12	79	3230
6/2/2010 16:31	15.9	3167	33.199	387	6622	11070	643	95	12	79	3228
6/2/2010 16:32	18.3	3214	33.177	387	6622	11070	643	95	12	79	3138
6/2/2010 16:33	17.2	3202	33.155	387	6622	11070	643	95	12	79	3178
6/2/2010 16:34	16.1	3232	33.133	387	6622	11070	643	95	12	79	3217

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 16:35	14.9	3244	33.101	387	6622	11070	643	95	12	79	3255
6/2/2010 16:36	14.0	3360	33.063	387	6622	11070	643	95	12	79	3286
6/2/2010 16:37	19.4	3133	33.026	387	6622	11070	643	95	12	79	3089
6/2/2010 16:38	20.8	3032	32.988	387	6622	11070	643	95	12	79	3035
6/2/2010 16:39	9.5	3227	32.965	387	6622	11070	643	95	12	79	3441
6/2/2010 16:40	16.3	3298	32.944	387	6622	11070	642	95	12	79	3196
6/2/2010 16:41	16.3	3341	33.009	387	6622	11070	642	95	12	79	3206
6/2/2010 16:42	16.2	3206	33.135	387	6622	11070	642	95	12	79	3223
6/2/2010 16:43	16.2	3211	33.260	387	6622	11070	642	95	12	79	3240
6/2/2010 16:44	16.2	3213	33.239	387	6622	11070	642	95	13	79	3240
6/2/2010 16:45	16.1	3210	33.011	387	6622	11070	642	95	13	79	3216
6/2/2010 16:46	16.1	3233	32.784	387	6622	11070	642	95	13	79	3193
6/2/2010 16:47	16.1	3196	32.557	387	6622	11070	642	95	13	79	3169
6/2/2010 16:48	16.0	3053	32.330	387	6622	11070	642	95	13	79	3146
6/2/2010 16:49	16.0	3250	32.302	387	6622	11070	642	95	13	79	3145
6/2/2010 16:50	16.0	3262	32.292	387	6622	11070	642	95	13	79	3147
6/2/2010 16:51	15.9	3298	32.283	387	6622	11070	642	95	13	79	3148
6/2/2010 16:52	15.9	3330	32.273	387	6622	11070	642	95	13	79	3150
6/2/2010 16:53	15.8	3221	32.264	387	6622	11070	642	95	13	79	3151
6/2/2010 16:54	15.8	3205	32.254	387	6622	11070	642	95	13	79	3152
6/2/2010 16:55	15.8	3241	32.244	387	6622	11070	642	95	13	79	3153
6/2/2010 16:56	15.8	3140	32.235	387	6622	11070	642	95	13	79	3153
6/2/2010 16:57	15.8	3495	32.225	387	6622	11070	642	95	17	71	3538
6/2/2010 16:58	15.8	3273	32.216	387	6622	11070	642	95	12	79	3110
6/2/2010 16:59	15.8	3221	32.206	387	6622	11070	642	95	12	80	3108
6/2/2010 17:00	15.8	3262	32.197	387	6622	11070	642	95	12	80	3107
6/2/2010 17:01	15.8	3231	32.187	387	6622	11070	642	95	12	80	3106
6/2/2010 17:02	15.8	3208	32.177	387	6622	11070	642	95	12	80	3104
6/2/2010 17:03	15.8	3331	32.168	387	6622	11070	642	95	12	80	3103
6/2/2010 17:04	15.8	3161	32.158	387	6622	11070	642	95	12	80	3102

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 17:05	15.8	3155	32.149	387	6622	11070	642	95	12	80	3101
6/2/2010 17:06	15.8	3209	32.139	387	6622	11070	642	95	12	80	3099
6/2/2010 17:07	15.8	3243	32.130	387	6622	11070	642	95	12	80	3098
6/2/2010 17:08	15.8	3197	32.120	387	6622	11070	642	95	12	80	3097
6/2/2010 17:09	20.6	3075	32.111	387	6622	11070	642	95	12	80	2923
6/2/2010 17:10	18.8	3007	32.101	387	6622	11070	642	95	12	80	2989
6/2/2010 17:11	16.9	3155	32.091	387	6622	11070	642	95	12	80	3055
6/2/2010 17:12	12.5	3337	32.082	387	6622	11070	642	95	12	80	3213
6/2/2010 17:13	13.9	3298	32.503	387	6622	11070	642	95	12	80	3210
6/2/2010 17:14	15.2	3242	32.963	387	6622	11070	642	95	12	80	3215
6/2/2010 17:15	20.6	3186	33.423	387	6622	11070	642	95	12	80	3075
6/2/2010 17:16	18.3	3049	33.560	387	6622	11070	642	95	12	80	3172
6/2/2010 17:17	16.9	3145	33.466	387	6622	11070	642	95	12	80	3212
6/2/2010 17:18	16.6	3350	33.372	387	6622	11070	642	94	12	80	3211
6/2/2010 17:19	16.4	3177	33.279	387	6622	11070	642	94	12	80	3209
6/2/2010 17:20	16.1	3122	33.185	387	6622	11070	642	94	12	80	3208
6/2/2010 17:21	11.3	3476	33.113	387	6622	11070	642	94	12	80	3374
6/2/2010 17:22	18.6	3193	33.280	387	6622	11070	642	94	12	80	3130
6/2/2010 17:23	17.7	3187	33.447	387	6622	11070	642	94	12	80	3182
6/2/2010 17:24	16.7	3224	33.615	387	6622	11070	642	94	12	80	3234
6/2/2010 17:25	16.6	3253	33.782	387	6622	11070	642	94	12	80	3256
6/2/2010 17:26	16.6	3197	33.949	387	6622	11070	642	94	12	80	3276
6/2/2010 17:27	16.6	3062	34.116	387	6622	11070	642	94	12	80	3296
6/2/2010 17:28	16.6	3201	34.283	387	6622	11070	642	94	12	80	3316
6/2/2010 17:29	16.6	3400	34.140	387	6622	11070	642	94	12	80	3300
6/2/2010 17:30	16.5	3220	33.562	387	6622	11070	642	94	12	80	3235
6/2/2010 17:31	16.5	3269	32.984	387	6622	11070	642	93	12	80	3170
6/2/2010 17:32	16.5	3330	32.406	387	6622	11070	642	93	12	80	3105
6/2/2010 17:33	16.5	3085	32.074	387	6622	11070	642	93	12	80	3068
6/2/2010 17:34	16.4	3181	32.086	387	6622	11070	642	93	12	80	3070

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 17:35	16.4	3308	32.098	387	6622	11070	642	93	12	80	3072
6/2/2010 17:36	16.4	3208	32.110	387	6622	11070	642	93	12	80	3074
6/2/2010 17:37	16.4	3232	32.122	387	6622	11070	642	93	12	80	3076
6/2/2010 17:38	16.3	3345	32.134	387	6622	11070	642	93	12	80	3079
6/2/2010 17:39	16.3	3192	32.147	387	6622	11070	642	93	12	80	3081
6/2/2010 17:40	16.3	3202	32.159	387	6622	11070	642	93	12	80	3083
6/2/2010 17:41	16.3	3230	32.171	387	6622	11070	642	93	12	80	3085
6/2/2010 17:42	16.3	3259	32.183	387	6622	11070	642	93	12	80	3087
6/2/2010 17:43	16.2	3205	32.195	387	6622	11070	642	93	12	80	3089
6/2/2010 17:44	16.2	3194	32.207	387	6622	11070	642	92	12	80	3092
6/2/2010 17:45	16.2	3206	32.219	387	6622	11070	642	92	12	80	3094
6/2/2010 17:46	16.2	3227	32.231	387	6622	11070	642	92	12	80	3096
6/2/2010 17:47	16.1	3256	32.243	387	6622	11070	642	93	12	80	3098
6/2/2010 17:48	16.1	3297	32.256	386	6622	11070	642	93	12	80	3099
6/2/2010 17:49	16.1	3294	32.268	386	6622	11070	642	93	12	80	3101
6/2/2010 17:50	16.1	3234	32.280	386	6622	11070	642	93	12	80	3103
6/2/2010 17:51	16.0	3246	32.292	386	6622	11070	642	93	12	80	3105
6/2/2010 17:52	16.0	3262	32.304	386	6622	11070	642	93	12	80	3107
6/2/2010 17:53	16.0	3254	32.316	386	6622	11070	642	93	12	80	3109
6/2/2010 17:54	16.0	3250	32.328	386	6622	11070	642	93	12	80	3111
6/2/2010 17:55	16.0	3256	32.340	386	6622	11070	642	93	12	80	3113
6/2/2010 17:56	15.9	3225	32.353	386	6622	11070	642	93	12	80	3115
6/2/2010 17:57	15.9	3604	32.365	386	6622	11070	642	93	17	71	3573
6/2/2010 17:58	15.9	3263	32.377	386	6622	11070	642	93	13	78	3202
6/2/2010 17:59	15.9	3268	32.389	386	6622	11070	642	93	13	78	3188
6/2/2010 18:00	15.8	3273	32.401	386	6622	11070	642	93	13	79	3174
6/2/2010 18:01	15.8	3198	32.413	386	6622	11070	642	93	12	79	3161
6/2/2010 18:02	15.8	3211	32.425	386	6622	11070	642	93	12	79	3148
6/2/2010 18:03	13.4	3299	32.437	386	6622	11070	642	94	12	80	3220
6/2/2010 18:04	13.5	3296	32.449	386	6622	11070	642	94	12	80	3202

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/2/2010 18:05	13.7	3292	32.462	386	6622	11070	642	94	12	80	3196
6/2/2010 18:06	13.8	3190	32.474	386	6622	11070	642	94	12	80	3190
6/2/2010 18:07	13.9	3127	32.486	386	6622	11070	642	94	12	80	3185
6/2/2010 18:08	14.1	3175	32.457	386	6622	11070	642	94	12	80	3175
6/2/2010 18:09	14.2	3131	32.415	386	6622	11070	642	94	12	80	3163
6/2/2010 18:10	14.3	3236	32.372	386	6622	11070	642	94	12	80	3151
6/2/2010 18:11	14.4	3309	32.330	386	6622	11070	642	94	12	80	3140
6/2/2010 18:12	14.6	3245	32.301	386	6622	11070	642	94	12	80	3130
6/2/2010 18:13	14.7	3202	32.310	386	6622	11070	642	94	11	80	3124
6/2/2010 18:14	14.8	3294	32.319	386	6622	11070	642	94	11	80	3118
6/2/2010 18:15	14.9	3217	32.328	386	6622	11070	642	94	11	80	3113
6/2/2010 18:16	15.1	3319	32.337	386	6622	11070	642	94	11	80	3107
6/2/2010 18:17	15.2	3197	32.346	386	6622	11070	642	94	11	81	3101
6/2/2010 18:18	15.3	3205	32.355	386	6622	11070	642	94	11	81	3096
6/2/2010 18:19	15.4	3280	32.365	386	6622	11070	642	94	11	81	3090
6/2/2010 18:20	15.6	3191	32.374	386	6622	11070	642	94	11	81	3084
6/2/2010 18:21	15.7	3226	32.383	386	6622	11070	642	94	11	81	3079
6/2/2010 18:22	15.7	3187	32.392	386	6622	11070	642	94	11	81	3079
6/2/2010 18:23	15.1	3205	32.401	386	6622	11070	642	94	11	81	3098
6/2/2010 18:24	14.5	3224	32.410	386	6622	11070	642	94	11	81	3118
6/2/2010 18:25	22.0	3041	32.419	386	6622	11070	642	94	11	81	2849
6/2/2010 18:26	18.5	3140	32.428	386	6622	11070	642	94	11	81	2974
6/2/2010 18:27	15.8	3313	32.438	386	6622	11070	642	94	11	81	3068
6/2/2010 18:28	15.8	3244	32.447	386	6622	11070	642	94	11	81	3067
6/2/2010 18:29	15.8	3314	32.456	386	6622	11070	642	94	11	81	3066
6/2/2010 18:30	15.9	3316	32.465	386	6622	11070	642	94	11	81	3064
6/2/2010 18:31	15.9	3253	32.474	386	6622	11070	642	94	11	81	3063
6/2/2010 18:32	15.9	3233	32.483	386	6622	11070	642	94	11	81	3062
6/2/2010 18:33	15.9	3317	32.492	386	6622	11070	642	94	11	81	3061
6/2/2010 18:34	15.9	3193	32.501	386	6622	11070	642	94	11	81	3059

Start Time 6/2/2010 15:35
End Time 6/2/2010 18:39

Boiler CPT Test 1 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	**LB/MIN**	**LB/HR**	**KPPH**	**DEG F**	**BTU/LB**	**BTU/LB**	**DEG F**	**DEG F**	**%**	**%**	**LB/HR**
6/2/2010 18:35	15.9	3232	32.511	386	6622	11070	642	94	11	81	3058
6/2/2010 18:36	15.9	3177	32.520	386	6622	11070	642	94	11	81	3057
6/2/2010 18:37	15.9	3177	32.529	386	6622	11070	642	94	11	81	3056
6/2/2010 18:38	15.9	3177	32.538	386	6622	11070	642	94	11	81	3055
6/2/2010 18:39	16.0	3166	32.547	386	6622	11070	642	94	11	82	3053

Boiler CPT Test 1 Run 3 Coal Data Averages

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	O2	Boiler Efficiency	Coal Feed Rate
LB/MIN	**LB/HR**	**KPPH**	**DEG F**	**BTU/LB**	**BTU/LB**	**DEG F**	**DEG F**	**%**	**%**	**LB/HR**
956	*3227*	*32.608*	*387*	*6622*	*11070*	*642*	*95*	*12*	*80*	*3148*

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 10:04	42.0	4245	50.321	381	6254	10630	718	82	9	80	4483
6/3/2010 10:05	42.0	4325	50.308	381	6254	10630	718	82	9	80	4481
6/3/2010 10:06	42.0	4129	50.372	381	6254	10630	718	83	9	80	4488
6/3/2010 10:07	42.0	4226	50.462	381	6254	10630	718	83	9	80	4499
6/3/2010 10:08	42.1	4231	50.553	381	6254	10630	718	83	9	80	4510
6/3/2010 10:09	42.1	4216	50.643	381	6254	10630	718	83	9	80	4521
6/3/2010 10:10	42.1	4287	50.734	381	6254	10630	718	83	9	80	4531
6/3/2010 10:11	42.1	4252	50.824	381	6254	10630	718	83	10	80	4542
6/3/2010 10:12	42.1	4201	50.915	381	6254	10630	718	84	10	80	4553
6/3/2010 10:13	42.2	4195	51.005	381	6254	10630	718	84	10	80	4564
6/3/2010 10:14	42.2	4223	51.095	381	6254	10630	718	83	10	80	4576
6/3/2010 10:15	42.2	4317	51.186	381	6254	10630	718	83	10	80	4588
6/3/2010 10:16	42.2	4222	51.276	381	6254	10630	718	83	10	80	4600
6/3/2010 10:17	42.2	4132	51.367	381	6254	10630	718	82	10	80	4612
6/3/2010 10:18	42.3	4181	51.457	381	6254	10630	718	82	10	80	4624
6/3/2010 10:19	42.3	4213	51.547	381	6254	10630	718	82	10	80	4634
6/3/2010 10:20	42.3	4238	51.638	381	6254	10630	718	82	10	80	4645
6/3/2010 10:21	42.3	4098	51.690	381	6254	10630	718	82	10	80	4652
6/3/2010 10:22	42.3	4165	51.626	381	6254	10630	718	84	10	80	4641
6/3/2010 10:23	42.4	4149	51.562	381	6254	10630	718	84	10	80	4634
6/3/2010 10:24	42.4	4133	51.498	381	6254	10630	718	84	10	80	4628
6/3/2010 10:25	42.4	4117	51.434	381	6254	10630	718	83	10	80	4621
6/3/2010 10:26	42.4	4173	51.370	381	6254	10630	718	83	10	80	4615
6/3/2010 10:27	42.5	4303	51.306	381	6254	10630	718	83	10	80	4609
6/3/2010 10:28	42.5	4175	51.242	381	6254	10630	718	83	10	80	4601
6/3/2010 10:29	42.5	4244	51.178	381	6254	10630	718	83	10	80	4593
6/3/2010 10:30	42.5	4266	51.114	381	6254	10630	718	83	10	80	4585
6/3/2010 10:31	42.5	4166	51.050	381	6254	10630	718	84	10	80	4577
6/3/2010 10:32	42.6	4284	50.987	381	6254	10630	718	84	10	80	4569
6/3/2010 10:33	42.6	4252	50.923	381	6254	10630	718	84	10	80	4561

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 10:34	42.6	4238	50.859	381	6254	10630	718	85	10	80	4553
6/3/2010 10:35	42.6	4231	50.795	381	6254	10630	719	85	10	80	4546
6/3/2010 10:36	42.6	4154	50.731	381	6254	10630	719	85	10	80	4539
6/3/2010 10:37	42.7	4026	50.667	381	6254	10630	719	84	10	80	4532
6/3/2010 10:38	42.6	4266	51.221	381	6254	10630	719	84	10	80	4600
6/3/2010 10:39	42.6	4236	51.982	381	6254	10630	719	84	10	80	4693
6/3/2010 10:40	42.6	4202	51.675	381	6254	10630	719	84	10	79	4658
6/3/2010 10:41	42.6	4100	51.272	381	6254	10630	719	84	10	79	4612
6/3/2010 10:42	42.6	4131	50.868	381	6254	10630	719	85	10	79	4564
6/3/2010 10:43	42.6	4154	50.694	381	6254	10630	719	88	10	80	4539
6/3/2010 10:44	42.5	4220	50.684	381	6254	10630	719	86	10	80	4542
6/3/2010 10:45	42.5	4326	50.674	381	6254	10630	719	85	10	79	4545
6/3/2010 10:46	42.5	4361	50.664	381	6254	10630	719	84	10	79	4548
6/3/2010 10:47	42.5	4237	50.654	381	6254	10630	719	83	10	79	4552
6/3/2010 10:48	42.5	4161	50.645	381	6254	10630	719	83	10	79	4554
6/3/2010 10:49	42.5	4277	50.635	381	6254	10630	719	83	10	79	4554
6/3/2010 10:50	42.4	4353	50.625	381	6254	10630	719	83	10	79	4555
6/3/2010 10:51	42.4	4361	50.615	381	6254	10630	719	83	10	79	4555
6/3/2010 10:52	42.4	4189	50.605	381	6254	10630	719	83	10	79	4555
6/3/2010 10:53	42.4	4366	50.595	381	6254	10630	719	83	10	79	4556
6/3/2010 10:54	42.4	4196	50.585	381	6254	10630	719	83	10	79	4556
6/3/2010 10:55	42.4	4212	50.575	381	6254	10630	719	83	10	79	4557
6/3/2010 10:56	42.3	4225	50.565	381	6254	10630	719	83	10	79	4557
6/3/2010 10:57	42.3	4976	50.556	381	6254	10630	719	86	15	72	5199
6/3/2010 10:58	42.3	4467	50.546	381	6254	10630	719	88	10	79	4578
6/3/2010 10:59	42.3	4224	50.536	381	6254	10630	719	87	10	79	4544
6/3/2010 11:00	42.3	4184	50.526	381	6254	10630	719	85	10	79	4545
6/3/2010 11:01	42.3	4279	50.516	381	6254	10630	719	84	10	79	4545
6/3/2010 11:02	42.2	4443	50.506	381	6254	10630	719	83	10	79	4543
6/3/2010 11:03	42.2	4193	50.496	381	6254	10630	719	84	10	79	4539

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 11:04	42.2	4280	50.486	381	6254	10630	719	84	10	79	4536
6/3/2010 11:05	42.2	4271	50.476	381	6254	10630	719	84	10	79	4532
6/3/2010 11:06	42.2	4300	50.467	381	6254	10630	719	84	10	79	4529
6/3/2010 11:07	42.2	4255	50.457	381	6254	10630	719	84	10	80	4526
6/3/2010 11:08	42.1	4281	50.447	381	6254	10630	719	84	10	80	4523
6/3/2010 11:09	42.1	4208	50.468	381	6254	10630	719	84	10	80	4523
6/3/2010 11:10	42.1	4254	50.532	381	6254	10630	719	84	10	80	4529
6/3/2010 11:11	42.1	4280	50.597	381	6254	10630	720	84	10	80	4535
6/3/2010 11:12	42.1	4393	50.662	381	6254	10630	720	84	10	80	4540
6/3/2010 11:13	42.1	4255	50.726	381	6254	10630	720	85	10	80	4546
6/3/2010 11:14	42.1	4247	50.791	381	6254	10630	720	85	10	80	4552
6/3/2010 11:15	42.0	4332	50.855	381	6254	10630	720	85	10	80	4559
6/3/2010 11:16	41.4	4307	50.920	381	6254	10630	720	85	10	80	4586
6/3/2010 11:17	41.3	4246	50.984	381	6254	10630	720	85	10	80	4593
6/3/2010 11:18	41.4	4395	51.014	381	6254	10630	720	85	10	80	4590
6/3/2010 11:19	41.6	4180	50.994	381	6254	10630	720	85	9	80	4580
6/3/2010 11:20	41.7	4243	50.974	381	6254	10630	720	85	9	80	4571
6/3/2010 11:21	41.8	4237	50.953	381	6254	10630	720	85	9	80	4562
6/3/2010 11:22	41.9	4219	50.933	381	6254	10630	720	85	9	80	4553
6/3/2010 11:23	42.0	4281	50.913	381	6254	10630	720	85	9	80	4544
6/3/2010 11:24	50.9	3917	50.972	381	6254	10630	720	85	9	80	4236
6/3/2010 11:25	46.0	3976	51.088	381	6254	10630	720	85	9	80	4421
6/3/2010 11:26	44.6	4194	51.203	381	6254	10630	720	85	9	80	4480
6/3/2010 11:27	43.3	4079	51.318	381	6254	10630	720	86	9	80	4538
6/3/2010 11:28	4.6	5424	45.609	381	6254	10630	720	86	9	80	5225
6/3/2010 11:29	4.4	5615	48.803	381	6254	10630	720	86	9	80	5610
6/3/2010 11:30	38.9	4402	53.166	381	6254	10630	720	86	9	80	4904
6/3/2010 11:31	42.5	4738	53.477	381	6254	10630	720	86	9	80	4811
6/3/2010 11:32	42.5	4538	52.251	381	6254	10630	720	86	9	80	4670
6/3/2010 11:33	42.5	4534	51.025	381	6254	10630	720	86	9	80	4529

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 11:34	42.5	4291	50.555	381	6254	10630	720	86	9	80	4477
6/3/2010 11:35	42.5	4255	50.625	381	6254	10630	720	86	9	80	4489
6/3/2010 11:36	42.5	4255	50.696	381	6254	10630	720	87	9	80	4501
6/3/2010 11:37	42.5	4323	50.766	381	6254	10630	720	87	9	80	4513
6/3/2010 11:38	42.4	4273	50.836	381	6254	10630	720	87	9	80	4525
6/3/2010 11:39	42.4	4358	50.907	381	6254	10630	720	87	9	80	4537
6/3/2010 11:40	42.4	4230	50.977	381	6254	10630	720	87	10	80	4549
6/3/2010 11:41	42.4	4276	51.047	381	6254	10630	720	87	10	80	4561
6/3/2010 11:42	42.4	4258	51.117	381	6254	10630	720	86	10	80	4577
6/3/2010 11:43	42.4	4437	51.188	381	6254	10630	720	84	10	80	4593
6/3/2010 11:44	42.4	4265	51.150	381	6254	10630	720	84	10	80	4593
6/3/2010 11:45	42.3	4241	51.077	381	6254	10630	720	85	10	80	4588
6/3/2010 11:46	42.3	4238	51.004	381	6254	10630	720	85	10	80	4583
6/3/2010 11:47	42.3	4263	50.931	381	6254	10630	720	85	10	80	4578
6/3/2010 11:48	42.3	4236	50.857	381	6254	10630	720	85	10	79	4573
6/3/2010 11:49	42.3	4252	50.800	381	6254	10630	720	85	10	79	4571
6/3/2010 11:50	42.3	4312	50.914	381	6254	10630	720	85	10	79	4588
6/3/2010 11:51	42.2	4243	51.028	381	6254	10630	720	85	10	79	4606
6/3/2010 11:52	42.2	4160	51.142	381	6254	10630	720	86	10	79	4623
6/3/2010 11:53	42.2	4113	51.256	381	6254	10630	720	86	10	79	4641
6/3/2010 11:54	42.2	4372	51.337	381	6254	10630	720	86	10	79	4655
6/3/2010 11:55	42.2	4252	51.317	381	6254	10630	721	86	10	79	4658
6/3/2010 11:56	42.2	4262	51.297	381	6254	10630	721	85	10	79	4660
6/3/2010 11:57	42.2	4817	51.277	381	6254	10630	721	85	17	68	5677
6/3/2010 11:58	42.1	4363	51.258	381	6254	10630	721	85	11	78	4731
6/3/2010 11:59	42.1	4362	51.238	381	6254	10630	721	85	10	79	4631
6/3/2010 12:00	42.1	4209	51.218	381	6254	10630	721	85	10	79	4630
6/3/2010 12:01	42.1	4125	51.198	381	6254	10630	721	86	10	79	4628
6/3/2010 12:02	42.1	4303	51.169	381	6254	10630	721	86	10	79	4625
6/3/2010 12:03	40.8	4327	51.111	381	6254	10630	721	86	10	79	4666

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 12:04	42.1	4216	51.053	381	6254	10630	721	86	10	79	4610
6/3/2010 12:05	42.1	4266	50.994	381	6254	10630	721	86	10	79	4603
6/3/2010 12:06	42.1	4261	50.936	381	6254	10630	721	86	10	79	4597
6/3/2010 12:07	42.1	4347	50.878	381	6254	10630	721	86	10	79	4590
6/3/2010 12:08	39.6	4338	50.820	381	6254	10630	721	86	10	79	4672
6/3/2010 12:09	39.9	4256	50.762	381	6254	10630	721	87	10	79	4656
6/3/2010 12:10	40.2	4349	50.704	381	6254	10630	721	87	10	79	4639
6/3/2010 12:11	40.5	4273	50.646	380	6254	10630	721	87	10	79	4622
6/3/2010 12:12	40.8	4151	50.588	380	6254	10630	721	87	10	79	4606
6/3/2010 12:13	41.0	4309	50.530	380	6254	10630	721	87	10	79	4589
6/3/2010 12:14	41.3	4251	50.472	380	6254	10630	721	87	10	79	4572
6/3/2010 12:15	41.6	4050	50.414	380	6254	10630	721	87	10	79	4556
6/3/2010 12:16	41.8	4238	50.355	380	6254	10630	721	88	10	79	4542
6/3/2010 12:17	41.8	4256	50.353	380	6254	10630	721	88	10	79	4541
6/3/2010 12:18	41.9	4307	50.356	380	6254	10630	721	88	10	79	4541
6/3/2010 12:19	41.9	4310	50.358	380	6254	10630	721	88	10	79	4540
6/3/2010 12:20	41.9	4162	50.361	380	6254	10630	721	88	10	79	4540
6/3/2010 12:21	42.0	4324	50.364	380	6254	10630	721	88	10	79	4539
6/3/2010 12:22	42.0	4265	50.366	380	6254	10630	721	89	10	79	4537
6/3/2010 12:23	42.0	4171	50.369	380	6254	10630	721	90	10	79	4535
6/3/2010 12:24	42.0	4213	50.372	380	6254	10630	721	91	10	79	4533
6/3/2010 12:25	42.1	4332	50.374	380	6254	10630	721	91	10	79	4530
6/3/2010 12:26	42.1	4209	50.377	380	6254	10630	721	92	10	79	4528
6/3/2010 12:27	42.1	4215	50.380	380	6254	10630	721	93	10	79	4526
6/3/2010 12:28	42.2	4203	50.382	380	6254	10630	721	94	10	79	4523
6/3/2010 12:29	42.2	4289	50.385	380	6254	10630	721	95	10	80	4521
6/3/2010 12:30	42.2	4260	50.388	380	6254	10630	721	95	10	79	4522
6/3/2010 12:31	42.2	4268	50.390	380	6254	10630	721	95	10	79	4523
6/3/2010 12:32	42.2	4202	50.393	380	6254	10630	721	94	10	79	4525
6/3/2010 12:33	42.2	4151	50.417	380	6254	10630	721	94	10	79	4529

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 12:34	42.2	4206	50.470	380	6254	10630	721	94	10	79	4537
6/3/2010 12:35	42.2	4311	50.524	380	6254	10630	721	94	10	79	4544
6/3/2010 12:36	42.2	4273	50.578	380	6254	10630	721	94	10	79	4552
6/3/2010 12:37	42.2	4126	50.631	380	6254	10630	721	93	10	79	4560
6/3/2010 12:38	42.2	4256	50.685	380	6254	10630	721	93	10	79	4567
6/3/2010 12:39	42.2	4308	50.738	380	6254	10630	721	93	10	79	4574
6/3/2010 12:40	42.2	4208	50.792	380	6254	10630	721	93	10	79	4581
6/3/2010 12:41	42.2	4214	50.845	380	6254	10630	721	93	10	79	4588
6/3/2010 12:42	42.2	4170	50.899	380	6254	10630	721	94	10	79	4594
6/3/2010 12:43	42.2	4249	50.953	380	6254	10630	721	96	10	79	4596
6/3/2010 12:44	42.2	4206	51.006	380	6254	10630	721	96	10	79	4603
6/3/2010 12:45	42.2	4226	51.060	380	6254	10630	721	95	10	79	4611
6/3/2010 12:46	42.2	4192	51.113	380	6254	10630	721	93	10	79	4624
6/3/2010 12:47	42.2	4293	51.167	380	6254	10630	721	94	10	79	4630
6/3/2010 12:48	42.2	4281	51.220	380	6254	10630	722	94	10	79	4635
6/3/2010 12:49	42.2	4125	51.274	380	6254	10630	722	95	10	79	4641
6/3/2010 12:50	42.1	4202	51.327	380	6254	10630	722	95	10	79	4648
6/3/2010 12:51	42.1	4134	51.381	380	6254	10630	722	95	10	79	4655
6/3/2010 12:52	42.1	4247	51.435	380	6254	10630	722	95	10	79	4661
6/3/2010 12:53	42.1	4223	51.488	380	6254	10630	722	95	10	79	4668
6/3/2010 12:54	42.1	4228	51.542	380	6254	10630	722	96	10	79	4675
6/3/2010 12:55	42.1	4047	51.595	380	6254	10630	722	96	10	79	4682
6/3/2010 12:56	42.1	4228	51.649	380	6254	10630	722	96	10	79	4688
6/3/2010 12:57	42.1	5237	51.702	380	6254	10630	722	96	16	69	5645
6/3/2010 12:58	42.1	4354	51.756	380	6254	10630	722	96	10	79	4728
6/3/2010 12:59	42.1	4197	51.809	380	6254	10630	722	96	10	79	4734
6/3/2010 13:00	42.1	4179	51.155	380	6254	10630	722	96	10	79	4655
6/3/2010 13:01	42.1	4244	50.895	380	6254	10630	722	96	10	79	4625
6/3/2010 13:02	42.1	4366	50.845	380	6254	10630	722	95	10	79	4619
6/3/2010 13:03	42.1	4357	50.795	380	6254	10630	722	95	10	79	4614

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 13:04	42.1	4252	50.746	380	6254	10630	722	94	10	79	4609
6/3/2010 13:05	42.1	4279	50.696	380	6254	10630	722	94	10	79	4603
6/3/2010 13:06	42.1	4218	50.655	380	6254	10630	722	93	10	79	4599
6/3/2010 13:07	42.1	4268	50.708	380	6254	10630	722	93	10	79	4605
6/3/2010 13:08	42.1	4276	50.761	380	6254	10630	722	93	10	79	4610
6/3/2010 13:09	42.1	4223	50.814	380	6254	10630	722	93	10	79	4616
6/3/2010 13:10	42.1	4205	50.868	380	6254	10630	722	93	10	79	4622
6/3/2010 13:11	42.1	4235	50.887	380	6254	10630	722	93	10	79	4624
6/3/2010 13:12	42.1	4293	50.807	380	6254	10630	722	93	10	79	4614
6/3/2010 13:13	42.1	4325	50.727	380	6254	10630	722	93	10	79	4604
6/3/2010 13:14	42.1	4337	50.647	380	6254	10630	722	93	10	79	4594
6/3/2010 13:15	42.1	4201	50.567	380	6254	10630	722	93	10	79	4584
6/3/2010 13:16	42.1	4307	50.487	380	6254	10630	722	93	10	79	4574
6/3/2010 13:17	42.1	4163	50.407	380	6254	10630	722	93	10	79	4564
6/3/2010 13:18	42.1	4226	50.327	380	6254	10630	722	93	10	79	4554
6/3/2010 13:19	42.1	4279	50.247	380	6254	10630	722	93	10	79	4544
6/3/2010 13:20	42.1	4289	50.167	380	6254	10630	722	92	10	79	4535
6/3/2010 13:21	42.1	4228	50.087	380	6254	10630	722	92	10	79	4526

Start Time 6/3/2010 10:04
End Time 6/3/2010 13:21

Boiler CPT Test 2 Run 1 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR

Boiler CPT Test 2 Run 1 Coal Data Averages

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
2509	*4272*	*50.856*	*381*	*6254*	*10630*	*720*	*88*	*10*	*79*	*4603*

Boiler CPT Test 2 Run 1 Minimums

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
261	*3917*	*45.609*	*380*	*6254*	*10630*	*718*	*82*	*9*	*68*	*4236*

Boiler CPT Test 2 Run 1 Maximums

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
3054	*5615*	*53.477*	*381*	*6254*	*10630*	*722*	*96*	*17*	*80*	*5677*

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 14:13	42.0	4220	51.676	379	6319	10630	723	98	10	80	4670
6/3/2010 14:14	42.0	4373	51.623	379	6319	10630	723	98	10	80	4664
6/3/2010 14:15	42.0	4256	51.570	379	6319	10630	723	98	10	80	4658
6/3/2010 14:16	42.0	4228	51.517	379	6319	10630	723	98	10	80	4651
6/3/2010 14:17	42.0	4193	51.464	379	6319	10630	723	98	10	80	4645
6/3/2010 14:18	42.0	4182	51.411	379	6319	10630	723	99	10	80	4638
6/3/2010 14:19	42.0	4305	51.358	379	6319	10630	723	98	10	80	4633
6/3/2010 14:20	42.0	4286	51.305	379	6319	10630	723	98	10	80	4628
6/3/2010 14:21	42.0	4248	51.252	379	6319	10630	723	97	10	79	4624
6/3/2010 14:22	42.0	4164	51.199	379	6319	10630	723	96	10	79	4619
6/3/2010 14:23	42.0	4217	51.146	379	6319	10630	723	96	10	79	4614
6/3/2010 14:24	42.0	4253	51.093	379	6319	10630	723	96	10	79	4607
6/3/2010 14:25	42.0	4227	51.042	379	6319	10630	723	96	10	79	4601
6/3/2010 14:26	42.0	4201	51.024	379	6319	10630	723	97	10	79	4598
6/3/2010 14:27	41.9	4243	51.005	379	6319	10630	723	97	10	79	4595
6/3/2010 14:28	41.9	4241	50.986	379	6319	10630	723	97	10	79	4592
6/3/2010 14:29	41.9	4194	50.967	379	6319	10630	723	98	10	79	4590
6/3/2010 14:30	41.9	4272	50.949	379	6319	10630	723	98	10	80	4587
6/3/2010 14:31	41.9	4215	50.930	379	6319	10630	723	98	10	80	4584
6/3/2010 14:32	41.9	4147	50.911	379	6319	10630	723	98	10	79	4583
6/3/2010 14:33	41.9	4133	50.893	379	6319	10630	723	97	10	79	4582
6/3/2010 14:34	41.9	4317	50.874	379	6319	10630	724	97	10	79	4580
6/3/2010 14:35	41.9	4334	50.855	379	6319	10630	724	97	10	79	4579
6/3/2010 14:36	41.9	4209	50.836	379	6319	10630	724	97	10	79	4577
6/3/2010 14:37	41.9	4235	50.818	379	6319	10630	724	96	10	79	4576
6/3/2010 14:38	41.9	4287	50.799	379	6319	10630	724	96	10	79	4574
6/3/2010 14:39	41.9	4206	50.780	379	6319	10630	724	96	10	79	4572
6/3/2010 14:40	41.9	4169	50.761	379	6319	10630	724	96	10	79	4570
6/3/2010 14:41	41.9	4140	50.743	379	6319	10630	724	96	10	79	4568
6/3/2010 14:42	41.9	4291	50.724	379	6319	10630	724	96	10	79	4566

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 14:43	41.9	4204	50.705	379	6319	10630	724	96	10	79	4564
6/3/2010 14:44	41.9	4199	50.686	379	6319	10630	724	96	10	79	4562
6/3/2010 14:45	41.9	4178	50.698	379	6319	10630	724	96	10	79	4564
6/3/2010 14:46	41.9	4303	50.754	379	6319	10630	724	96	10	79	4571
6/3/2010 14:47	41.9	4194	50.809	379	6319	10630	724	96	10	79	4578
6/3/2010 14:48	41.9	4234	50.864	379	6319	10630	724	95	10	79	4585
6/3/2010 14:49	41.9	4169	50.920	379	6319	10630	724	95	10	79	4592
6/3/2010 14:50	41.9	4267	50.975	379	6319	10630	724	95	10	79	4599
6/3/2010 14:51	41.9	4316	51.030	379	6319	10630	724	95	10	79	4606
6/3/2010 14:52	41.9	4073	51.085	379	6319	10630	724	95	10	79	4612
6/3/2010 14:53	41.9	4084	51.141	379	6319	10630	724	95	10	79	4619
6/3/2010 14:54	41.9	4163	51.171	379	6319	10630	724	95	10	79	4623
6/3/2010 14:55	41.9	4320	51.185	379	6319	10630	724	95	10	79	4624
6/3/2010 14:56	41.9	4260	51.198	379	6319	10630	724	95	10	79	4626
6/3/2010 14:57	41.9	4930	51.211	379	6319	10630	724	95	15	71	5343
6/3/2010 14:58	41.9	4144	51.225	379	6319	10630	724	95	10	79	4628
6/3/2010 14:59	41.9	4253	51.238	379	6319	10630	724	95	10	79	4630
6/3/2010 15:00	41.9	4325	51.251	378	6319	10630	724	95	10	79	4631
6/3/2010 15:01	41.9	4179	51.265	378	6319	10630	724	96	10	79	4632
6/3/2010 15:02	41.9	4122	51.278	378	6319	10630	724	96	10	79	4633
6/3/2010 15:03	41.9	4197	51.291	378	6319	10630	724	96	10	79	4634
6/3/2010 15:04	41.9	4251	51.304	378	6319	10630	724	96	10	79	4635
6/3/2010 15:05	41.9	4378	51.318	378	6319	10630	724	96	10	79	4636
6/3/2010 15:06	41.9	4260	51.331	378	6319	10630	724	96	10	79	4637
6/3/2010 15:07	41.9	4175	51.344	378	6319	10630	724	96	10	80	4638
6/3/2010 15:08	41.9	4224	51.358	378	6319	10630	724	96	10	80	4638
6/3/2010 15:09	41.9	4351	51.371	378	6319	10630	724	96	10	80	4639
6/3/2010 15:10	41.9	4322	51.384	378	6319	10630	724	96	10	80	4640
6/3/2010 15:11	41.9	4248	51.398	378	6319	10630	724	96	10	80	4642
6/3/2010 15:12	41.9	4116	51.411	378	6319	10630	723	96	10	80	4643

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 15:13	41.9	4208	51.424	378	6319	10630	723	96	10	80	4644
6/3/2010 15:14	41.9	4328	51.437	378	6319	10630	723	96	10	80	4645
6/3/2010 15:15	41.9	4231	51.451	378	6319	10630	723	95	10	80	4646
6/3/2010 15:16	41.9	4294	51.464	378	6319	10630	723	95	10	80	4647
6/3/2010 15:17	41.9	4161	51.477	378	6319	10630	723	95	10	80	4648
6/3/2010 15:18	41.9	4300	51.491	378	6319	10630	723	95	10	80	4650
6/3/2010 15:19	41.9	4157	51.504	378	6319	10630	723	95	10	80	4651
6/3/2010 15:20	41.8	4265	51.517	378	6319	10630	723	95	10	80	4652
6/3/2010 15:21	41.8	4272	51.512	378	6319	10630	723	95	10	80	4651
6/3/2010 15:22	41.8	4213	51.482	378	6319	10630	723	95	10	80	4647
6/3/2010 15:23	41.8	4187	51.451	378	6319	10630	723	95	10	80	4643
6/3/2010 15:24	41.8	4167	51.421	378	6319	10630	723	95	10	80	4639
6/3/2010 15:25	41.8	4228	51.390	378	6319	10630	723	95	10	80	4635
6/3/2010 15:26	41.8	4150	51.360	378	6319	10630	723	95	10	80	4630
6/3/2010 15:27	41.8	4322	51.330	378	6319	10630	723	95	10	80	4626
6/3/2010 15:28	41.8	4178	51.299	378	6319	10630	723	95	10	80	4622
6/3/2010 15:29	41.8	4149	51.269	378	6319	10630	723	95	10	80	4618
6/3/2010 15:30	41.8	4239	51.238	378	6319	10630	723	95	10	80	4614
6/3/2010 15:31	41.8	4244	51.208	378	6319	10630	723	95	10	80	4610
6/3/2010 15:32	41.8	4170	51.177	378	6319	10630	723	95	10	80	4606
6/3/2010 15:33	41.8	4131	51.147	378	6319	10630	723	95	10	80	4602
6/3/2010 15:34	41.8	4197	51.116	378	6319	10630	723	95	10	80	4598
6/3/2010 15:35	41.8	4270	51.086	378	6319	10630	723	95	10	80	4594
6/3/2010 15:36	41.8	4200	51.055	378	6319	10630	722	95	10	80	4590
6/3/2010 15:37	41.8	4292	51.025	378	6319	10630	722	95	10	80	4586
6/3/2010 15:38	41.8	4194	50.994	378	6319	10630	722	94	10	80	4582
6/3/2010 15:39	41.8	4113	50.964	378	6319	10630	722	94	10	80	4578
6/3/2010 15:40	41.8	4212	50.934	378	6319	10630	722	94	10	80	4573
6/3/2010 15:41	41.8	4246	50.903	378	6319	10630	722	95	10	80	4568
6/3/2010 15:42	41.8	4381	50.883	378	6319	10630	722	96	10	80	4563

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 15:43	41.8	4108	50.877	378	6319	10630	722	97	10	80	4560
6/3/2010 15:44	41.8	4218	50.871	378	6319	10630	722	97	10	80	4557
6/3/2010 15:45	41.8	4239	50.865	378	6319	10630	722	98	10	80	4555
6/3/2010 15:46	41.8	4285	50.859	378	6319	10630	722	98	10	80	4554
6/3/2010 15:47	41.8	4270	50.853	378	6319	10630	722	98	10	80	4553
6/3/2010 15:48	41.8	4179	50.847	378	6319	10630	722	97	10	80	4552
6/3/2010 15:49	41.8	4203	50.841	378	6319	10630	722	97	10	80	4551
6/3/2010 15:50	41.8	4269	50.835	378	6319	10630	722	97	10	80	4550
6/3/2010 15:51	41.8	4192	50.829	378	6319	10630	722	97	10	80	4549
6/3/2010 15:52	41.8	4162	50.823	378	6319	10630	722	97	10	80	4547
6/3/2010 15:53	41.8	4103	50.817	378	6319	10630	722	97	10	80	4546
6/3/2010 15:54	41.8	4286	50.830	378	6319	10630	722	97	10	80	4548
6/3/2010 15:55	41.8	4298	50.855	378	6319	10630	722	97	10	80	4550
6/3/2010 15:56	41.8	4248	50.881	378	6319	10630	722	97	10	80	4553
6/3/2010 15:57	41.8	5126	50.907	378	6319	10630	722	97	17	68	5619
6/3/2010 15:58	41.8	4295	50.933	378	6319	10630	722	97	10	80	4571
6/3/2010 15:59	41.8	4270	50.959	378	6319	10630	722	97	10	80	4575
6/3/2010 16:00	41.8	4266	50.985	378	6319	10630	721	97	10	80	4579
6/3/2010 16:01	41.8	4184	51.010	378	6319	10630	721	97	10	80	4583
6/3/2010 16:02	41.8	4201	51.036	378	6319	10630	721	96	10	80	4587
6/3/2010 16:03	41.8	4125	51.062	378	6319	10630	721	96	10	80	4592
6/3/2010 16:04	41.8	4319	51.048	378	6319	10630	721	96	10	80	4591
6/3/2010 16:05	41.8	4107	51.021	378	6319	10630	721	96	10	80	4589
6/3/2010 16:06	41.8	4240	50.993	378	6319	10630	721	96	10	80	4587
6/3/2010 16:07	41.8	4312	50.966	378	6319	10630	721	96	10	80	4585
6/3/2010 16:08	41.8	4306	50.939	378	6319	10630	721	96	10	80	4582
6/3/2010 16:09	41.8	4230	50.911	378	6319	10630	721	96	10	80	4580
6/3/2010 16:10	41.8	4232	50.884	378	6319	10630	721	96	10	80	4578
6/3/2010 16:11	41.8	4254	50.857	378	6319	10630	721	96	10	80	4575
6/3/2010 16:12	41.8	4216	50.829	378	6319	10630	721	96	10	80	4573

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 16:13	41.7	4231	50.802	378	6319	10630	721	96	10	80	4571
6/3/2010 16:14	41.7	4228	50.775	378	6319	10630	721	97	10	80	4568
6/3/2010 16:15	41.7	4145	50.747	378	6319	10630	721	97	10	80	4566
6/3/2010 16:16	41.7	4220	50.720	378	6319	10630	721	97	10	80	4563
6/3/2010 16:17	41.7	4196	50.693	378	6319	10630	721	96	10	80	4562
6/3/2010 16:18	41.7	4177	50.665	378	6319	10630	721	96	10	80	4561
6/3/2010 16:19	41.7	4196	50.638	378	6319	10630	721	96	10	80	4559
6/3/2010 16:20	41.7	4252	50.611	378	6319	10630	721	95	10	80	4558
6/3/2010 16:21	41.7	4226	50.584	378	6319	10630	721	95	10	79	4556
6/3/2010 16:22	41.7	4277	50.556	378	6319	10630	721	95	10	79	4554
6/3/2010 16:23	41.7	4123	50.529	378	6319	10630	721	95	10	79	4553
6/3/2010 16:24	41.7	4199	50.502	377	6319	10630	720	94	10	79	4551
6/3/2010 16:25	41.7	4389	50.474	377	6319	10630	720	94	10	79	4549
6/3/2010 16:26	41.7	4274	50.447	377	6319	10630	720	94	10	79	4548
6/3/2010 16:27	41.7	4212	50.420	377	6319	10630	720	94	10	79	4546
6/3/2010 16:28	41.7	4206	50.392	377	6319	10630	720	93	10	79	4544
6/3/2010 16:29	41.7	4299	50.365	377	6319	10630	720	93	10	79	4543
6/3/2010 16:30	41.7	4287	50.338	377	6319	10630	720	93	10	79	4541
6/3/2010 16:31	41.7	4190	50.325	377	6319	10630	720	93	10	79	4541
6/3/2010 16:32	41.7	4169	50.322	377	6319	10630	720	93	10	79	4542
6/3/2010 16:33	41.7	4298	50.320	377	6319	10630	720	92	10	79	4543
6/3/2010 16:34	41.7	4263	50.317	377	6319	10630	720	92	10	79	4544
6/3/2010 16:35	41.7	4223	50.314	377	6319	10630	720	92	10	79	4545
6/3/2010 16:36	41.7	4209	50.312	377	6319	10630	720	92	10	79	4546
6/3/2010 16:37	41.7	4334	50.309	377	6319	10630	720	92	10	79	4547
6/3/2010 16:38	41.7	4264	50.307	377	6319	10630	720	92	10	79	4548
6/3/2010 16:39	41.7	4280	50.304	377	6319	10630	720	92	10	79	4549
6/3/2010 16:40	41.7	4145	50.301	377	6319	10630	720	91	10	79	4550
6/3/2010 16:41	41.7	4291	50.299	377	6319	10630	720	91	10	79	4551
6/3/2010 16:42	41.7	4230	50.296	377	6319	10630	720	91	10	79	4552

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 16:43	41.7	4251	50.294	377	6319	10630	720	91	10	79	4553
6/3/2010 16:44	41.7	4265	50.291	377	6319	10630	720	91	10	79	4554
6/3/2010 16:45	41.7	4339	50.288	377	6319	10630	720	91	10	79	4555
6/3/2010 16:46	41.7	4214	50.286	377	6319	10630	720	91	10	79	4556
6/3/2010 16:47	41.7	4242	50.283	377	6319	10630	720	90	10	79	4557
6/3/2010 16:48	41.7	4288	50.281	377	6319	10630	719	90	10	79	4558
6/3/2010 16:49	41.7	4347	50.278	377	6319	10630	719	90	10	79	4559
6/3/2010 16:50	41.7	4216	50.276	377	6319	10630	719	90	10	79	4560
6/3/2010 16:51	41.7	4257	50.273	377	6319	10630	719	90	10	79	4561
6/3/2010 16:52	41.7	4225	50.270	377	6319	10630	719	90	10	79	4562
6/3/2010 16:53	41.7	4329	50.268	377	6319	10630	719	90	10	79	4563
6/3/2010 16:54	41.7	4232	50.265	377	6319	10630	719	89	10	79	4564
6/3/2010 16:55	41.7	4241	50.263	377	6319	10630	719	89	10	79	4565
6/3/2010 16:56	41.7	4251	50.260	377	6319	10630	719	89	10	79	4566
6/3/2010 16:57	41.7	5117	50.257	377	6319	10630	719	89	17	67	5587
6/3/2010 16:58	41.7	4172	50.266	377	6319	10630	719	89	10	79	4569
6/3/2010 16:59	41.7	4350	50.308	377	6319	10630	719	89	10	80	4507
6/3/2010 17:00	41.7	4254	50.351	377	6319	10630	719	89	10	80	4516
6/3/2010 17:01	41.7	4187	50.393	377	6319	10630	719	89	10	80	4525
6/3/2010 17:02	41.7	4221	50.436	377	6319	10630	719	88	10	80	4534
6/3/2010 17:03	41.7	4211	50.478	377	6319	10630	719	88	10	79	4543
6/3/2010 17:04	41.7	4310	50.520	377	6319	10630	719	88	10	79	4553
6/3/2010 17:05	41.7	4213	50.563	377	6319	10630	719	88	10	79	4562
6/3/2010 17:06	41.7	4278	50.605	377	6319	10630	719	88	10	79	4571
6/3/2010 17:07	41.7	4252	50.648	377	6319	10630	719	88	10	79	4580
6/3/2010 17:08	41.8	4196	50.690	377	6319	10630	719	88	10	79	4589
6/3/2010 17:09	41.8	4368	50.732	377	6319	10630	719	88	10	79	4599
6/3/2010 17:10	41.8	4274	50.775	377	6319	10630	719	87	10	79	4608
6/3/2010 17:11	41.8	4157	50.817	377	6319	10630	719	87	10	79	4617
6/3/2010 17:12	41.8	4229	50.859	377	6319	10630	718	87	10	79	4626

Start Time 6/3/2010 14:13
End Time 6/3/2010 17:13

Boiler CPT Test 2 Run 2 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/3/2010 17:13	41.8	4337	50.902	377	6319	10630	718	87	10	79	4636

Boiler CPT Test 2 Run 2 Coal Data Averages

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
2509	*4247*	*50.881*	*378*	*6319*	*10630*	*722*	*94*	*10*	*79*	*4603*

Boiler CPT Test 2 Run 2 Minimums

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
2502	*4073*	*50.257*	*377*	*6319*	*10630*	*718*	*87*	*10*	*67*	*4507*

Boiler CPT Test 2 Run 2 Maximums

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
2518	*5126*	*51.676*	*379*	*6319*	*10630*	*724*	*99*	*17*	*80*	*5619*

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/4/2010 7:00	42.0	3570	52.483	380	6333	10600	719	71	11	78	4904
6/4/2010 7:01	42.0	3601	52.465	380	6333	10600	719	71	11	78	4897
6/4/2010 7:02	42.0	3576	52.446	380	6333	10600	719	71	11	78	4890
6/4/2010 7:03	42.0	3571	52.427	380	6333	10600	719	71	11	78	4883
6/4/2010 7:04	42.0	3556	52.408	380	6333	10600	719	71	11	78	4875
6/4/2010 7:05	42.0	3542	52.389	380	6333	10600	719	71	11	78	4868
6/4/2010 7:06	42.0	3559	52.370	380	6333	10600	719	71	10	78	4861
6/4/2010 7:07	42.0	3509	52.351	380	6333	10600	719	71	10	78	4853
6/4/2010 7:08	42.0	3617	52.333	380	6333	10600	719	71	10	78	4846
6/4/2010 7:09	42.0	3646	52.311	380	6333	10600	719	72	10	78	4838
6/4/2010 7:10	42.0	3582	52.281	380	6333	10600	719	72	10	79	4830
6/4/2010 7:11	42.0	3641	52.252	380	6333	10600	719	72	10	79	4821
6/4/2010 7:12	42.0	3669	52.222	379	6333	10600	719	72	10	79	4813
6/4/2010 7:13	42.1	3562	52.192	379	6333	10600	719	72	10	79	4804
6/4/2010 7:14	42.1	3614	52.162	379	6333	10600	719	72	10	79	4796
6/4/2010 7:15	42.1	3605	52.133	379	6333	10600	719	72	10	79	4788
6/4/2010 7:16	42.1	3734	52.103	379	6333	10600	719	72	10	79	4779
6/4/2010 7:17	42.1	3542	52.073	379	6333	10600	719	72	10	79	4771
6/4/2010 7:18	42.1	3526	52.043	379	6333	10600	719	73	10	79	4763
6/4/2010 7:19	42.1	3611	52.014	379	6333	10600	719	73	10	79	4755
6/4/2010 7:20	42.1	3683	51.984	379	6333	10600	719	73	10	79	4747
6/4/2010 7:21	42.1	3580	51.954	379	6333	10600	719	73	10	79	4739
6/4/2010 7:22	42.1	3619	51.924	379	6333	10600	719	73	10	79	4733
6/4/2010 7:23	42.1	3510	51.895	379	6333	10600	719	75	10	79	4725
6/4/2010 7:24	42.1	3462	51.865	379	6333	10600	719	74	10	79	4725
6/4/2010 7:25	42.1	3573	51.835	379	6333	10600	719	73	10	79	4725
6/4/2010 7:26	42.1	3564	51.805	379	6333	10600	719	72	10	79	4726
6/4/2010 7:27	42.1	3555	51.776	379	6333	10600	719	72	10	79	4723
6/4/2010 7:28	42.1	3561	51.746	379	6333	10600	719	72	10	79	4721
6/4/2010 7:29	42.1	3710	51.716	379	6333	10600	719	72	10	79	4718

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/4/2010 7:30	42.1	3475	51.686	379	6333	10600	719	72	10	79	4715
6/4/2010 7:31	42.1	3670	51.656	379	6333	10600	719	72	10	79	4713
6/4/2010 7:32	42.1	3571	51.625	379	6333	10600	719	73	10	79	4710
6/4/2010 7:33	42.1	3696	51.594	379	6333	10600	719	73	10	79	4707
6/4/2010 7:34	42.1	3714	51.563	379	6333	10600	719	73	10	79	4704
6/4/2010 7:35	42.1	3523	51.532	379	6333	10600	719	73	10	79	4701
6/4/2010 7:36	42.1	3555	51.501	379	6333	10600	719	73	10	79	4698
6/4/2010 7:37	42.1	3678	51.470	379	6333	10600	719	73	10	79	4696
6/4/2010 7:38	42.1	3705	51.439	379	6333	10600	719	73	10	79	4693
6/4/2010 7:39	42.1	3609	51.408	379	6333	10600	719	73	10	79	4690
6/4/2010 7:40	42.1	3559	51.377	379	6333	10600	719	73	10	79	4687
6/4/2010 7:41	42.1	3510	51.346	379	6333	10600	719	73	10	79	4684
6/4/2010 7:42	42.1	3507	51.315	379	6333	10600	719	74	10	79	4682
6/4/2010 7:43	42.1	3601	51.284	379	6333	10600	719	74	10	79	4679
6/4/2010 7:44	42.1	3666	51.253	379	6333	10600	719	74	10	79	4676
6/4/2010 7:45	42.1	3558	51.222	379	6333	10600	719	74	10	79	4673
6/4/2010 7:46	42.1	3606	51.191	379	6333	10600	719	74	10	79	4670
6/4/2010 7:47	42.1	3614	51.159	379	6333	10600	719	74	10	79	4668
6/4/2010 7:48	42.1	3573	51.128	379	6333	10600	719	74	10	79	4665
6/4/2010 7:49	42.1	3578	51.097	379	6333	10600	719	74	10	79	4663
6/4/2010 7:50	42.1	3705	51.066	379	6333	10600	719	74	10	79	4660
6/4/2010 7:51	42.1	3593	51.035	379	6333	10600	719	74	10	79	4658
6/4/2010 7:52	42.2	3644	51.004	379	6333	10600	719	74	10	79	4656
6/4/2010 7:53	42.2	3507	50.988	379	6333	10600	719	73	10	79	4655
6/4/2010 7:54	42.2	3588	51.136	379	6333	10600	719	74	10	79	4674
6/4/2010 7:55	42.2	3566	51.284	379	6333	10600	719	74	10	79	4692
6/4/2010 7:56	42.2	3654	51.432	379	6333	10600	719	74	10	79	4710
6/4/2010 7:57	42.2	4153	51.580	379	6333	10600	719	75	16	68	5691
6/4/2010 7:58	42.2	3605	51.729	379	6333	10600	719	75	10	79	4722
6/4/2010 7:59	42.2	3522	51.867	379	6333	10600	719	76	10	79	4738

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/4/2010 8:00	42.2	3558	51.898	379	6333	10600	719	76	10	79	4740
6/4/2010 8:01	42.2	3594	51.930	379	6333	10600	719	77	10	79	4743
6/4/2010 8:02	42.2	3461	51.961	379	6333	10600	719	77	10	79	4746
6/4/2010 8:03	42.2	3599	51.992	379	6333	10600	719	76	10	79	4750
6/4/2010 8:04	42.2	3623	52.024	379	6333	10600	719	76	10	79	4755
6/4/2010 8:05	42.2	3505	52.055	379	6333	10600	719	77	10	79	4757
6/4/2010 8:06	42.2	3602	52.086	379	6333	10600	719	77	10	79	4759
6/4/2010 8:07	42.2	3699	52.118	379	6333	10600	719	78	10	79	4762
6/4/2010 8:08	42.2	3508	52.149	379	6333	10600	719	78	10	79	4764
6/4/2010 8:09	42.2	3559	52.180	379	6333	10600	719	78	10	79	4767
6/4/2010 8:10	42.2	3567	52.212	379	6333	10600	720	79	10	79	4770
6/4/2010 8:11	42.2	3572	52.243	378	6333	10600	720	78	10	79	4774
6/4/2010 8:12	42.2	3497	52.275	378	6333	10600	720	78	10	79	4779
6/4/2010 8:13	42.2	3525	52.306	378	6333	10600	720	78	10	79	4783
6/4/2010 8:14	42.2	3543	52.337	378	6333	10600	720	77	10	79	4788
6/4/2010 8:15	42.2	3590	52.369	378	6333	10600	720	77	10	79	4792
6/4/2010 8:16	42.2	3528	52.387	378	6333	10600	720	77	10	79	4795
6/4/2010 8:17	42.2	3568	52.389	378	6333	10600	720	77	10	79	4796
6/4/2010 8:18	42.2	3608	52.390	378	6333	10600	720	75	10	79	4799
6/4/2010 8:19	42.2	3642	52.391	378	6333	10600	720	74	10	79	4801
6/4/2010 8:20	42.2	3676	52.393	378	6333	10600	720	75	10	79	4801
6/4/2010 8:21	42.2	3560	52.394	378	6333	10600	720	75	10	79	4800
6/4/2010 8:22	42.2	3517	52.395	378	6333	10600	720	75	10	79	4800
6/4/2010 8:23	42.2	3605	52.396	378	6333	10600	720	75	10	79	4799
6/4/2010 8:24	42.2	3619	52.398	378	6333	10600	720	75	10	79	4799
6/4/2010 8:25	42.2	3627	52.399	378	6333	10600	720	76	10	79	4798
6/4/2010 8:26	42.2	3605	52.400	378	6333	10600	720	76	10	79	4798
6/4/2010 8:27	42.2	3632	52.402	378	6333	10600	720	76	10	79	4797
6/4/2010 8:28	42.2	3601	52.403	378	6333	10600	720	76	10	79	4797
6/4/2010 8:29	42.2	3546	52.404	378	6333	10600	720	76	10	79	4796

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/4/2010 8:30	42.2	3457	52.406	378	6333	10600	720	76	10	79	4796
6/4/2010 8:31	42.2	3643	52.407	378	6333	10600	720	77	10	79	4795
6/4/2010 8:32	42.3	3631	52.408	378	6333	10600	720	77	10	79	4795
6/4/2010 8:33	42.3	3759	52.409	378	6333	10600	720	77	10	79	4794
6/4/2010 8:34	42.3	3565	52.411	378	6333	10600	720	77	10	79	4794
6/4/2010 8:35	42.3	3535	52.412	378	6333	10600	720	77	10	79	4793
6/4/2010 8:36	42.3	3542	52.413	378	6333	10600	720	78	10	79	4793
6/4/2010 8:37	42.3	3535	52.415	378	6333	10600	720	78	10	79	4793
6/4/2010 8:38	42.3	3625	52.416	378	6333	10600	720	78	10	79	4793
6/4/2010 8:39	42.3	3501	52.417	378	6333	10600	720	78	10	79	4792
6/4/2010 8:40	42.3	3553	52.418	378	6333	10600	720	78	10	79	4792
6/4/2010 8:41	42.3	3475	52.420	378	6333	10600	720	78	10	79	4792
6/4/2010 8:42	42.3	3549	52.421	378	6333	10600	720	78	10	79	4792
6/4/2010 8:43	42.3	3569	52.422	378	6333	10600	720	79	10	79	4790
6/4/2010 8:44	42.3	3556	52.424	378	6333	10600	720	79	10	79	4789
6/4/2010 8:45	42.3	3543	52.425	378	6333	10600	720	79	10	79	4788
6/4/2010 8:46	42.3	3575	52.426	378	6333	10600	720	79	10	79	4789
6/4/2010 8:47	42.3	3666	52.428	378	6333	10600	720	79	10	79	4790
6/4/2010 8:48	42.3	3593	52.429	378	6333	10600	720	79	10	79	4790
6/4/2010 8:49	42.3	3519	52.430	378	6333	10600	720	78	10	79	4791
6/4/2010 8:50	42.3	3450	52.431	378	6333	10600	720	78	10	79	4792
6/4/2010 8:51	42.3	3519	52.433	378	6333	10600	720	78	10	79	4791
6/4/2010 8:52	42.3	3732	52.443	378	6333	10600	720	79	10	79	4790
6/4/2010 8:53	42.3	3542	52.461	378	6333	10600	720	80	10	79	4790
6/4/2010 8:54	42.3	3606	52.478	378	6333	10600	720	81	10	79	4790
6/4/2010 8:55	42.3	3591	52.495	378	6333	10600	720	81	10	79	4791
6/4/2010 8:56	42.3	3623	52.513	378	6333	10600	720	81	10	79	4794
6/4/2010 8:57	42.3	4684	52.530	378	6333	10600	720	81	17	66	6047
6/4/2010 8:58	42.3	3590	52.547	378	6333	10600	720	81	10	79	4857
6/4/2010 8:59	42.3	3535	52.565	378	6333	10600	720	80	10	79	4859

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/4/2010 9:00	42.3	3642	52.582	378	6333	10600	720	80	10	79	4861
6/4/2010 9:01	42.3	3553	52.599	378	6333	10600	720	80	10	79	4863
6/4/2010 9:02	42.3	3436	52.616	378	6333	10600	720	80	10	79	4865
6/4/2010 9:03	42.3	3567	52.634	378	6333	10600	720	80	10	79	4867
6/4/2010 9:04	42.3	3639	52.651	378	6333	10600	720	80	10	79	4869
6/4/2010 9:05	42.3	3491	52.668	378	6333	10600	720	80	10	79	4871
6/4/2010 9:06	42.3	3591	52.686	378	6333	10600	720	80	10	79	4872
6/4/2010 9:07	42.3	3546	52.703	378	6333	10600	720	80	10	79	4873
6/4/2010 9:08	42.3	3667	52.720	378	6333	10600	720	81	10	79	4874
6/4/2010 9:09	42.3	3514	52.738	378	6333	10600	720	81	10	79	4874
6/4/2010 9:10	42.3	3457	52.755	377	6333	10600	720	81	10	79	4875
6/4/2010 9:11	42.4	3524	52.772	377	6333	10600	720	82	10	79	4875
6/4/2010 9:12	42.4	3528	52.790	377	6333	10600	720	82	10	79	4876
6/4/2010 9:13	42.4	3498	52.807	377	6333	10600	720	83	10	79	4876
6/4/2010 9:14	42.4	3503	52.824	377	6333	10600	720	83	10	79	4878
6/4/2010 9:15	42.4	3570	52.842	377	6333	10600	720	82	10	79	4880
6/4/2010 9:16	42.4	3693	52.859	377	6333	10600	720	82	10	79	4882
6/4/2010 9:17	42.4	3508	52.876	377	6333	10600	720	82	10	79	4885
6/4/2010 9:18	42.4	3522	52.893	377	6333	10600	720	82	10	79	4886
6/4/2010 9:19	42.4	3536	52.911	377	6333	10600	720	82	10	79	4887
6/4/2010 9:20	42.4	3577	52.928	377	6333	10600	720	82	10	79	4889
6/4/2010 9:21	42.4	3654	52.773	377	6333	10600	720	82	10	79	4869
6/4/2010 9:22	42.4	3570	52.102	377	6333	10600	720	83	10	79	4787
6/4/2010 9:23	42.4	3422	51.430	377	6333	10600	721	83	10	79	4705
6/4/2010 9:24	42.4	3469	51.042	377	6333	10600	721	83	10	79	4658
6/4/2010 9:25	42.4	3439	52.601	377	6333	10600	721	83	10	79	4846
6/4/2010 9:26	42.4	3566	52.528	377	6333	10600	721	83	10	79	4836
6/4/2010 9:27	42.4	3631	52.455	377	6333	10600	721	83	10	79	4828
6/4/2010 9:28	42.4	3622	52.382	377	6333	10600	721	82	10	79	4819
6/4/2010 9:29	42.4	3612	52.309	377	6333	10600	721	83	10	79	4808

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
6/4/2010 9:30	42.4	3474	52.236	377	6333	10600	721	84	10	79	4797
6/4/2010 9:31	42.4	3608	52.163	377	6333	10600	721	85	10	79	4785
6/4/2010 9:32	42.4	3675	52.091	377	6333	10600	721	86	10	79	4774
6/4/2010 9:33	42.4	3612	52.018	377	6333	10600	721	85	10	79	4766
6/4/2010 9:34	42.4	3470	51.945	377	6333	10600	721	82	10	79	4764
6/4/2010 9:35	42.4	3489	51.872	377	6333	10600	721	81	10	79	4757
6/4/2010 9:36	42.4	3552	51.799	377	6333	10600	721	81	10	79	4748
6/4/2010 9:37	42.4	3677	51.726	377	6333	10600	721	81	10	79	4738
6/4/2010 9:38	42.4	3605	51.653	377	6333	10600	721	81	10	79	4729
6/4/2010 9:39	42.4	3530	51.580	377	6333	10600	721	82	10	79	4720
6/4/2010 9:40	42.4	3513	51.507	377	6333	10600	721	82	10	79	4710
6/4/2010 9:41	42.4	3536	51.435	377	6333	10600	721	82	10	79	4701
6/4/2010 9:42	42.4	3590	51.362	377	6333	10600	721	82	10	79	4692
6/4/2010 9:43	42.4	3614	51.289	377	6333	10600	721	82	10	79	4682
6/4/2010 9:44	42.4	3520	51.216	377	6333	10600	721	82	10	79	4672
6/4/2010 9:45	42.4	3512	51.143	377	6333	10600	721	82	10	79	4662
6/4/2010 9:46	42.4	3609	51.070	377	6333	10600	721	83	10	79	4652
6/4/2010 9:47	42.4	3609	50.997	377	6333	10600	721	83	10	79	4641
6/4/2010 9:48	42.4	3578	50.924	377	6333	10600	721	84	10	79	4630
6/4/2010 9:49	42.4	3543	50.852	377	6333	10600	721	83	10	79	4625
6/4/2010 9:50	42.4	3574	50.779	377	6333	10600	721	83	10	79	4615
6/4/2010 9:51	42.5	3510	50.706	377	6333	10600	721	83	10	79	4605
6/4/2010 9:52	42.5	3541	50.772	377	6333	10600	721	84	10	79	4611
6/4/2010 9:53	42.5	3640	50.851	377	6333	10600	721	84	10	79	4620
6/4/2010 9:54	42.5	3618	50.930	377	6333	10600	721	84	10	79	4628
6/4/2010 9:55	42.5	3531	51.009	377	6333	10600	721	85	10	79	4636
6/4/2010 9:56	42.5	3648	51.087	377	6333	10600	721	85	10	79	4644
6/4/2010 9:57	42.5	4283	51.166	377	6333.0	10600	721	85	17	66	5841

Start Time 6/4/2010 7:00
End Time 6/4/2010 9:57

Boiler CPT Test 2 Run 3 Coal Data

Parameter	Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
Eng Unit	LB/MIN	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR

Boiler CPT Test 2 Run 3 Averages

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
2535	*3590*	*52.031*	*378*	*6333*	*10600*	*720*	*77*	*10*	*79*	*4787*

Boiler CPT Test 2 Run 3 Minimums

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
2521	*3422*	*50.706*	*377*	*6333*	*10600*	*719*	*71*	*10*	*66*	*4605*

Boiler CPT Test 2 Run 3 Maximums

Waste Feed	Coal Feed	Steam Production	Economizer Outlet Water Temp	Heating Value of Waste	Heating Value of Coal	Economizer Inlet Temp	Ambient Temp	%O2	Boiler Efficiency	Coal Feed Rate
LB/HR	LB/HR	KPPH	DEG F	BTU/LB	BTU/LB	DEG F	DEG F	%	%	LB/HR
2548	*4684*	*52.928*	*380*	*6333*	*10600*	*721*	*86*	*17*	*79*	*6047*

Drawings

Process Flow Diagram Coal Fired Boiler……..…… Figure 1.0

Boiler House Operating Floor Plan……..... 6M01-1A-021

Boiler Sectional Side View…… 6M01-4V-014

APCD and Ductwork Arrangement……..…. 6M01-4V-016

Waste Liquid Injection Nozzle……. 6M01-4E-554

Boiler and Instrument Block Diagram Boiler 1…….…... 6M01-9T-024

Boiler and Instrument Block Diagram Boiler 2…….…... 6M01-9T-025

Boiler and Instrument Block Diagram Boiler 3……..….. 6M01-9T-026

I.D. Fan …… 6M01-5-048

F.D. Fan ……... 6M01-5-049

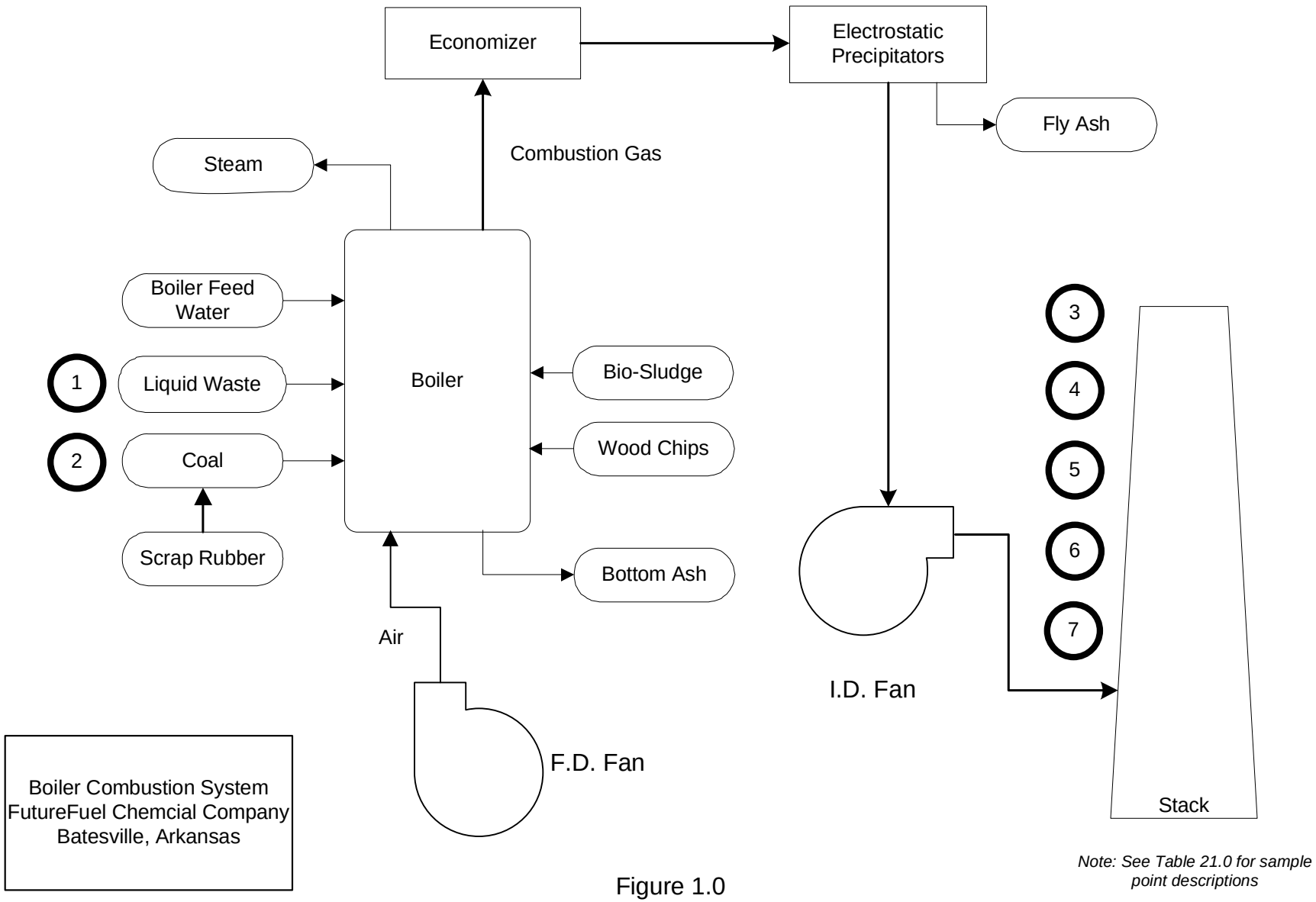
Overfire Fan…….…. 6M01-5-093

Waste Feed Piping and Instrumentation Boiler 1…….…. 6M01-9T-031

Waste Feed Piping and Instrumentation Boiler 2…….…. 6M01-9T-032

Waste Feed Piping and Instrumentation Boiler 3…….…. 6M01-9T-089

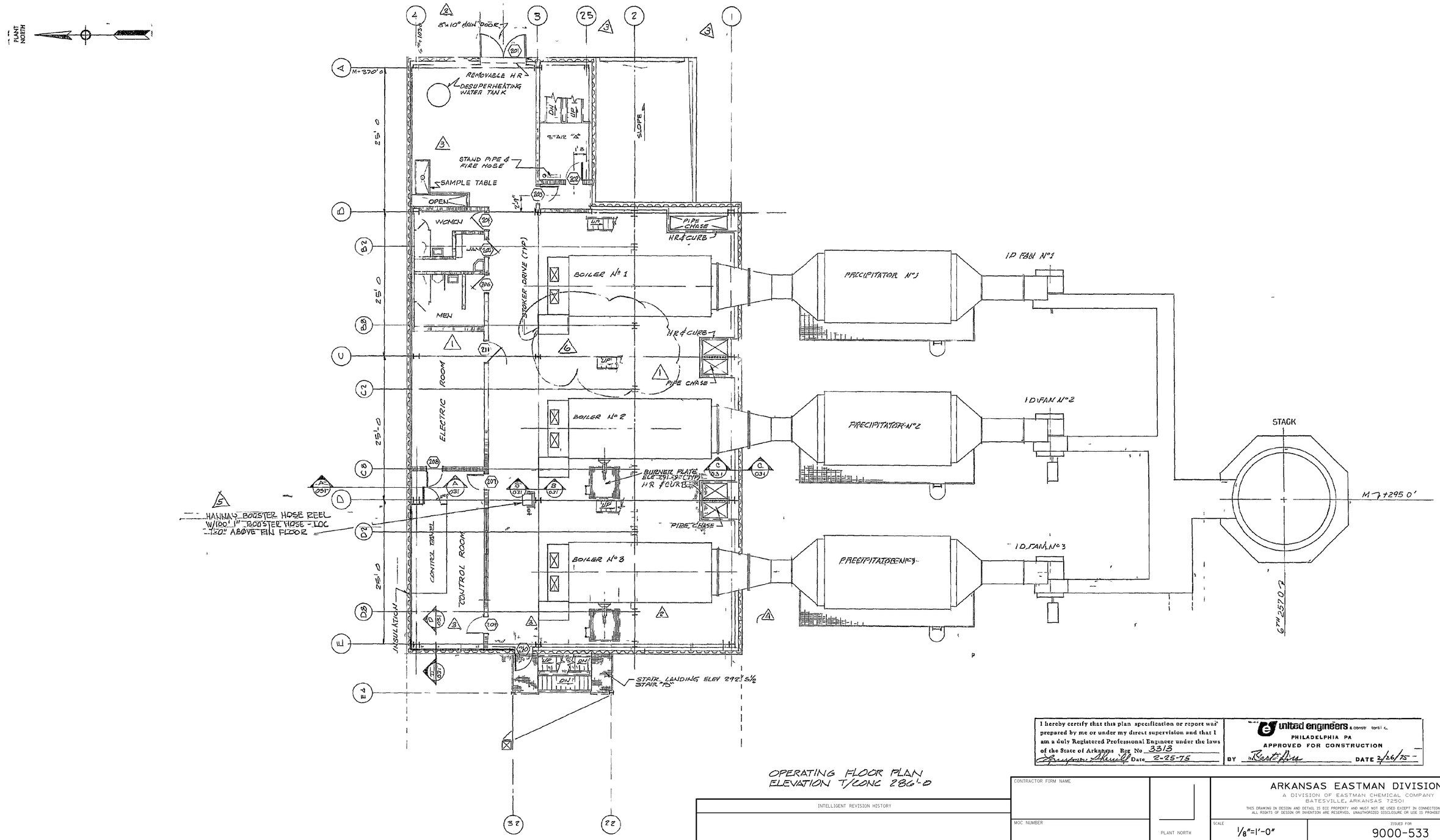
CEMS Piping and Instrumentation…….….. 6M01-9T-005



Note: See Table 21.0 for sample point descriptions

Figure 1.0

Boiler Combustion Process Flow Diagram with Sampling Locations



OPERATING FLOOR PLAN
ELEVATION T/CONC 286'-0

I hereby certify that this plan specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Arkansas Reg No 3313
Date 2-25-75

united engineers & constructors inc
PHILADELPHIA PA
APPROVED FOR CONSTRUCTION
BY Bert Pine DATE 2/26/75

CONTRACTOR FIRM NAME

MOC NUMBER

PLANT NORTH

ARKANSAS EASTMAN DIVISION
A DIVISION OF EASTMAN CHEMICAL COMPANY
BATESVILLE, ARKANSAS 72501

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SCALE 1/8"=1'-0"
ISSUED FOR 9000-533

BOILER HOUSE OPERATING FLOOR PLAN

DRAWN J.W.THOMPSON 1-13-75
CHECKED LS
CADD FILE NAME (DEC NO) 0388219A
DRAWING NO 6M01-1A-021
REV NO 6

INTELLIGENT REVISION HISTORY

REV NO	DATE	REFERENCE DRAWINGS	DWG NO	ISSUED FOR	APP FOR CONSTR	REVISION	B/M	DRAWN	CHECKED	DATE	ENGRG APP	OPRG APP
6		9000-533				REMOVED BURNER & PLATFORM FROM #1 BOILER		HDT		4-29-77	TRT	
5		9000-983				LOCATED 1" HOSE REEL		HDT		4-11-77	TRT	WLJ,JFW
4		9000-SEE ABOVE				REMOVED PIPING FROM PICTURE		JRS	LS	2-5-76	JDT,TWH, HCS	WLJ
3		9000-SEE ABOVE				GENERAL REVISION		RS	LS	1-2-76	JDT,TWH HCS	WLJ
0						ORIGINAL JOB						

MANAGEMENT APPROVALS		DATE
MANAGEMENT	M.L.GERNERT	5-6-75
OPERATING & STAFF APPROVALS		
DIV MANAGEMENT		
DIV REP	W.L.JACKSON	5-6-75
MAINT REP		

ENGINEERING & STAFF APPROVALS		DATE
ENG MANAGEMENT	CHARLES SIPE	5-6-75
PROJ MANAGER		
PROJ ENGINEER	H.C.SIVERT	5-6-75
DESIGN ENGINEER	TED W. HAGEN	5-6-75
	ROY FLEMING	5-6-75
PLANT PROTECTION		

CONTRACTOR APPROVALS	DATE

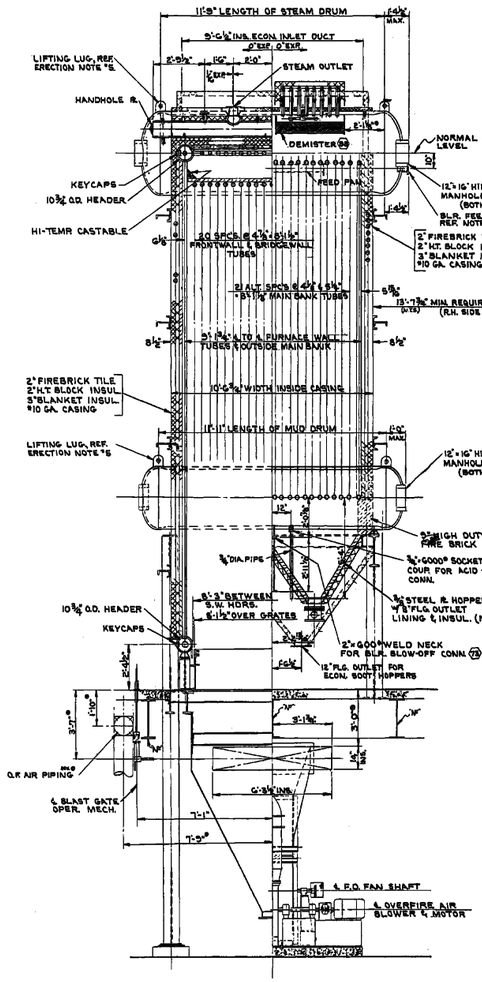
* SIGNED APPROVAL PRINT

LIFE IS FRAGILE DESIGN AND BUILD WITH CARE

☐ PROPOSED CHANGE CANCELLED
☐ INSTALLED AS DESIGNED
☐ INSTALLED AS REDLINED
RECORD DRAWING CHANGE PROCESS
INSTALLATION VERIFICATION
FIELD VERIFICATION
PROJECT VERIFICATION
DATE
DATE

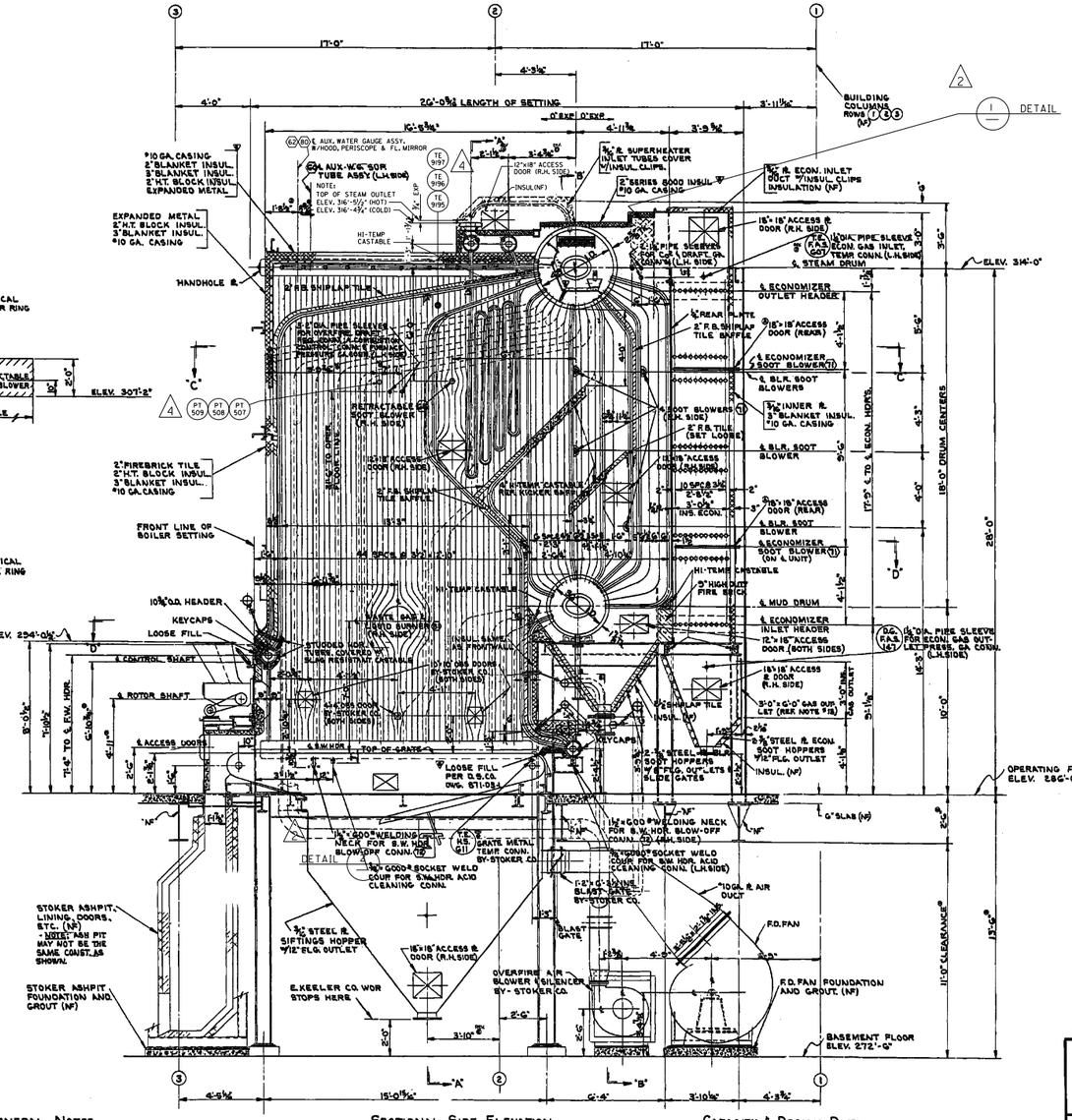
REVISE ON CADD

SCANNED

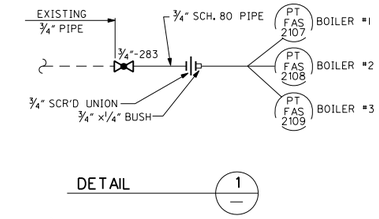


SECTION "A-A"

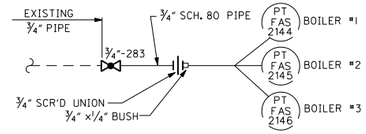
SECTION "B-B"



SECTIONAL SIDE ELEVATION



DETAIL 1



DETAIL 2
N.T.S.

Erection Notes

1. SOOT HOPPERS UNDER BOILER TO BE SET IN PLACE BEFORE LOWER DRUM IS SET.
2. ALL TUBES IN ECONOMIZER HOR'S. TO BE ROLLED & SEAL WELDED.
3. ERECTION WEIGHT OF STEAM DRUM 32,000 LB.
4. ERECTION WEIGHT OF MUD DRUM 11800 LB.
5. ALL LIFTING LUGS ON DRUMS TO BE REMOVED AND DRUMS GROUND SMOOTH AFTER DRUMS ARE IN PLACE AND SET.

General Notes

1. (NF) DENOTES NOT FURNISHED BY - E. KEELER CO.
2. FOUNDATION AND FOUNDATION WORK (NF).
3. PIPE, PIPE FITTINGS, AND PIPE FITTING WORK (NF).
4. ANCHOR BOLTS (NF)
5. INSUL. OVER DRUM HEADS, ECON. DUCTS AND SUPERHEATER (NF).
6. RETRACTABLE SOOT BLOWER SUPPORTS (NF).
7. ALL CASING TO BE SEAL WELDED.
8. ALL BLR. TUBES 2½" O.D. x #11 GA., ALL ECONOMIZER TUBES 2" O.D. x #11 GA. & ALL SUPERHEATER TUBES 2" O.D. x #10 GA.
9. DESIGN SHOWN IS NOTED IS BASED ON NO VALVES IN FEED LINE BETWEEN ECONOMIZER & STEAM DRUM; PIPING BY- E. KEELER CO.
10. FOR ITEMS MARKED ⬡ REF. TRIMMING & EQUIPMENT LIST.
11. FOR FRONT ELEVATION & PLAN SECTIONS REF DWG. Nº 419-737
12. FOR FOUNDATION AND LOADINGS REF. DWG. Nº 419-726
13. FOR DUST COLLECTOR & ADDITIONAL DUCTWORK REF. DWG. Nº 419-735

Capacity & Design Data

1. STEAM CAPACITY ~ CONTINUOUS ~ 50,000 #/HR
2. STEAM CAPACITY ~ 4 HOUR PEAK ~ 57,500 #/HR
3. BOILER DESIGN PRESSURE 700 P.S.I.G.
4. ECONOMIZER DESIGN PRESSURE 815 P.S.I.G.
5. OPERATING PRES. @ SUPERHEATER OUTLET 610 P.S.I.G.
6. TOTAL STEAM TEMP. & MAX. CONT. RATING 700 °F
7. FEEDWATER TEMPERATURE TO ECONOMIZER 270 °F
8. FURNACE VOLUME 2,300 CU. FT.
9. HEATING SURFACES (B.L.R. CALC. PER A.S.M.E. STANDARDS)
   - WATERWALL ~ FLAT PROJ. ~ 589 SQ. FT.
   - CONVECTION ~ FULL CIRC. ~ 4,150 SQ. FT.
   - TOTAL 4,839 SQ. FT.
10. EFFECTIVE ECONOMIZER HEATING SURFACE 1,659 SQ. FT.
11. EFFECTIVE SUPERHEATER HEATING SURFACE 750 SQ. FT.

REV.		
A	ADDED 12"x18" DOORS (TWO) TO REAR ECON.; ADDED "BLR. HOPPER SLIDE GATE"; REVISED BLR & ECON. HOPPERS; COMPLETED FRONT OF STOKER & ADDED STOKER REINJECTIONS; & SLIDE GATE ALL PER STOKER PRINTS RECEIVED MARCH 20th; REV. BOILER SUP. OUTLET & LOCATION; REV. B.W. HDR. FLAN. (OFF CONN.); ADDED ECON. HOPPER TO SEC. "B-B"	5-30-75 JLE
B	UPDATED & REVISED DWG. PER MKD PRINT FROM TENN EASTMAN CO.; REV. DIM. MKD. @ ; REV. STOKER HOPPER & ADDED O.R. AIR PER STOKER CO. PRINTS REC. 3-7-81; ADD. ALL ELEV'S.; ADDED BLOC COLS., F.D. FAN AND REV'D NOTE #4	5-30-81 JLE
C	LOCATED SIFTINGS HOPPER OUTLET; ADDED OF AIR PIPE IN SECT. "A-A"; ADDED EXP. NOTES AND REF. W. CO. PER MK. PRINTS FROM TENN EASTMAN CO. DATED 7-25-96; REV. BLR. CALC'S, TUBES & ADDED FEED PAN; REV. NOTES #2	8-13-96 JLE
D	ADDED NOTE 8 (ALL-BLR. INTER. HDR. TO REAR 12"); REVD. AND ADDED CONN. TO BLR. CONN. & DUCTS PER MKD PRINT FROM T.E. CO. DATED 2-28-08	8-13-08 JLE
E	ADDED 2" BLOCK INSUL. OVER FURNACE ROOF & REV. CONST. OF ROOF OVER DRUM W/8000 SER. INSUL.	2-11-09 JLE

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SECTIONAL SIDE ELEV. & SECTIONS THRU.
FOR: 3-50,000 #/HR TYPE "MKB" BOILER
FOR: ARKANSAS EASTMAN CO.
BATESVILLE, ARKANSAS

DATE	SCALE	DRAWN BY	CHECKED BY	APPROVED
2-13-75	¾" = 1'-0"	Miller	E-2-75	

CONTRACT NO. 16006 JOB ORDER NO.
DRAWING NO. 419-725-E

REFERENCE DRAWINGS	DWG NO	REV NO	ISSUED FOR	DESCRIPTION OF CHANGE	DRAFTER	DATE	ENGRG APP	OPRG APP	CONTR APP
		1	9000-120	REVISED PER "E" FROM VENDOR			WLJ		
		2	9390-810A	ADDED PT'S	JK	7-27-76	WLJ, TLH, KCB		
		3	62154147	DRAWING CLARIFICATION	DES	7-25-96	AMM, JRS		
		4	75501306	ADDED TE-9195, 9196 & 9197 AND PT-507, 508, 509	LKV	2-11-09	TLF, BEC		
		0	9000-120	ORIGINAL JOB	EK	3-4-96			

FUTUREFUEL CHEMICAL COMPANY
BATESVILLE, ARKANSAS 72501

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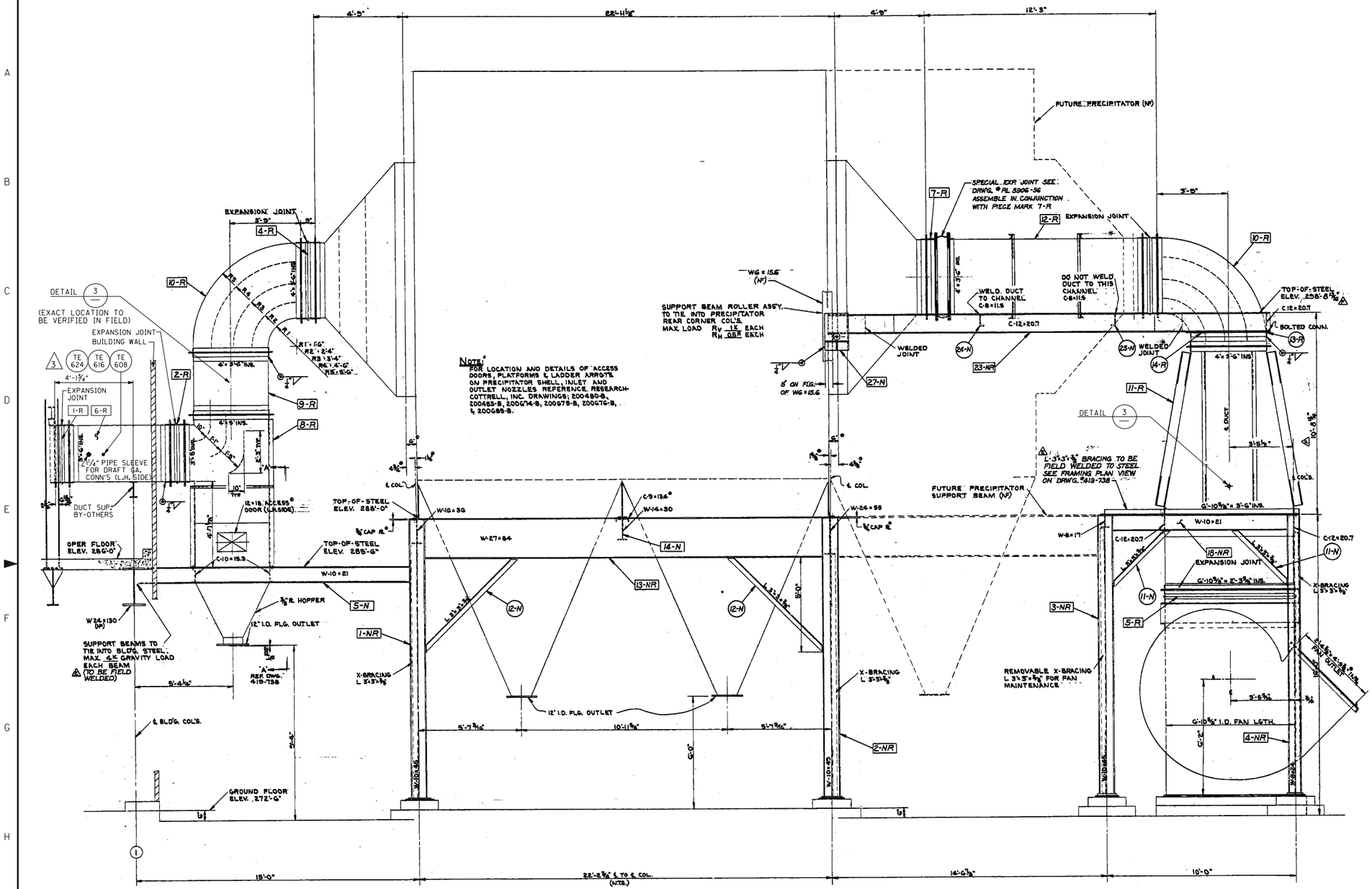
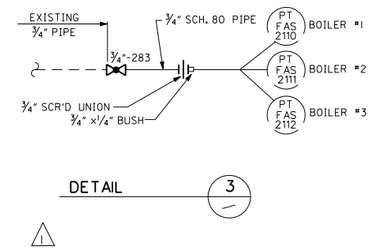
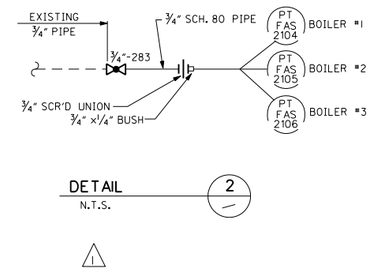
SECTIONAL SIDE ELEVATION
KEELER BOILER NO.'S 1,2, & 3

SCALE	ISSUED FOR	DRAWING NO	REV NO
3/16" = 1'-0"	75501306	6M01-4V-014	4



RIGHT HAND SIDE ELEVATION





NOTES:

1. ALL DUCTS 3/16" R. MATL., WELDED CONST.
2. (NF) DENOTES NOT FURNISHED BY- E. KEELER CO.
3. INSULATION (NF).
4. ANCHOR BOLTS, FOUNDATION, & FOUNDATION WORK (NF)
5. LOADS MKD. "K" ARE DESIGNED IN KIPS (1 KIP = 1000#).
6. FOR PRECIPITATOR FOUNDATION & LOADING REF DWG. #419-736
7. FOR BOILER GENERAL ARRGT. REF DWG. #419-725.
8. FOR PRECIPITATOR PLAN VIEWS REF. DWG. #419-738.
9. ALL STRUCTURAL FABRICATION SHALL CONFORM TO A.I.S.C. STANDARDS; AND ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A-36.

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PLEASE USE DIMENSIONS ONLY

PRECIPITATOR & DUCTWORK ARRGT.
FOR: 3-50,000 #/HR TYPE "MKB" BOILER
FOR: ARKANSAS EASTMAN CO.
BATESVILLE, ARKANSAS

DATE	SCALE	DRAWN BY	CHECKED BY	APPROVED
6-24-75	1/2" = 1'-0"	"Miller"	25-X-7-75	
CONTRACT NO. 16006			JOB ORDER NO.	

DRAWING NO. 419-735-F

REV.																			
A	REV. SUP STEEL ARRGT'S. ADDED FAN & UP-DATED	5/23/75	B	ADDED NOTE #9 & SECT.	5/28/75	C	REV. PER MKD. PRINT FROM TENN. EASTMAN CO. REV. DUCTS & TURNING VANES PER "BK-23339-C" FROM R.C.-INC.; REV. FAN OUTLET SIZE PER DWG. D-16-0-989 FROM C.E.C.; & ADDED CAP RE'S.	6/5/75	D	ADDED PRESSURE GA. CONN. ON OUT-LET DUCT PER MKD PRINT FROM T.E.C. DATED 9-25-75	10/30/75	E	ADDED PIECE MARK NO. TO SUPPORTING SUB-ASSEMBLIES & REV. AS MARKED △	12/26/75	KLP	F	ADDED PIECE MARK NO. TO SUPPORTING SUB-ASSEMBLIES & CHANGED DIM'S. MARKED △	1/2/76	KLP

REFERENCE DRAWINGS	DWG NO	REV NO	ISSUED FOR	DESCRIPTION OF CHANGE	DRAFTER	DATE	ENGRG APP	OPRG APP	CONTR APP
		1	9390-810A	ADDED PT'S	JK	7-27-76	WLJ, TLH, KCB	DLK	
		2	62154147	DRAWING CLARIFICATION	DES	7-25-96	SGC, AMM, JRS		
		0	9000-120	ORIGINAL JOB					

FUTUREFUEL CHEMICAL COMPANY
BATESVILLE, ARKANSAS 72501

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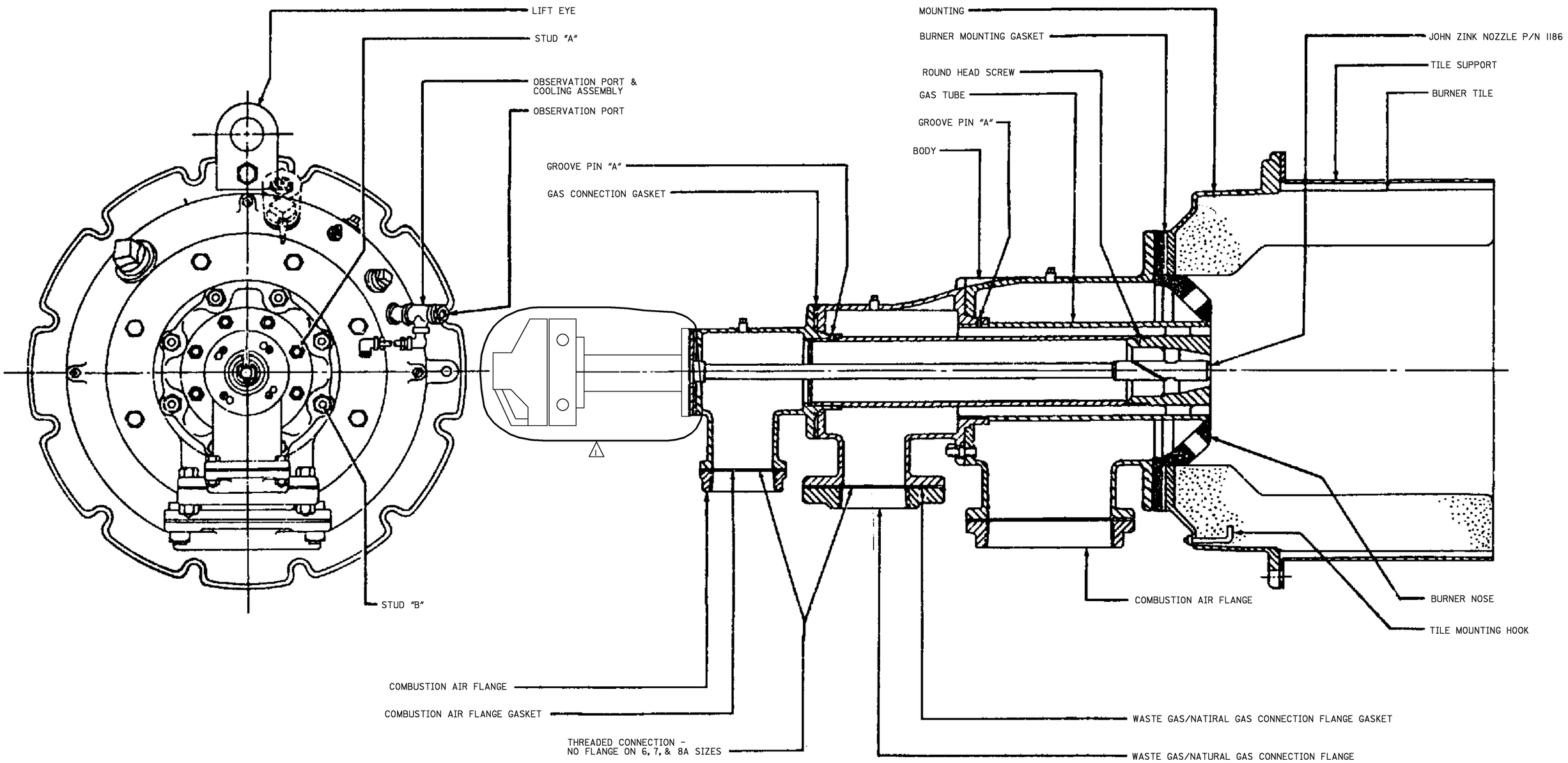
PRECIPITATOR & DUCTWORK ARRANGEMENT KEELER BOILER NO.S 1,2 & 3

SCALE	ISSUED FOR	DRAWING NO	REV NO
3/8" = 1'-0"	75501306	6M01-4V-016	3



* 1987 MODIFICATIONS

INTELLIGENT REVISION HISTORY

CONTRACTOR FIRM NAME

MOC NUMBER

PLANT NORTH

ARKANSAS EASTMAN DIVISION
A DIVISION OF EASTMAN CHEMICAL COMPANY
BATESVILLE, ARKANSAS 72501

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SCALE

ISSUED FOR: 10514215

LIFE IS FRAGILE DESIGN AND BUILD WITH CARE

REFERENCE DRAWINGS	DWG NO	REV NO / DATE	ISSUED FOR	APP FOR CONSTR	REVISION	B/M	DRAWN / CHECKED	DATE	ENGRG APP	OPRG APP
		1	10514215		CHANGE GUN TO JOHN ZINK STYLE ATTACHMENT		LKV	8-26-03	* BAN	* MWG
									*	*
									*	*
									*	*
		0			ORIGINAL JOB					

MANAGEMENT APPROVALS	DATE	ENGINEERING & STAFF APPROVALS	DATE	CONTRACTOR APPROVALS	DATE
MANAGEMENT *		ENG MANAGEMENT *			
		PROJ MANAGER *			
OPERATING & STAFF APPROVALS		PROJ ENGINEER *			
DIV MANAGEMENT * W.L. JACKSON		DESIGN ENGINEER *			
DIV REP * W.S. KRAMER		A.L. SHERRILL			
MAINT REP *		PLANT PROTECTION *			

* SIGNED APPROVAL PRINT

NORTH AMERICAN MFG. CO.
WASTE LIQUID INJECTION NOZZLE
#3 BOILER △1

DRAWN R. KARNS 10-5-98
CHECKED *

CADD FILE NAME (ECC NO): A0001872

DRAWING NO: 6M01-4E-554

△ REV NO: 1

REVISE ON CADD

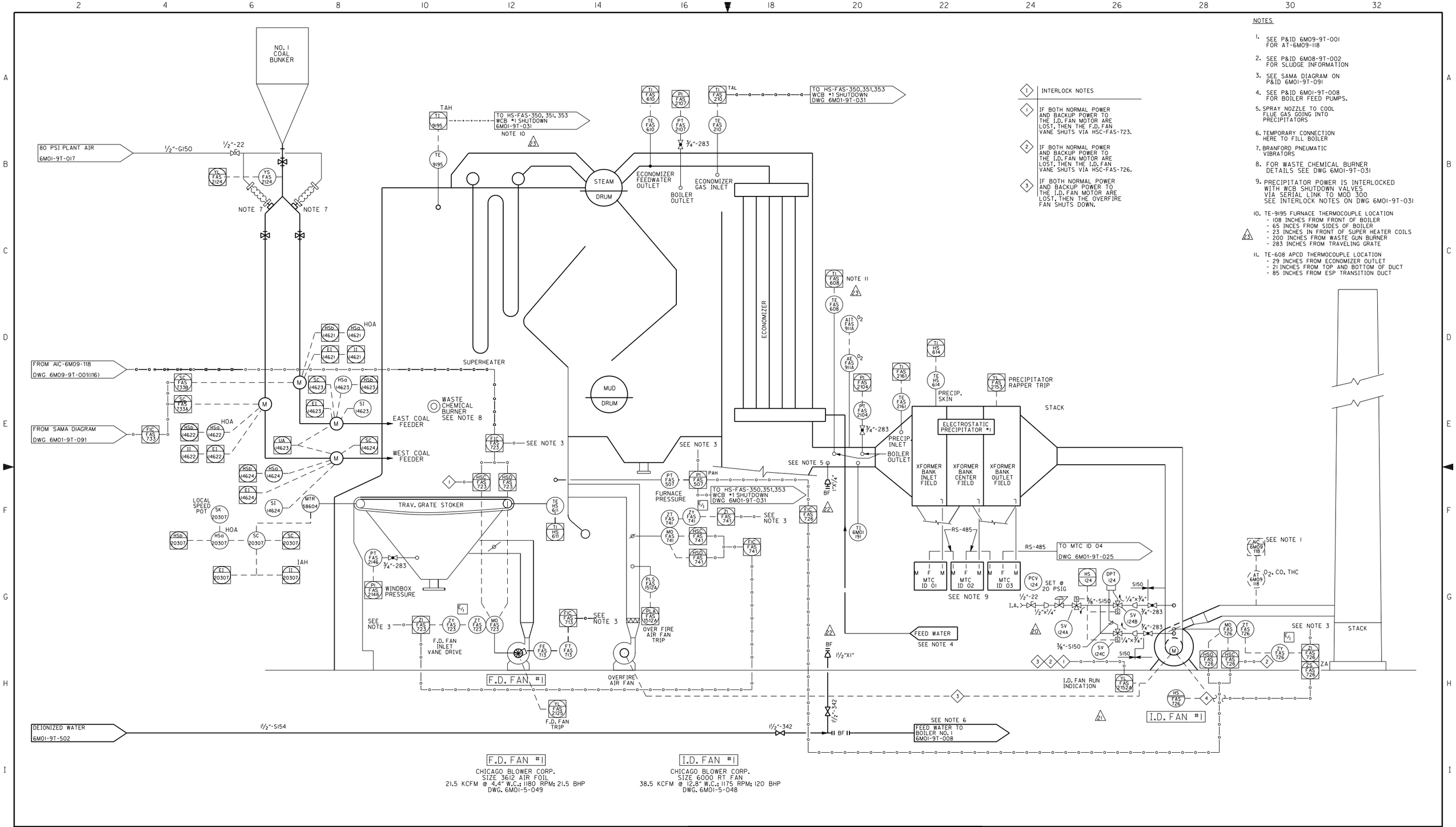
SCANNED

RECORD DRAWING CHANGE PROCESS
INSTALLATION VERIFICATION

☐ INSTALLED AS DESIGNED
☐ INSTALLED AS REDLINED

☐ PROPOSED CHANGE CANCELLED

DATE | PROJECT VERIFICATION | DATE | FIELD VERIFICATION



NOTES

1. SEE P&ID 6M09-9T-001 FOR AT-6M09-118
2. SEE P&ID 6M08-9T-002 FOR SLUDGE INFORMATION
3. SEE SAMA DIAGRAM ON P&ID 6M01-9T-091
4. SEE P&ID 6M01-9T-008 FOR BOILER FEED PUMPS.
5. SPRAY NOZZLE TO COOL FLUE GAS GOING INTO PRECIPITATORS
6. TEMPORARY CONNECTION HERE TO FILL BOILER
7. BRANFORD PNEUMATIC VIBRATORS
8. FOR WASTE CHEMICAL BURNER DETAILS SEE DWG 6M01-9T-031
9. PRECIPITATOR POWER IS INTERLOCKED WITH WCB SHUTDOWN VALVES VIA SERIAL LINK TO MOD 300 SEE INTERLOCK NOTES ON DWG 6M01-9T-031
10. TE-9195 FURNACE THERMOCOUPLE LOCATION
    - 108 INCHES FROM FRONT OF BOILER
    - 65 INCES FROM SIDES OF BOILER
    - 23 INCHES IN FRONT OF SUPER HEATER COILS
    - 200 INCHES FROM WASTE GUN BURNER
    - 283 INCHES FROM TRAVELING GRATE
11. TE-608 APCD THERMOCOUPLE LOCATION
    - 29 INCHES FROM ECONOMIZER OUTLET
    - 21 INCHES FROM TOP AND BOTTOM OF DUCT
    - 85 INCHES FROM ESP TRANSITION DUCT

INTERLOCK NOTES

1. IF BOTH NORMAL POWER AND BACKUP POWER TO THE I.D. FAN MOTOR ARE LOST, THEN THE F.D. FAN VANE SHUTS VIA HSC-FAS-723.
2. IF BOTH NORMAL POWER AND BACKUP POWER TO THE I.D. FAN MOTOR ARE LOST, THEN THE I.D. FAN VANE SHUTS VIA HSC-FAS-726.
3. IF BOTH NORMAL POWER AND BACKUP POWER TO THE I.D. FAN MOTOR ARE LOST, THEN THE OVERFIRE FAN SHUTS DOWN.

REFERENCE DRAWINGS	DWG NO
BOILER NO. 1 WASTE FEED P&ID (6)	6M01-9T-031
SLUDGE P&ID	6M08-9T-002
CONTINUOUS EMISSIONS MONITORING	6M09-9T-001
SAMA DIAGRAM P&ID	6M01-9T-091
BOILER FEEDWATER P&ID	6M01-9T-008
600# STEAM P&ID	6M01-9T-005

REV NO	ISSUED FOR	DESCRIPTION OF CHANGE	DRAFTER	DATE	ENGRG APP	OPRG APP	CONTR APP
21	75501306	CLARIFICATION	LKV	4-4-03	SDH	GBR	
22	11107366	REMOVE DI WATER PIPING & CONTROLS TO #1 ECONOMIZER HOPPER	LKV	5-4-06	DWS, JJH SDH	SGC, JEW	
23	75501306	ADDED NOTES 10 & 11	LKV	2-11-09	TLF, BEC	.	
20	10159554	INSTALL PURGE AIR FOR ID FAN D/P TRANSMITTER LINES	LKV	10-23-01	BJW, SDH	MWD, JEW GBR	
0	9000-364	ORIGINAL JOB	FM	4-3-92	HAS,CAS,LOS HCS,JGA,TRT RE	MLG,JFW,WLJ WDC,HTR	

FUTUREFUEL CHEMICAL COMPANY

BATESVILLE, ARKANSAS 72501

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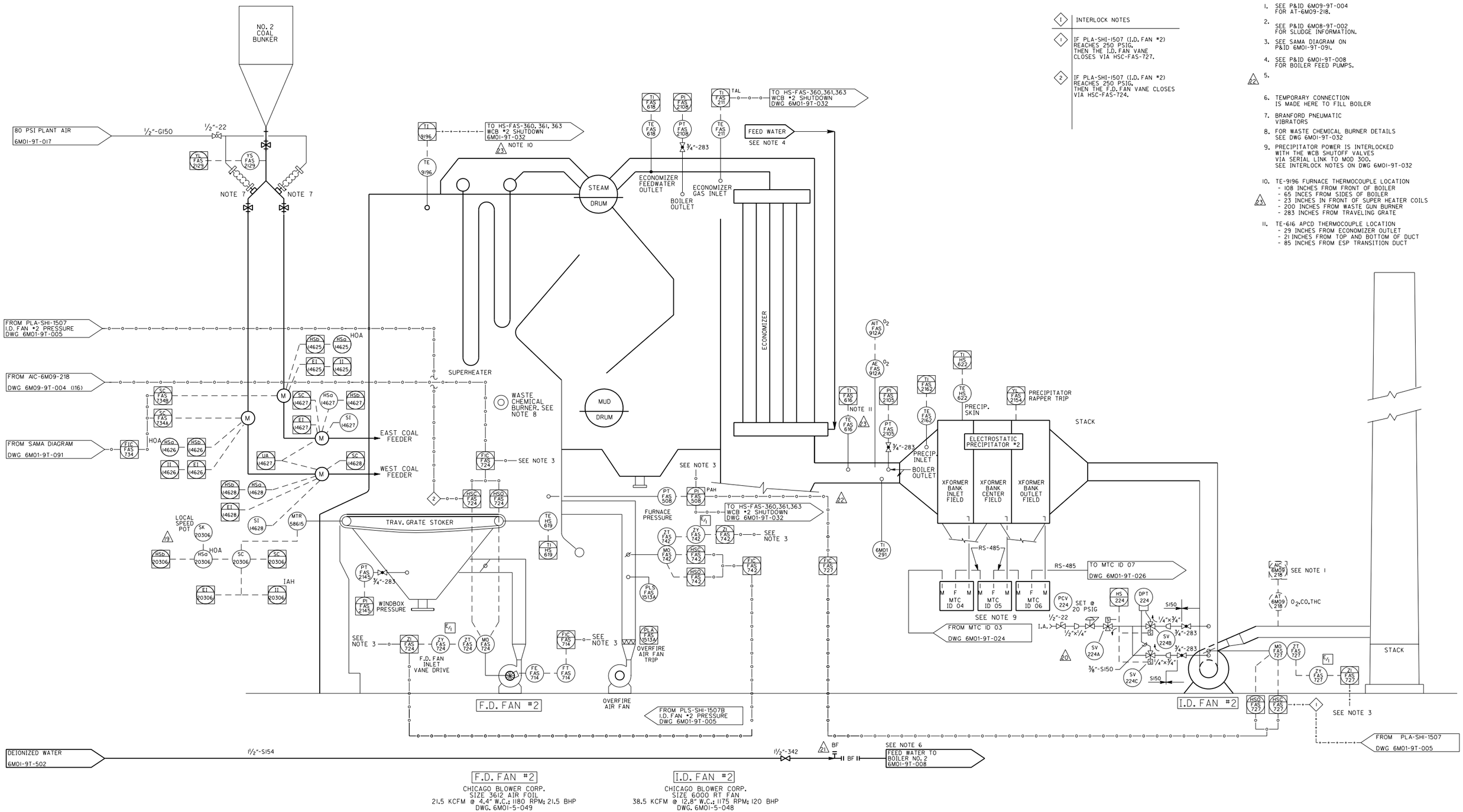
INSTRUMENT BLOCK DIAGRAM BOILER CONTROL-BOILER NO. 1 STEAM GENERATING FACILITIES

SCALE	ISSUED FOR	DRAWING NO	REV NO
NONE	75501306	6M01-9T-024	23



NOTES:

1. SEE P&ID 6M09-9T-004 FOR AT-6M09-218.
2. SEE P&ID 6M08-9T-002 FOR SLUDGE INFORMATION.
3. SEE SAMA DIAGRAM ON P&ID 6M01-9T-091.
4. SEE P&ID 6M01-9T-008 FOR BOILER FEED PUMPS.
5. (22)
6. TEMPORARY CONNECTION IS MADE HERE TO FILL BOILER
7. BRANFORD PNEUMATIC VIBRATORS
8. FOR WASTE CHEMICAL BURNER DETAILS SEE DWG 6M01-9T-032
9. PRECIPITATOR POWER IS INTERLOCKED WITH THE WCB SHUTOFF VALVES VIA SERIAL LINK TO MOD 300. SEE INTERLOCK NOTES ON DWG 6M01-9T-032
10. TE-9196 FURNACE THERMOCOUPLE LOCATION (23)
    - 108 INCHES FROM FRONT OF BOILER
    - 65 INCES FROM SIDES OF BOILER
    - 23 INCHES IN FRONT OF SUPER HEATER COILS
    - 200 INCHES FROM WASTE GUN BURNER
    - 283 INCHES FROM TRAVELING GRATE
11. TE-616 APCD THERMOCOUPLE LOCATION
    - 29 INCHES FROM ECONOMIZER OUTLET
    - 21 INCHES FROM TOP AND BOTTOM OF DUCT
    - 85 INCHES FROM ESP TRANSITION DUCT

(1) INTERLOCK NOTES

(1) IF PLA-SHI-1507 (I.D. FAN #2) REACHES 250 PSIG, THEN THE I.D. FAN VANE CLOSES VIA HSC-FAS-727.

(2) IF PLA-SHI-1507 (I.D. FAN #2) REACHES 250 PSIG, THEN THE F.D. FAN VANE CLOSES VIA HSC-FAS-724.

F.D. FAN #2
CHICAGO BLOWER CORP.
SIZE 3612 AIR FOIL
21.5 KCFM @ 4.4" W.C.; 1180 RPM; 21.5 BHP
DWG. 6M01-5-049

I.D. FAN #2
CHICAGO BLOWER CORP.
SIZE 6000 RT FAN
38.5 KCFM @ 12.8" W.C.; 1175 RPM; 120 BHP
DWG. 6M01-5-048

REFERENCE DRAWINGS	DWG NO
BOILER NO.	
SLUDGE P&ID	6M08-9T-002
CONTINUOUS EMISSIONS MONITORING	6M09-9T-004
SAMA DIAGRAM	6M01-9T-091
BOILER FEEDWATER P&ID	6M01-9T-008
600* STEAM P&ID	6M01-9T-005

REV NO	ISSUED FOR	DESCRIPTION OF CHANGE	DRAFTER	DATE	ENGRG APP	OPRG APP	CONTR APP
22	11107366	REMOVE DI PIPING TO 1,2, & 3 ECONOMIZER	LKV	5-4-06	DWS, ANH SDH	MWG, SGC JEW	
23	75501306	ADDED NOTES 10 AND 11	LKV	2-11-09	TLF,BEC	.	
20	10159554	INSTALL PURGE AIR FOR ID FAN D/P TRANSMITTER LINES	LKV	10-23-01	BJW, SDH	MWD,JEW GBR	
21	11107366	REMOVE DI WATER PIPING & CONTROLS BOILER #2	LKV	4-18-06	DWS, SDH	SGC, JEW	
0	9000-364	ORIGINAL JOB	FM	4-6-92	HAS,CAS,LOS HCS,JGA,TRT,RE	MLG,JFW WLJ,WDC,HTR	

FUTUREFUEL CHEMICAL COMPANY

BATESVILLE, ARKANSAS 72501

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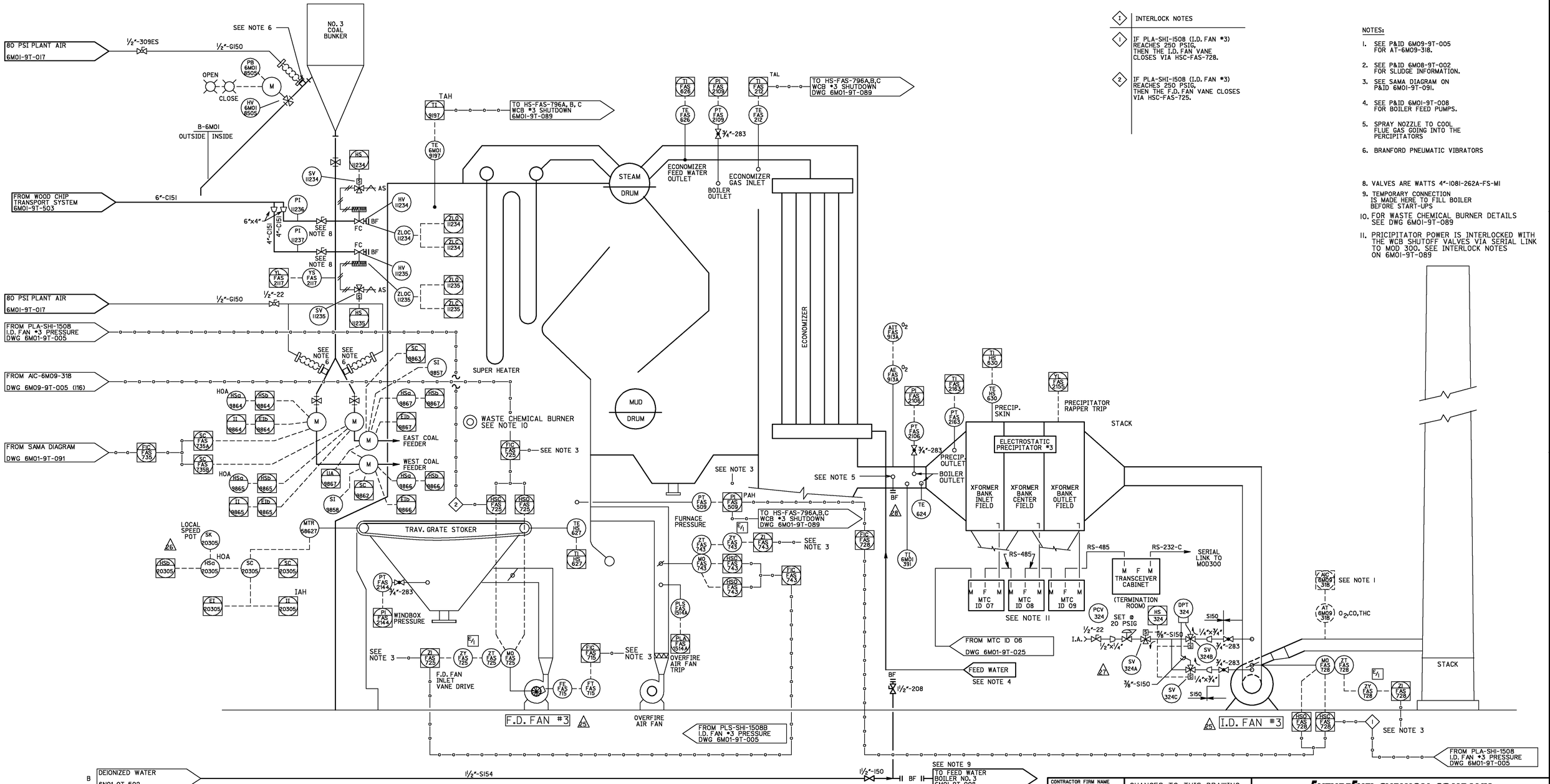
INSTRUMENT BLOCK DIAGRAM BOILER CONTROL-BOILER NO. 2 STEAM GENERATING FACILITIES

SCALE	ISSUED FOR	DRAWING NO	REV NO
NONE	75501306	6M01-9T-025	23



INTERLOCK NOTES

1. IF PLA-SHI-1508 (I.D. FAN #3) REACHES 250 PSIG, THEN THE I.D. FAN VANE CLOSES VIA HSC-FAS-728.
2. IF PLA-SHI-1508 (I.D. FAN #3) REACHES 250 PSIG, THEN THE F.D. FAN VANE CLOSES VIA HSC-FAS-725.

NOTES:

1. SEE P&ID 6M09-9T-005 FOR AT-6M09-318.
2. SEE P&ID 6M08-9T-002 FOR SLUDGE INFORMATION.
3. SEE SAMA DIAGRAM ON P&ID 6M01-9T-091.
4. SEE P&ID 6M01-9T-008 FOR BOILER FEED PUMPS.
5. SPRAY NOZZLE TO COOL FLUE GAS GOING INTO THE PERCIPITATORS
6. BRANFORD PNEUMATIC VIBRATORS
8. VALVES ARE WATTS 4"-1081-262A-FS-MI
9. TEMPORARY CONNECTION IS MADE HERE TO FILL BOILER BEFORE START-UPS
10. FOR WASTE CHEMICAL BURNER DETAILS SEE DWG 6M01-9T-089
11. PRICIPITATOR POWER IS INTERLOCKED WITH THE WCB SHUTOFF VALVES VIA SERIAL LINK TO MOD 300. SEE INTERLOCK NOTES ON 6M01-9T-089

CONTRACTOR FIRM NAME

CHANGES TO THIS DRAWING REQUIRE UPDATING P&ID RELATED DATABASES PER SAFE PRACTICES MANUAL SECTION 2.4 AND SECTION 8.14

FUTUREFUEL CHEMICAL COMPANY

FUTUREFUEL CORPORATION
BATESVILLE, ARKANSAS 72501

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MASTER PART ID: 0130101D
ISSUED FOR: 11107366

LIFE IS FRAGILE DESIGN AND BUILD WITH CARE

REFERENCE DRAWINGS	DWG NO
BLR NO. 3 WASTE FEED P&ID	6M01-9T-089
SLUDGE P&ID	6M08-9T-002
CONTINUOUS EMISSIONS MONITORING	6M09-9T-005
SAMA DIAGRAM	6M01-9T-091
BOILER FEEDWATER P&ID	6M01-9T-008
600# STEAM P&ID	6M01-9T-005

REV NO	DATE	ISSUED FOR	APP FOR CONSTR	REVISION	B/M	DRAWN	CHECKED	DATE	ENGRG APP	OPRG APP
27	10159554			INSTALL PURGE AIR FOR ID FAN D/P TRANSMITTER LINES		LKV		10-23-01	BJW, SDH	SDH, MWD JEW
28	11107366			REMOVE DI WATER PIPING & CONTROLS TO #3 ECONOMIZER HOPPER		LKV		5-4-06	DWS, JJH SDH	SGC, JEW
25	63140820			CLARIFICATION: ADDED INFORMATION FOR F.D. & I.D. FANS		LKV		4-27-00	CRW	
26	63336949			REPLACED DC GRATE MOTOR W/ AN AC MOTOR AND VFD		LKV		2-11-00	ALS,RHB SDH,MLT,JEW	GBR,ECB JMS
0	9000-364			ORIGINAL JOB						

MANAGEMENT APPROVALS		DATE
MANAGEMENT	M.L. GERNERT	3-4-76
OPERATING & STAFF APPROVALS		
DIV MANAGEMENT	J.F. WEBB	3-4-76
DIV REP	W.L. JACKSON	2-23-76
	W.D. CARTER	3-2-76
MAINT REP		

ENGINEERING & STAFF APPROVALS		DATE
ENG MANAGEMENT	H.A. SCOTT	3-2-76
PROJ MANAGER	C.A. SIPE L.O. SIEG	3-2-76 3-2-76
PROJ ENGINEER	H.C. SIVERT	2-20-76
DESIGN ENGINEER	J.G. AUSTIN ~~T.R. TAYLOR~~ ROY FLEMING	2-23-76 ~~2-23-76~~ 2-14-76
PLANT PROTECTION	H.T. ROCK	2-11-76

CONTRACTOR APPROVALS | DATE

* SIGNED APPROVAL PRINT

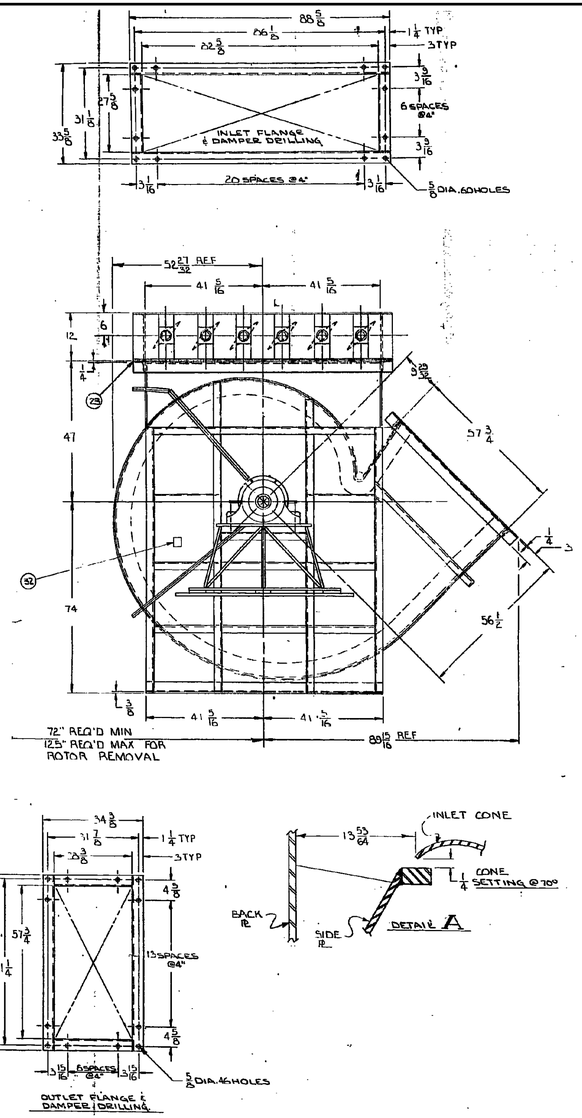
INSTRUMENT BLOCK DIAGRAM BOILER CONTROL-BOILER NO. 3 STEAM GENERATING FACILITIES

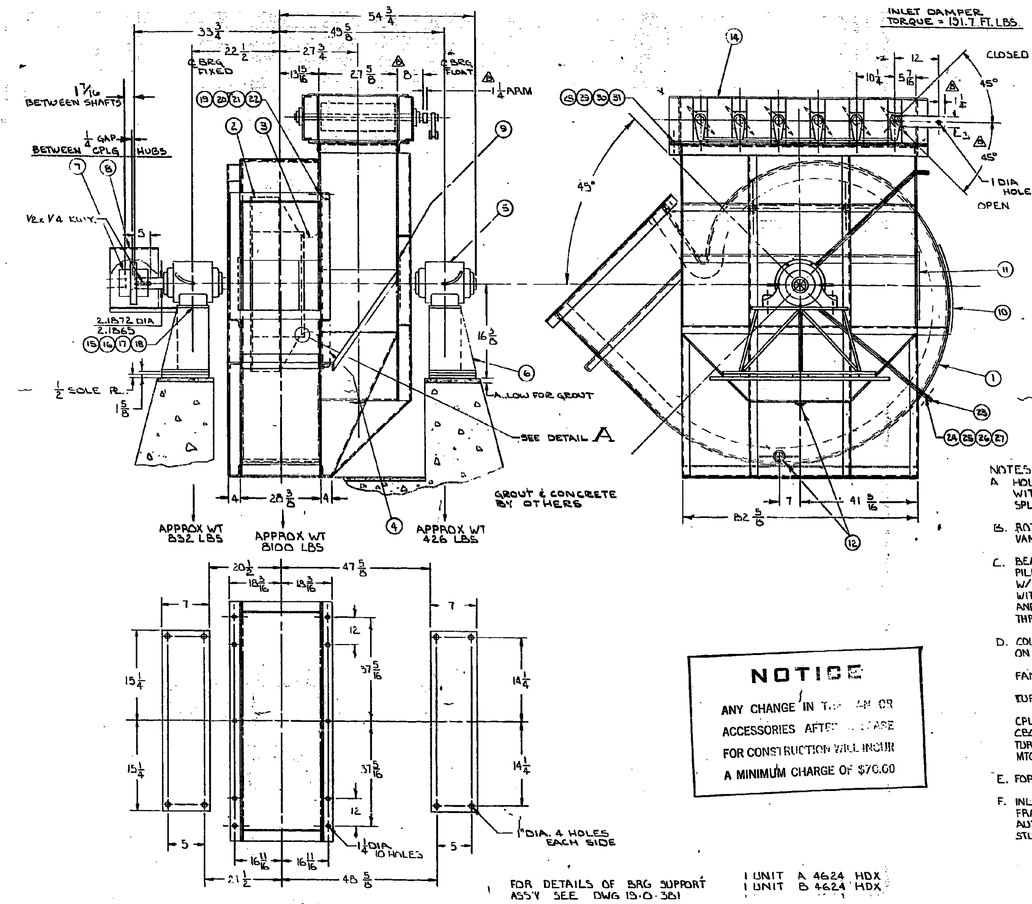
DRAWN F. McCROSKEY	4-7-92	PARTID 0130101D	DRAWING NO 6M01-9T-026	REV NO 28
CHECKED R. KARNS	11-30-95			

DATE | PROJECT VERIFICATION | DATE | FIELD VERIFICATION

☐ PROPOSED CHANGE CANCELLED
☐ INSTALLED AS DESIGNED
☐ INSTALLED AS REDLINED

RECORD DRAWING CHANGE PROCESS INSTALLATION VERIFICATION





FOUNDATION PLAN

FOR DETAILS OF BRG SUPPORT ASS'Y SEE DWG 15-0-361

1 UNIT A 4624 HDX
1 UNIT B 4624 HDX

BILL OF MATERIAL

REQ'D PER ASSEMBLY		ASSEMBLY NO.	ITEM NO.	NOTE	DESCRIPTION	ASS'Y / PART No.
	1		1	A	HOUSING ASSEMBLY	D18-3-707
	1		2	B	ROTOR ASSEMBLY	C18-5-1239
	1		3		INLET CONE	B19-4-3-8
	1		4		INLET RING	B19-4-82-9
	2		5	C	BEARINGS	
	2		6		BEARING PEDESTAL	C19-7-278-81
	1		7	D	COUPLING	
	1		8		COUPLING GUARD	C18-9-542
	2		9		SHAFT SEAL	8-6-9-10
	1		10		CLEANOUT DOOR (QUICK CLAMP)	C9-9-17-19
	1		11		CLEANOUT DOOR (BOLTED)	C9-9-18-19
	2		12		DRAIN 4" HALF CPLG	0-2-31-13
	3/16		13		PAINT	CBC ST'D
	1		14	F	INLET DAMPER	C18-9-543
	4		15		BOLT - HEX HD.	3/4 - 10 x 4 1/2
	4		16		NUT - HEX	3/4 - 10
	4		17		WASHER - LOCK	3/4
	8		18		WASHER - FLAT	3/4
	6		19		BOLT - HEX HD.	1/2 - 13 x 1 1/4
	18		20		NUT - HEX	1/2 - 13
	24		21		WASHER - LOCK	1/2
	24		22		WASHER - FLAT	1/2
	NR		23	E	GASKET	9-9-29
	NR		24		BOLT - HEX HD.	1/2 - 13 x 2 1/4
	NR		25		NUT - HEX	1/2 - 13
	NR		26		WASHER - LOCK	1/2
	NR		27		WASHER - FLAT	1/2
	60		28		BOLT - HEX HD.	1/2 - 13 x 1 1/2
	60		29		NUT - HEX	1/2 - 13
	60		30		WASHER - LOCK	1/2
	20		31		WASHER - FLAT	1/2
	1		32		NAMEPLATE	0-9-1
			33			
			34			

NOTES:

A. HOUSING TO BE 1/4 MS OF WELDED CONSTRUCTION WITH 1/4 MS WELDED ON SCROLL AND SIDE LINERS. SPLIT FOR ROTOR REMOVAL.

B. ROTOR ASS'Y TO CONSIST OF WHEEL WITH ANTI-THRUST VANES, AND SHAFT. WHEEL TO BE SHRUNK ON SHAFT.

C. BEARINGS TO BE DODGE WATER COOLED SLEEVED II. SPLIT PILLOW BLOCK, 2 BOLT MTG, 2 3/16 BORE, SAE 10 OIL LUBE W/ OIL CAPACITY 10 FLUID OZ., WATER FLOW RATE 0.6 GPM WITH 1/4" PIPE CONNECTIONS IN SERIES. 1 FIXED BRG AND 1 FLOATING BRG. FIXED BRG FURNISHED WITH THRUST COLLARS AND BRONZE THRUST PLATES.

D. COUPLING IS FALK 35G10 BORED FOR SHRINK FIT ON FOLLOWING DIA'S.

FAN SHAFT: 2.1872 / 2.1865 DIA. 1/2 x 1/4 KWY

TURBINE SHAFT: 1.6750 / 1.6745 DIA. 1/2 x 1/4 KWY.

CPLG SUPPLIED BY CBC. CBC TO MOUNT FAN HALF OF CPLG. TURBINE HALF TO BE SHIPPED LOOSE WITH FAN FOR FIELD MTG. CBC TO BORE TO FIT TURBINE SHAFT.

E. FOR GASKET APPLICATION SEE SK 9-79

F. INLET DAMPER IS PRESPIN TYPE CONSTRUCTED OF 1/4" MS FRAME, 12 GA LEAVES 17 1/4" DIA. MLES AND 15 SET UP FOR AUTOMATIC OPERATION. DAMPER IS FURNISHED WITH STUFFING BOXES.

NOTICE

ANY CHANGE IN THE AN OR ACCESSORIES AFTER PLACE FOR CONSTRUCTION WILL INCUR A MINIMUM CHARGE OF $70.00

REV C: 2-3-76 JH ADD 1 7/16 DIM. BETWEEN SHAFTS & "BET. CPLG. HUBS" 1/4 GAP. REV B: 11/5/75 JH BRG OIL WT WAS SHE 50 DAMPER HANDLE HOLE WAS 1/2 DIA. DAMPER DIM. WAS 1/4 SQ. 1/4 x 1/4 ADDED ELEV WAS 51 - ADDED TURBINE SHAFT DIA. COMPLETED B/M REV A: 7-8-75 JH ROT WAS CW; DISCH. WAS TAU. SEE RECORD SEPA.

TOLERANCE UNLESS OTHERWISE SPECIFIED	
FRACTIONAL ± 1/8	CONCENTRICITY
DECIMAL	SURFACE FINISH
SCALE NTS	BREAK ALL SHARP EDGES

PURCHASER TO PROVIDE OPENINGS IN BUILDING OR STRUCTURE OF SUFFICIENT SIZE TO PERMIT ENTRANCE OF EQUIPMENT PARTS AS SHOWN ON THIS DRAWING.

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S.O. No. SEE ABOVE. CUST. P.O. No. M6479 DESTINATION LATER
CUST. E. KEELER CO.
JOB NAME LATER MARK/SYSTEM No. PO# M6479

PERFORMANCE

CFM	S.P.	RPM	BHP	TEMP. °F	ELEV. FT.	DENSITY	WR² LBS FT²
36480	12.5	1175	120	465	275	.0421	1430
		MAX 1255		MAX 525			

CHICAGO BLOWER CORP.
FEB 3 1976
GLENDALE HEIGHTS, ILLINOIS

TITLE SIZE 6000 ET FAN ASSEMBLY
ASY. A/351 CCW. ROT. BAU-45° DISCH.
0° INTAKE - DESIGN 1901
DFTM. JH 7-8-75 DWG. No. D18-0-389
CHKD. MB Date
APPD. REV. ABC

237

CONTRACTOR FIRM NAME

MOC NUMBER A0003735

PLANT NORTH

ARKANSAS EASTMAN DIVISION
A DIVISION OF EASTMAN CHEMICAL COMPANY
BATESVILLE, ARKANSAS 72501

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SCALE

ISSUED FOR 63140820

OUTLINE OF CHICAGO BLOWER I.D. FAN FOR BOILERS NO. 2 & 3

DRAWN
CHECKED

PART ID A0003735 DRAWING NO 6M01-5-048 REV NO 1

REV NO	DATE	ISSUED FOR	APP FOR CONSTR	REVISION	B/M	DRAWN	CHECKED	DATE	ENGRG APP	OPRG APP
1		63140820		CLARIFICATION - CORRECTED TITLE INFORMATION		LKV		4-27-00	CRW	
0				ORIGINAL JOB						

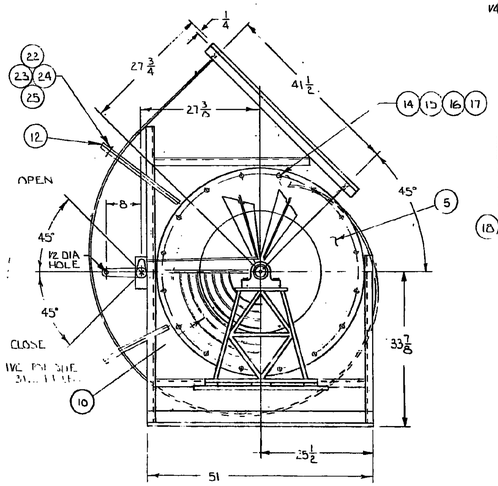
REFERENCE DRAWINGS | DWG NO

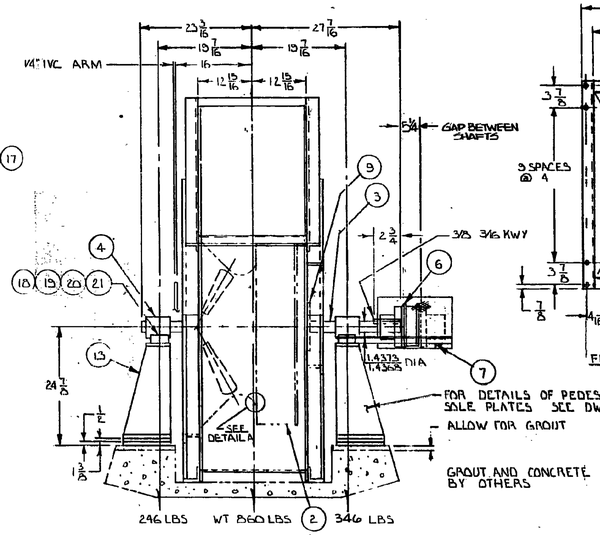
MANAGEMENT APPROVALS: MANAGEMENT
OPERATING & STAFF APPROVALS: DIV MANAGEMENT, DIV REP, MAINT REP
ENGINEERING & STAFF APPROVALS: ENG MANAGEMENT, PROJ MANAGER, PROJ ENGINEER, DESIGN ENGINEER, PLANT PROTECTION
CONTRACTOR APPROVALS
DATE
* SIGNED APPROVAL PRINT

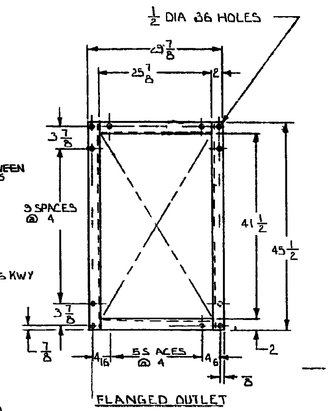
LIFE IS FRAGILE DESIGN AND BUILD WITH CARE

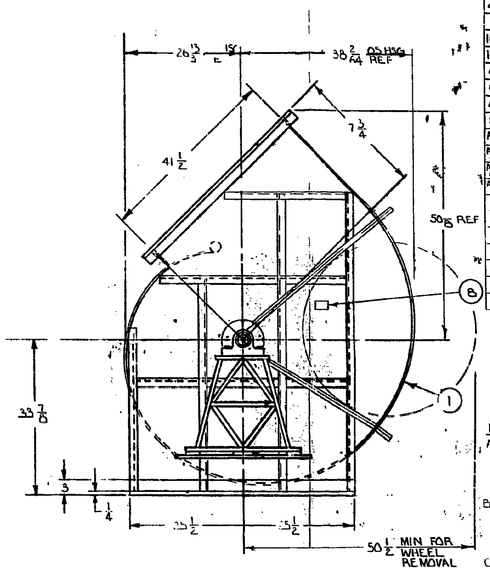
RECORD DRAWING CHANGE PROCESS
INSTALLATION VERIFICATION
☐ INSTALLED AS DESIGNED
☐ INSTALLED AS REDLINED
☐ PROPOSED CHANGE CANCELLED
PROJECT VERIFICATION
FIELD VERIFICATION
DATE

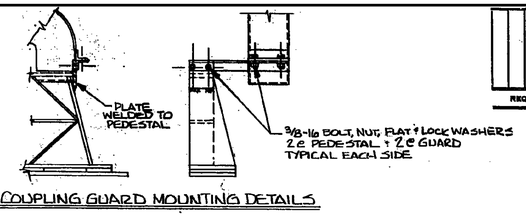
REVISE ON CADD



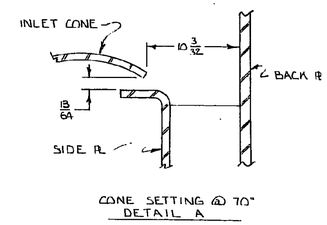




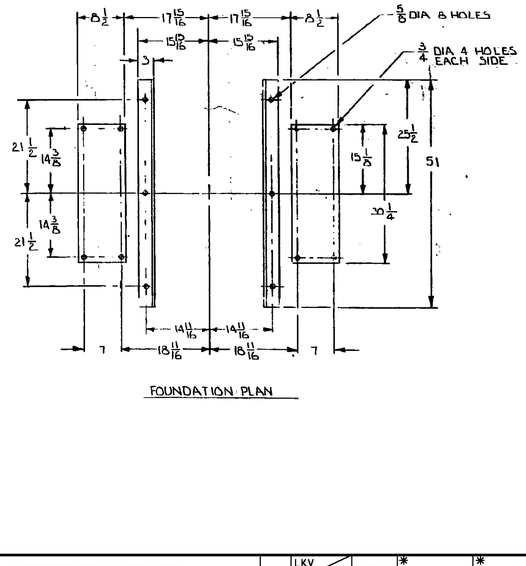




COUPLING GUARD MOUNTING DETAILS



CONE SETTING @ 70°
DETAIL A



FOUNDATION PLAN

BILL OF MATERIAL

REQ'D	AS	LT	ITEM	NOT	PT	PA
		1	1	A	HOUSING ASSEMBLY	D19 3 1717
		1	2	E	WHEEL ASSEMBLY	C19 5 1739
		1	3		SHAFT	B19 7 648
		2	4	B	BEARINGS	
		1	5		INLET CONE W/IVC	C19 4 67 D1
		1	6	C	COUPLING	
		1	7		COUPLING GUARD (OSHA)	C19 9 956
		1	8		NAMEPLATE	D 9 2
		1	9		SHAFT SEAL	CD 6 9 5
		1	10		INLET SCREEN	C19 4 389
		AR	11		PAINT	CBC STD
		AR	12	D	GASKET	3 9 29
		2	13		BEARING PEDESTAL	C19 7 333 2
		4	14		BOLT HEX HD	3/8 16 1 1/2
			15		N T HEX HD	3/8 16
		16	16		WASHER LOK	3/8
		16	17		WASHER FLAT	3/8
		4	18		BOLT HEX HD	5/8 11 3
		4	19		NUT HEX HD	5/8 11
		4	20		WASHER LOCK	5/8
		8	21		WASHER FLAT	5/8
		AR	22		BOLT HEX HD	3/8 16 1 1/2
		AR	23		NUT HEX HD	3/8 16
		AR	24		WASHER LOCK	3/8
		AR	25		WASHER FLAT	3/8

NOTICE

ANY CHANGE IN THE FAN OR ACCESSORIES AFTER FOR CONSTRUCTION WILL INCUR A MINIMUM CHARGE OF $ 10

NOTES

A. HOUSING ASSEMBLY TO CONSIST OF 10GA HRS SCROLL AND 7GA HRS HSG SIDE SHEETS OF WELDED CONSTRUCTION. SPLIT HSG FOR ROTOR REMOVAL.

B. BEARINGS TO BE DODGE SLEEVOIL PLAIN PILLOW BLOCK 2 BOLT MTG 1 7/16 BORE SAE 10 OIL LUBE ONE FIXED BRG AND ONE FLOATING BRG.

C. COUPLING IS FALK 50T31 WITH 5 1/4" SPACER BORED FOR SHRINK FIT ON THE FOLLOWING SHAFT DIA'S:
FAN HALF - SECTIONS A & C - 1.4373/1.4365 DIA. 3/8 x 3/16 KWY.
DRIVE HALF - SECTIONS A & B - 1.750/1.748 DIA 3/8 x 3/16 KWY
DRIVE HALF - SECTION C - 1.4375/1.4365 DIA. 1/2 x 1/4 KWY
CPLS TO BE FURNISHED IN FAN HALVES MOUNTED BY CBC. DRIVE HALVES SHIPPED LOOSE WITH FANS FOR MOUNTING BY OTHERS.

D. FOR GASKET APPLICATION SEE SK 3-73

E. WHEEL ASSEMBLY TO BE OF MILD STEEL CONSTRUCTION WITH REINFORCED RIB IN BLADE AND ANTI-THRUST VANES ON BACKPLATE.

1 UNIT A 4625 HDX
1 UNIT B 4625 HDX
1 UNIT C 4625 HDX

MARK: M 6473

NOV 14 1975

Rev A Dwg 11/13/76 Sect Dr Wheel Size Pate; Inlet Cone Was 16 Gal; Clamp Bet B & C Changed To Bolted Flange; Was 1 Wks Weight Was 1 Wks; Added Sp Dtl; Added Sp Dtl

TOLERANCE UNLESS OTHERWISE SPECIFIED	
FRACTIONAL ±1/16	CONCENTRICITY
DECIMAL	SURFACE FINISH
SCALE NTS	BREAK ALL SHARP EDGES

PURCHASER TO PROVIDE OPENINGS IN BUILDING OR STRUCTURE OF SUFFICIENT SIZE TO PERMIT ENTRANCE OF EQUIPMENT PARTS AS SHOWN ON THIS DRAWING.

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S.O. No. SEE ABOVE | CUST. P.O. No. MG473 | DESTINATION LATER
CUST. E KEELER
JOB NAME | SYSTEM No.

PERFORMANCE

CFM	S.P.	RPM	BHP	TEMP. °F	ELEV. FT.	DENSITY	WR² LBS-FT²
21456	4.4	1180	21.46	105	SL	.0704	163
		MAX 1252					

CHICAGO BLOWER CORP.
COMBUSTION-AIR DIV.
GLENDALE HEIGHTS, ILLINOIS

TITLE SIZE 3612 AIRFOIL FAN ASSEMBLY
A13 TAU CCW ROT. DESIGN 1903
110% SISW

DFTM. JH 5-9-75 | DWG. No. D1940-332
CHKD. RD 5-14-75 | REV. A
APPD.

CONTRACTOR FIRM NAME

MOC NUMBER A0003736

PLANT NORTH

ARKANSAS EASTMAN DIVISION
A DIVISION OF EASTMAN CHEMICAL COMPANY
BATESVILLE, ARKANSAS 72501

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SCALE | ISSUED FOR 63140820

OUTLINE AIRFOIL FAN ASSEMBLY
F. D. FAN & BOILERS NO. 1, 2, & 3

DRAWN | CHECKED | PART ID A0003736 | DRAWING NO 6M01-5-049 | REV NO 1

LIFE IS FRAGILE DESIGN AND BUILD WITH CARE

REV NO	DATE	ISSUED FOR	APP FOR CONSTR	REVISION	B/M	DRAWN	CHECKED	DATE	ENGRG APP	OPRG APP
1		63140820		CLARIFICATION - CORRECTED TITLE INFORMATION		LKV		4-27-00	CRW	
0				ORIGINAL JOB						

REFERENCE DRAWINGS | DWG NO

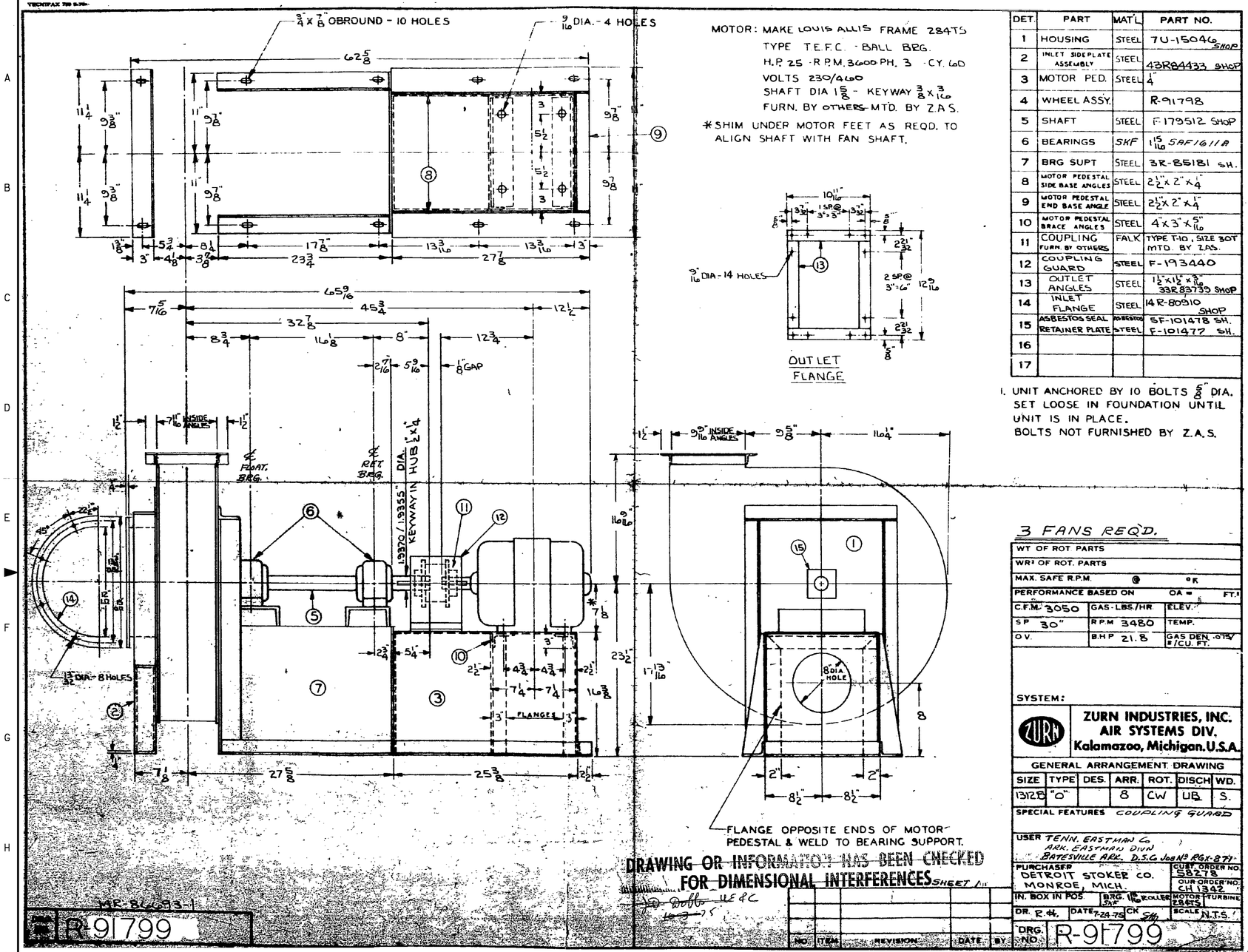
MANAGEMENT APPROVALS	DATE	ENGINEERING & STAFF APPROVALS	DATE	CONTRACTOR APPROVALS	DATE
MANAGEMENT *		ENG MANAGEMENT *			
		PROJ MANAGER *			
OPERATING & STAFF APPROVALS		PROJ ENGINEER *			
DIV MANAGEMENT *		DESIGN ENGINEER *			
DIV REP *					
MAINT REP *		PLANT PROTECTION *			

* SIGNED APPROVAL PRINT

REVISE ON CADD

☐ PROPOSED CHANGE CANCELLED
☐ INSTALLED AS DESIGNED
☐ INSTALLED AS REDLINED

DATE | PROJECT VERIFICATION | DATE | FIELD VERIFICATION | RECORD DRAWING CHANGE PROCESS INSTALLATION VERIFICATION



DET.	PART	MAT'L	PART NO.
1	HOUSING	STEEL	7U-15046 SHOP
2	INLET SIDE PLATE ASSEMBLY	STEEL	43R84433 SHOP
3	MOTOR PED.	STEEL	4"
4	WHEEL ASSY.		R-91798
5	SHAFT	STEEL	F-179512 SHOP
6	BEARINGS	SKF	1 15/16 SAF1611A
7	BRG SUPT	STEEL	3R-85181 SH.
8	MOTOR PEDESTAL SIDE BASE ANGLES	STEEL	2 1/2" x 2" x 4"
9	MOTOR PEDESTAL END BASE ANGLE	STEEL	2 1/2" x 2" x 4"
10	MOTOR PEDESTAL BRACE ANGLES	STEEL	4" x 3" x 5/16"
11	COUPLING FURN. BY OTHERS	FALK	TYPE F-10, SIZE 30T MTD. BY Z.A.S.
12	COUPLING GUARD	STEEL	F-193440
13	OUTLET ANGLES	STEEL	1 1/2" x 1 1/2" x 3/16" 33R83739 SHOP
14	INLET FLANGE	STEEL	14R-80910 SHOP
15	ASBESTOS SEAL	ASBESTOS	5F-101478 SH.
	RETAINER PLATE	STEEL	F-101477 SH.
16			
17			

1. UNIT ANCHORED BY 10 BOLTS 5/8" DIA. SET LOOSE IN FOUNDATION UNTIL UNIT IS IN PLACE. BOLTS NOT FURNISHED BY Z.A.S.

3 FANS REQ'D.

WT OF ROT. PARTS		
WR² OF ROT. PARTS		
MAX. SAFE R.P.M. @ °F		
PERFORMANCE BASED ON	OA =	FT.²
C.F.M. 3050	GAS-LBS./HR.	ELEV.
S.P. 30"	R.P.M. 3480	TEMP.
O.V.	B.H.P. 21.8	GAS DEN. .075 #/CU. FT.

SYSTEM:

ZURN INDUSTRIES, INC.
AIR SYSTEMS DIV.
Kalamazoo, Michigan, U.S.A.

GENERAL ARRANGEMENT DRAWING

SIZE	TYPE	DES.	ARR.	ROT.	DISCH	WD.
1312.8	"O"		8	CW	UB	S.

SPECIAL FEATURES COUPLING GUARD

USER TENN. EASTMAN Co. ARK. EASTMAN DIVN BATESVILLE ARK. D.S.G. Job No. RGX-871

PURCHASER DETROIT STOKER CO. MONROE, MICH.

CUST. ORDER NO. 5B278
OUR ORDER NO. CH1342

IN. BOX IN POS. | BRG. 1 1/16 ROLLER | MOTOR 284TS | TURBINE

DR. R.H. | DATE 7-24-75 | CK | SCALE N.T.S.

DRG. NO. R-91799

NO	ITEM	REVISION	DATE	BY

CONTRACTOR FIRM NAME

MOC NUMBER

PLANT NORTH

ARKANSAS EASTMAN DIVISION
A DIVISION OF EASTMAN CHEMICAL COMPANY
BATESVILLE, ARKANSAS 72501

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SCALE | ISSUED FOR 9000-120

ZURN INDUSTRIES
OVERFIRE AIR FAN
DIMENSIONS & DETAILS

DRAWN | CHECKED * | PARTID A0003778 | DRAWING NO 6M01-5-093 | △REV NO 0

LIFE IS FRAGILE DESIGN AND BUILD WITH CARE

REFERENCE DRAWINGS	DWG NO	REV NO / DATE	ISSUED FOR	APP FOR CONSTR	REVISION	B/M	DRAWN / CHECKED	DATE	ENGRG APP	OPRG APP
		0			ORIGINAL JOB					

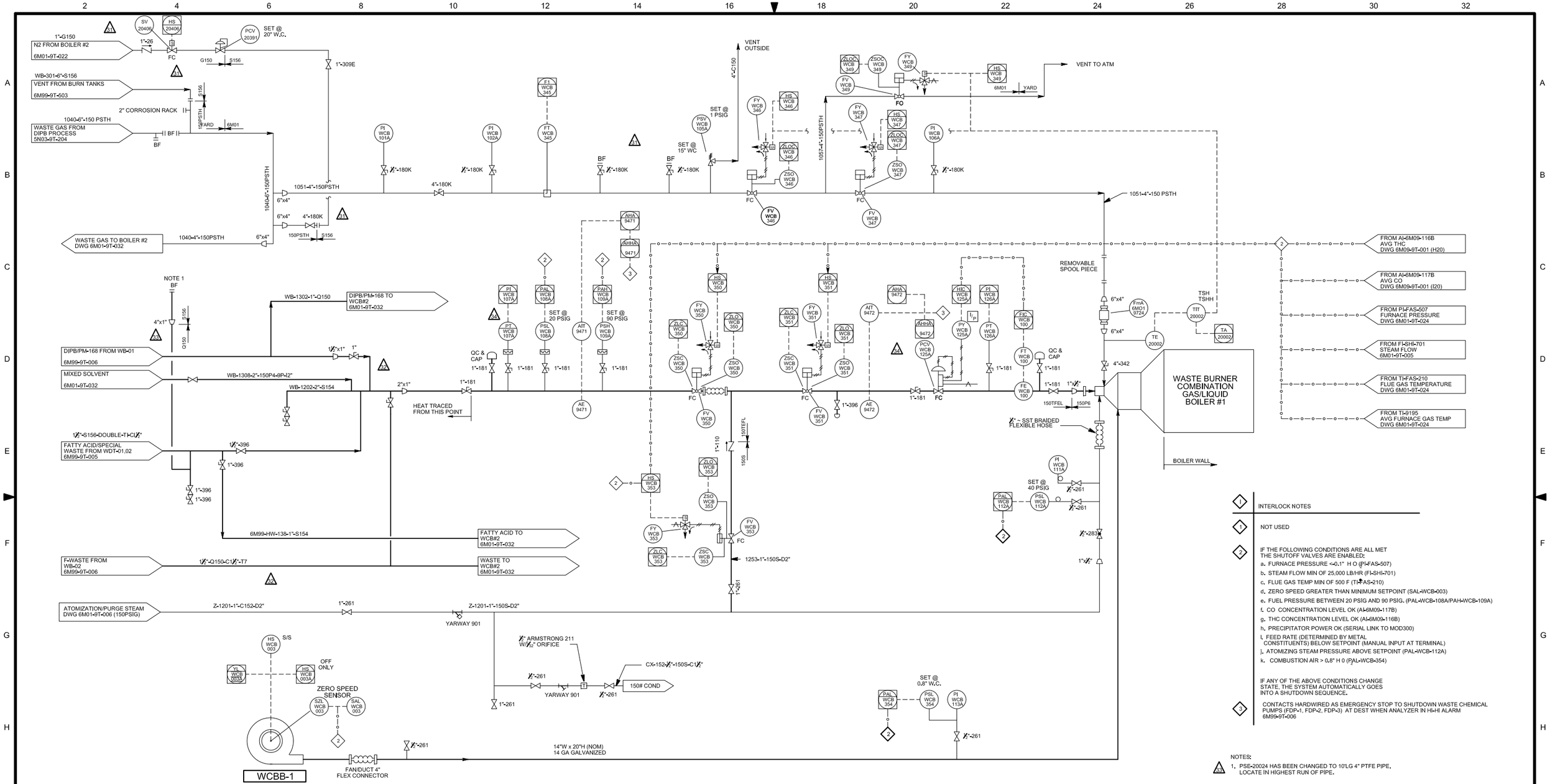
MANAGEMENT APPROVALS	DATE	ENGINEERING & STAFF APPROVALS	DATE	CONTRACTOR APPROVALS	DATE
MANAGEMENT *		ENG MANAGEMENT *			
		PROJ MANAGER *			
OPERATING & STAFF APPROVALS		PROJ ENGINEER *			
DIV MANAGEMENT *		DESIGN ENGINEER *			
DIV REP *					
MAINT REP *		PLANT PROTECTION *			

* SIGNED APPROVAL PRINT

REVISE ON CADD

RECORD DRAWING CHANGE PROCESS
☐ INSTALLED AS DESIGNED
☐ INSTALLED AS REDLINED
☐ PROPOSED CHANGE CANCELLED

FIELD VERIFICATION | DATE | PROJECT VERIFICATION | DATE



NOTES:

1. PSE-20024 HAS BEEN CHANGED TO 10'LG 4" PTFE PIPE. LOCATE IN HIGHEST RUN OF PIPE.

WCBB-1

WASTE CHEMICAL COMBUSTIONS AIR FAN
NEW YORK BLOWER SIZE 188, MODEL PLR, CLASS III
1800 CFM @ 5.0" W.C.; 6.0 BHP; 900 RPM
20 HP, 3510 RPM MOTOR

REFERENCE DRAWINGS	DWG NO
INSTRUMENT AIR SUPPLY	6M01-9T-092
BOILER #2 WASTE FEED P&ID	6M01-9T-032

REV NO	ISSUED FOR	DESCRIPTION OF CHANGE	DRAFTER	DATE	ENGRG APP	OPRG APP	CONTR APP
34	11311832	CHANGE PRESS GAUGE TO PRESS TX	LKV	8-4-08	DWS, BEC	MG,SGC	
35	75501306	CLARIFICATION - CORRECTED INFORMATION FOR WCBB-1	LKV	5-12-10	SGC	.	
32	75501306	CLARIFICATION	LKV	11-6-01	MSF	.	
33	11311043	REPLACE FATTY ACID CPO EXPANSION CHAMBERS	LKV	3-5-08	RKW,BAN JJH	MWG, SGC	
0	9201-251	ORIGINAL JOB	RAULSON	10-15-85	PDS,WKT	JLK,JFW GWM,SGC	

FUTUREFUEL CHEMICAL COMPANY

BATESVILLE, ARKANSAS 72501

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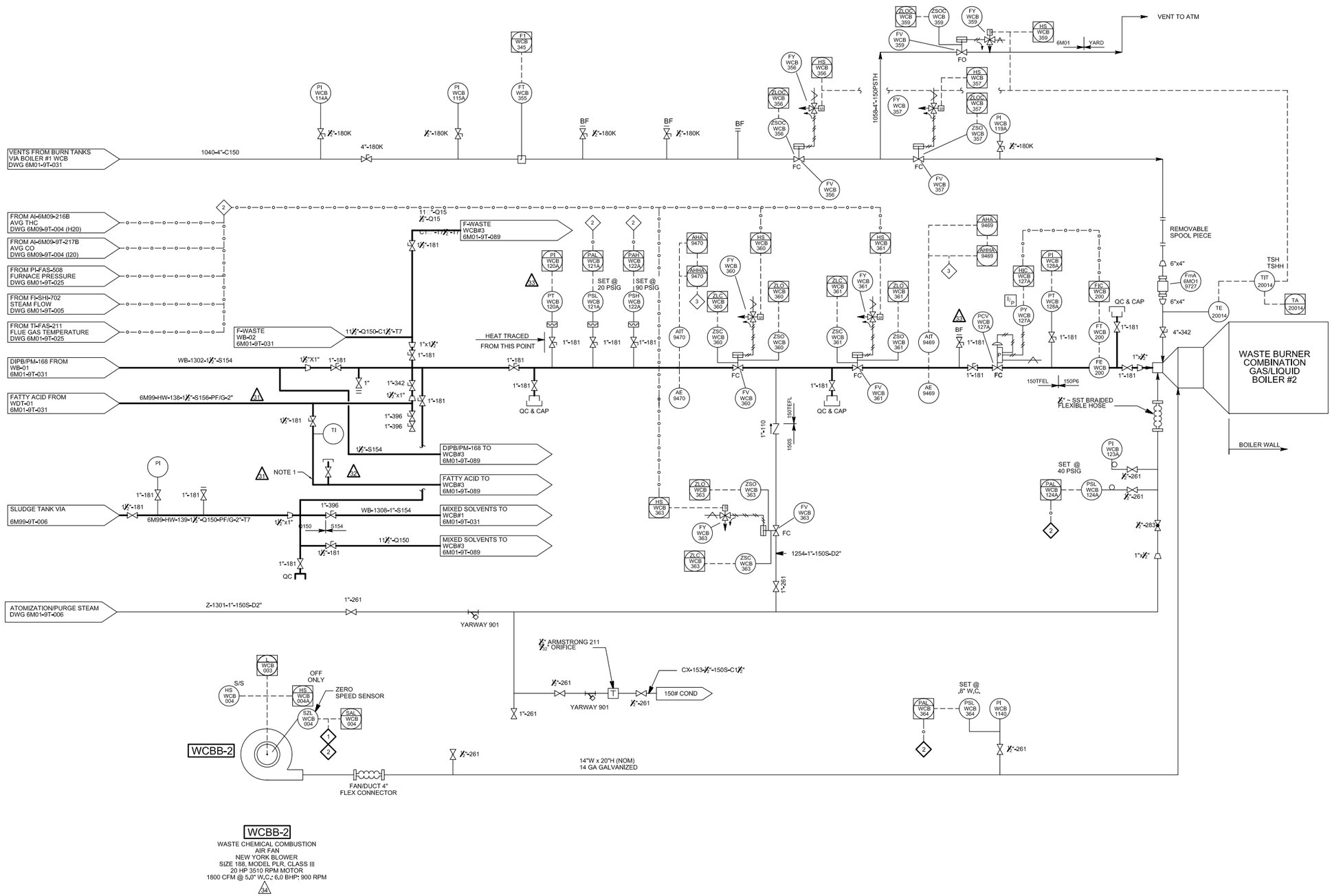
BOILER #1
BOILER #1 WASTE FEED
P&ID BLDG 6M01

SCALE	ISSUED FOR	DRAWING NO	REV NO
NONE	75501306	6M01-9T-031	35



WCBB-2

WASTE CHEMICAL COMBUSTION AIR FAN
NEW YORK BLOWER
SIZE 188, MODEL PLR, CLASS III
20 HP 3510 RPM MOTOR
1800 CFM @ 5.0" W.C.; 6.0 BHP; 900 RPM

34

INTERLOCK NOTES

1 NOT USED

2 IF THE FOLLOWING CONDITIONS ARE ALL MET THE SHUTOFF VALVES ARE ENABLED:

a. FURNACE PRESSURE <-0.1" H O (PI-FAS-508)
b. STEAM FLOW MIN OF 25,000 LB/HR (FI-SHI-702)
c. FLUE GAS TEMP MIN OF 500 F (TI-FAS-211)
d. ZERO SPEED GREATER THAN MINIMUM SETPOINT (SAL-WCB-004)
e. FUEL PRESSURE BETWEEN 20 PSIG AND 90 PSIG. (PAL-WCG-121A/PAH-WCB-122A)
f. CO CONCENTRATION LEVEL OK (AI-6M09-217B)
g. THC CONCENTRATION LEVEL OK (AI-6M09-216B)
h. PRECIPITATOR POWER OK (SERIAL LINK TO MOD300)
i. FEED RATE (DETERMINED BY METAL CONSTITUENTS) BELOW SETPOINT (MANUAL INPUT AT TERMINAL)
j. ATOMIZING STEAM PRESSURE ABOVE SETPOINT (PAL-WCB-124A)
k. COMBUSTION AIR > 0.8" H 0 (PAL-WCB-364)
l. FURNACE TEMP HRA <1359 ^F

3 IF ANY OF THE ABOVE CONDITIONS CHANGE STATE, THE SYSTEM AUTOMATICALLY GOES INTO A SHUTDOWN SEQUENCE.

CONTEACTS HARDWIRE AS EMERGENCY STOP TO SHUTDOWN WASTE CHEMICAL PUMPS (FDP-1, FDP-2, FDP-3 6M99-9T-006) AT DEST. WHEN ANALYZER IN HI-HI ALARM

NOTES:

33 1. SECTIONS OF LINE #6M99-HW-138 HAVE BEEN REPLACED WITH HASTELLOY AND USE SPIRAL WOUND GASKETS. GMN# 383277

REFERENCE DRAWINGS	DWG NO
BOILER #1 WASTE FEED P&ID	6M01-9T-031

REV NO	ISSUED FOR	DESCRIPTION OF CHANGE	DRAFTER	DATE	ENGRG APP	OPRG APP	CONTR APP
31	10774475	INSTALL PSE	LKV	11-23-04	MSF, SDH	JM, ALS SGC	
32	11311043	REPLACE FATTY ACID CPO EXPANSION CHAMBERS	LKV	3-5-08	RKW, BAN JJH	MWG, SGC	
33	11311832	CHANGE PRESS GAUGE TO PRESS TX	LKV	8-4-08	DWS, SDH	.	
34	75501306	CLARIFICATION - CORRECTED INFORMATION FOR WCBB-2	LKV	5-12-10	SGC	.	
0	9201-251	ORIGINAL JOB	RAULSON	10-15-85	PDS,WKT	JLK,JFW GWM,SGC	

FUTUREFUEL CHEMICAL COMPANY

BATESVILLE, ARKANSAS 72501

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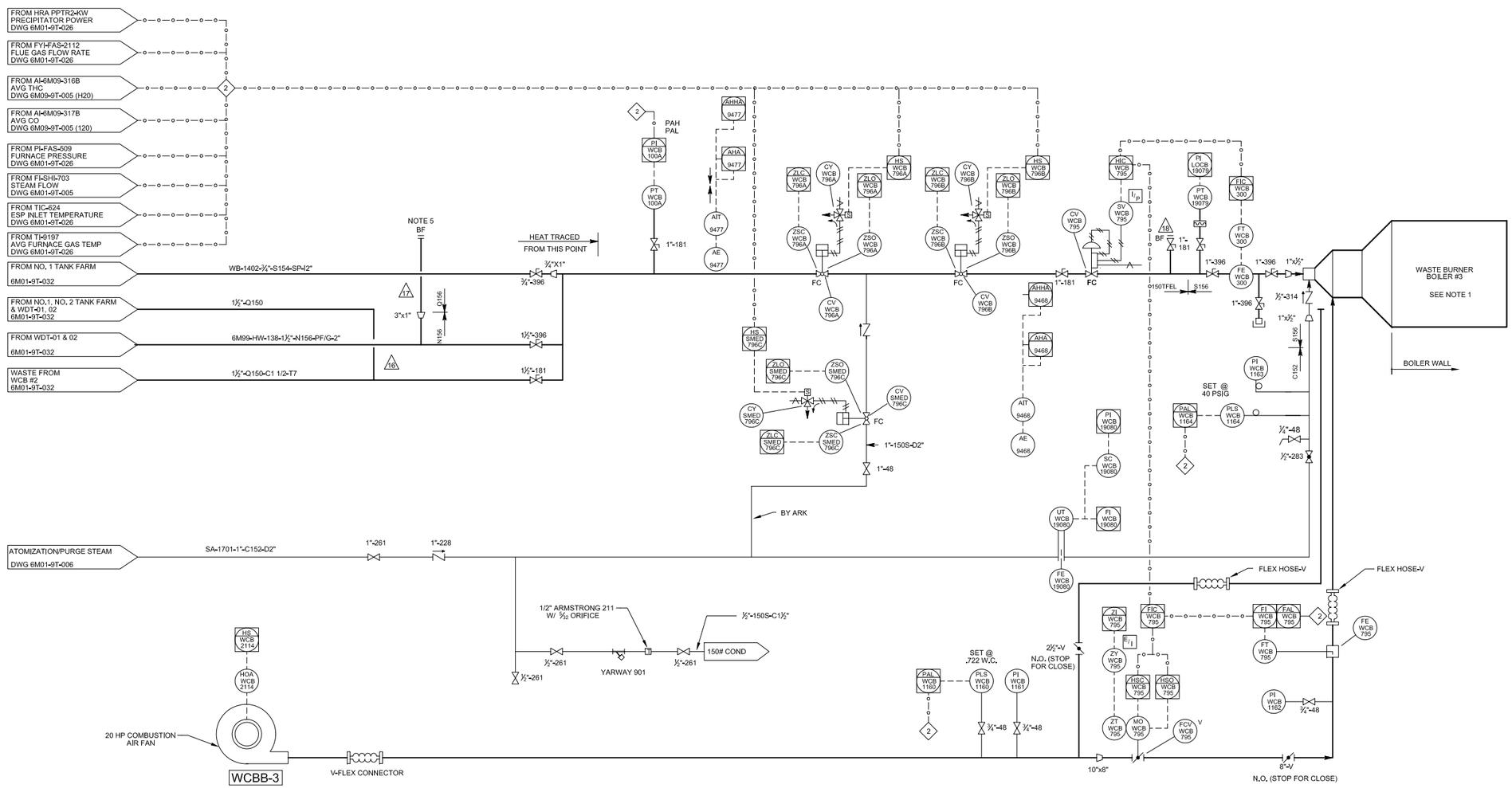
BOILER #2
BOILER #2 WASTE FEED
P&ID BLDG 6M01

SCALE	ISSUED FOR	DRAWING NO	REV NO
NONE	75501306	6M01-9T-032	34



INTERLOCK NOTES

1. NOT USED

2. IF THE FOLLOWING CONDITIONS ARE ALL MET THE SHUTOFF VALVES ARE ENABLED:
   - a. FURNACE PRESSURE (PI-FAS-509)
   - b. STEAM FLOW (FI-SHI-703): WILL NOT BE INTERLOCKED AFTER ISSUANCE OF RCRA PERMIT: BUT WILL CONTINUE TO BE CAA PERMIT LIMIT (30 DAY AVG)
   - c. MINIMUM COMBUSTION CHAMBER TEMP (TI-9197)
   - d. MAXIMUM COMBUSTION CHAMBER TEMP (TI-9197)
   - e. MAXIMUM HAZERDOUS WASTE FEEDRATE (FIC-WCB-300)
   - f. METAL FEEDRATE LIMITS (FIC-WCB-300)
   - g. SULPHER FEEDRATE LIMITS (FIC-WCB-300)
   - h. ASH FEEDRATE LIMITS (FIC-WCB-300)
   - i. MAXIMUM ESP INLET TEMP (TIC-624)
   - j. MINIMUM POWER TO THE ESP VIA SERIAL LINT TO MOD 300 (HRA-PPTR3-KW)
   - k. MAXIMUM FLUE GAS FLOWRATE (FYI-FAS-2112)
   - l. ATOMIZING STEAM PRESSURE (PAL-WCB-1164)
   - m. COMBUSTION AIR PRESSURE (PAL-WCB-1160)
   - n. FUEL PRESSURE (PAL-WCB-100A, PAH-WCB-100A)
   - o. AVG. CO (AI-6M09-317B)
   - p. AVG. THC (AI-6M09-316B)

   IF ANY OF THE ABOVE CONDITIONS CHANGE STATE, THE SYSTEM AUTOMATICALLY GOES INTO A SHUTDOWN SEQUENCE.

3. CONTACTS HARDWIRED AS EMERGENCY STOP TO SHUTDOWN WASTE CHEMICAL PUMPS (FDIP-1, FDIP-2, FDIP-3) AT DEST WHEN ANALYZER IN HI-HI ALARM 6M99-9T-006

NOTE:

1. V - BY NORTH AMERICAN P.O. 9000-120-1
2. NO. 1 TANK FARM (WB-01 THRU 03)
3. NO. 2 TANK FARM (WB-04 THRU 09)
4. ANY CHANGES TO MICROSTATION LEVEL 37 REQUIRE ARK EVNIROMENTAL AFFAIRS APPROVAL.
5. (17) PSE-20113 IS BEING REPLACED WITH A 7' SECTION OF PTFE PIPE LOCATED IN HIGHEST SECTION OF PIPING.

WCBB-3

WASTE CHEMICAL COMBUSTION AIR FAN
NORTH AMERICAN MANUFACTURING COMPANY
TURBO BLOWER #2324-21-1-20-D
(19) 1800 CFM @ 24.5" W.C./20 HP-3600 RPM
P.O. 9000-120-1

REFERENCE DRAWINGS	DWG NO
TANK FARM #1	6M99-9T-006
W.C.C. PUMPS EMERGENCY SHUTOFF	6M03-3E-009
ORIGINAL DWG FOR BLR #3 WASTE FEED (VOID)	6M01-9T-014
BOILER #1 WASTE FEED P&ID	6M01-9T-031

REV NO	ISSUED FOR	DESCRIPTION OF CHANGE	DRAFTER	DATE	ENGRG APP	OPRG APP	CONTR APP
18	11325585	REMOVE PI-WCB-1159	JLB	3-14-10	DWS	KM, SGC	
19	75501306	CLARIFICATION - CORRECTED INFORMATION FOR WCBB-3	LKV	5-12-10	SGC	-	
16	75501306	CLARIFICATION	LKV	3-8-05	MSF	-	
17	11311043	REPLACE FATTY ACID CPO EXPANSION CHAMBERS	LKV	3-5-08	JJH	-	
	9000	ORIGINAL JOB					

FUTUREFUEL CHEMICAL COMPANY

BATESVILLE, ARKANSAS 72501

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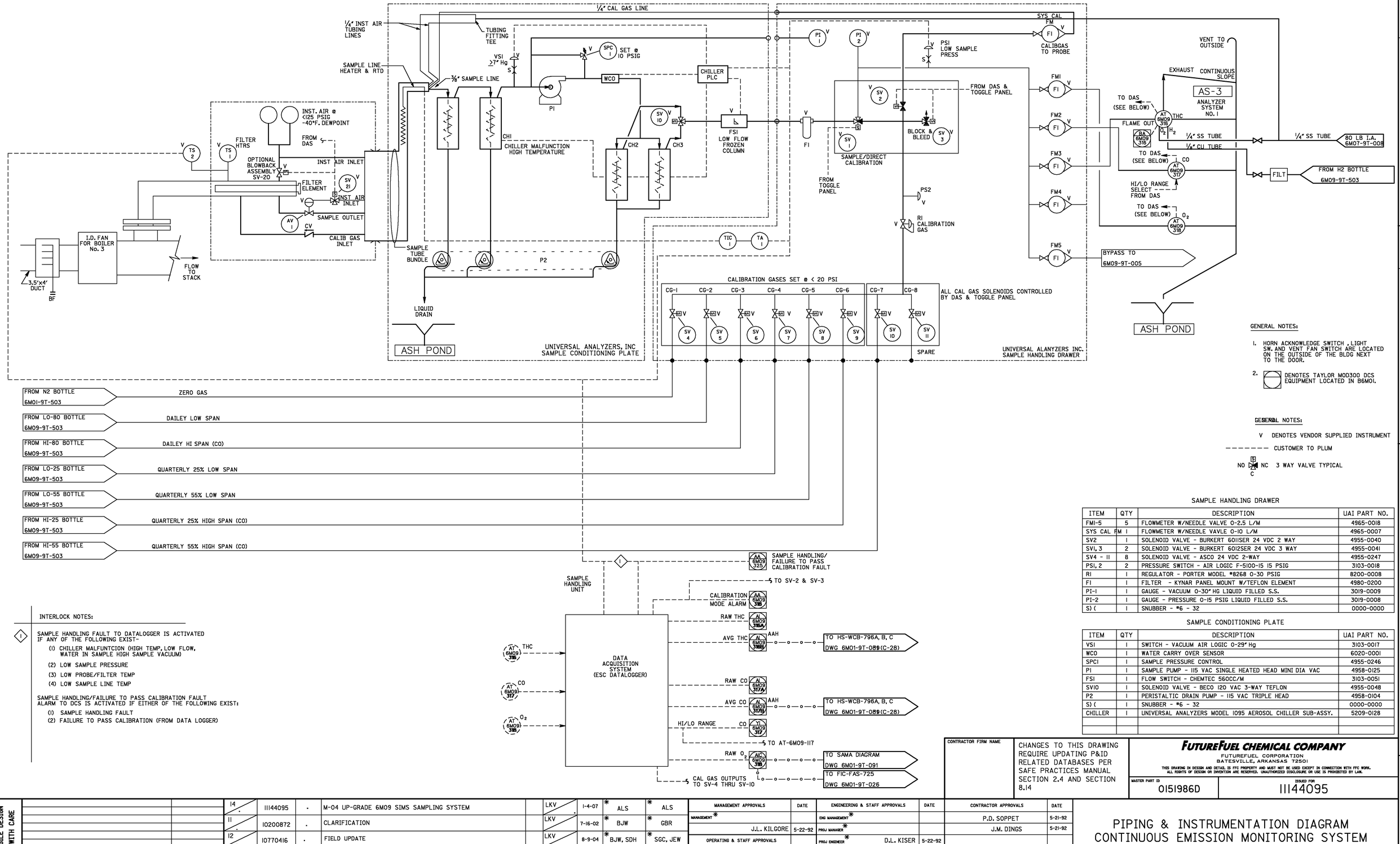
PIPING & INSTRUMENTATION DIAGRAM
BOILER #3
BOILER #3 WASTE FEED

SCALE	ISSUED FOR	DRAWING NO	REV NO
NONE	75501306	6M01-9T-089	19



INTERLOCK NOTES:

1. SAMPLE HANDLING FAULT TO DATALOGGER IS ACTIVATED IF ANY OF THE FOLLOWING EXIST-
   - (1) CHILLER MALFUNTCION (HIGH TEMP, LOW FLOW, WATER IN SAMPLE HIGH SAMPLE VACUUM)
   - (2) LOW SAMPLE PRESSURE
   - (3) LOW PROBE/FILTER TEMP
   - (4) LOW SAMPLE LINE TEMP

   SAMPLE HANDLING/FAILURE TO PASS CALIBRATION FAULT ALARM TO DCS IS ACTIVATED IF EITHER OF THE FOLLOWING EXIST:
   - (1) SAMPLE HANDLING FAULT
   - (2) FAILURE TO PASS CALIBRATION (FROM DATA LOGGER)

GENERAL NOTES:

1. HORN ACKNOWLEDGE SWITCH, LIGHT SW. AND VENT FAN SWITCH ARE LOCATED ON THE OUTSIDE OF THE BLDG NEXT TO THE DOOR.
2. DENOTES TAYLOR MOD300 DCS EQUIPMENT LOCATED IN B6M01.

GENERAL NOTES:

V DENOTES VENDOR SUPPLIED INSTRUMENT

- - - - - - - - CUSTOMER TO PLUM

NO 5 NC 3 WAY VALVE TYPICAL C

SAMPLE HANDLING DRAWER

ITEM	QTY	DESCRIPTION	UAI PART NO.
FMI-5	5	FLOWMETER W/NEEDLE VALVE 0-2.5 L/M	4965-0018
SYS CAL FM	1	FLOWMETER W/NEEDLE VAVLE 0-10 L/M	4965-0007
SV2	1	SOLENOID VALVE - BURKERT 6011SER 24 VDC 2 WAY	4955-0040
SV1, 3	2	SOLENOID VALVE - BURKERT 6012SER 24 VDC 3 WAY	4955-0041
SV4 - 11	8	SOLENOID VALVE - ASCO 24 VDC 2-WAY	4955-0247
PSI, 2	2	PRESSURE SWITCH - AIR LOGIC F-5100-15 15 PSIG	3103-0018
RI	1	REGULATOR - PORTER MODEL #8268 0-30 PSIG	8200-0008
FI	1	FILTER - KYNAR PANEL MOUNT W/TEFLON ELEMENT	4980-0200
PI-1	1	GAUGE - VACUUM 0-30" HG LIQUID FILLED S.S.	3019-0009
PI-2	1	GAUGE - PRESSURE 0-15 PSIG LIQUID FILLED S.S.	3019-0008
S) (	1	SNUBBER - #6 - 32	0000-0000

SAMPLE CONDITIONING PLATE

ITEM	QTY	DESCRIPTION	UAI PART NO.
VSI	1	SWITCH - VACUUM AIR LOGIC 0-29" Hg	3103-0017
WCO	1	WATER CARRY OVER SENSOR	6020-0001
SPCI	1	SAMPLE PRESSURE CONTROL	4955-0246
PI	1	SAMPLE PUMP - 115 VAC SINGLE HEATED HEAD MINI DIA VAC	4958-0125
FSI	1	FLOW SWITCH - CHEMTEC 560CC/M	3103-0051
SV10	1	SOLENOID VALVE - BECO 120 VAC 3-WAY TEFLON	4955-0048
P2	1	PERISTALTIC DRAIN PUMP - 115 VAC TRIPLE HEAD	4958-0104
S) (	1	SNUBBER - #6 - 32	0000-0000
CHILLER	1	UNIVERSAL ANALYZERS MODEL 1095 AEROSOL CHILLER SUB-ASSY.	5209-0128

CONTRACTOR FIRM NAME

CHANGES TO THIS DRAWING REQUIRE UPDATING P&ID RELATED DATABASES PER SAFE PRACTICES MANUAL SECTION 2.4 AND SECTION 8.14

FUTUREFUEL CHEMICAL COMPANY

FUTUREFUEL CORPORATION
BATESVILLE, ARKANSAS 72501

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MASTER PART ID: 0151986D
ISSUED FOR: 11144095

LIFE IS FRAGILE DESIGN AND BUILD WITH CARE

REV NO	DATE	ISSUED FOR	APP FOR CONSTR	REVISION	B/M	DRAWN	CHECKED	DATE	ENGRG APP	OPRG APP
14	.	11144095	.	M-04 UP-GRADE 6M09 SIMS SAMPLING SYSTEM		LKV	.	1-4-07	* ALS	* ALS
11	.	10200872	.	CLARIFICATION		LKV	.	7-16-02	* BJW	* GBR
12	.	10770416	.	FIELD UPDATE		LKV	.	8-9-04	* BJW, SDH	* SGC, JEW
13	.	11080548	.	ADDED CALIBRATION MODE ALARM FROM DATA LOGGER TO DCS		LKV	.	1-30-06	* ALS, SDH	* ALS, JER JEW
0	5-22-92	9346-101A-OFFI	DLK							

REFERENCE DRAWINGS | DWG NO

MANAGEMENT APPROVALS		DATE
MANAGEMENT *	J.L. KILGORE	5-22-92
OPERATING & STAFF APPROVALS		
DIV MANAGEMENT *		
DIV REP *	W.L. JACKSON K.C. BOLTON	5-22-92
MAINT REP *	J. MABE J.M. SPROLES J.A. TAYLOR	5-22-92

ENGINEERING & STAFF APPROVALS		DATE
ENG MANAGEMENT *		
PROJ MANAGER *		
PROJ ENGINEER *	D.L. KISER	5-22-92
DESIGN ENGINEER *	J.M. DINGS	5-22-92
PLANT PROTECTION *	J.E. SHAW	5-22-92

CONTRACTOR APPROVALS	DATE
P.D. SOPPET	5-21-92
J.M. DINGS	5-21-92

* SIGNED APPROVAL PRINT

PIPING & INSTRUMENTATION DIAGRAM
CONTINUOUS EMISSION MONITORING SYSTEM
COAL FIRED BOILER 3

DRAWN M.L. SMITH 5-14-92
CHECKED * R. KARNS 9-29-93

PARTID: 0151986D
DRAWING NO: 6M09-9T-005
REV NO: 14

DATE | DATE | PROJECT VERIFICATION | FIELD VERIFICATION

☐ PROPOSED CHANGE CANCELLED
☐ INSTALLED AS DESIGNED
☐ INSTALLED AS REDLINED
RECORD DRAWING CHANGE PROCESS INSTALLATION VERIFICATION