

**State of California
AIR RESOURCES BOARD**

**Executive Order VR-105-A
EMCO Wheaton Retail Phase I Vapor Recovery System**

WHEREAS, the California Air Resources Board (ARB) has established, pursuant to California Health and Safety Code sections 39600, 39601 and 41954, certification procedures for systems designed for the control of gasoline vapor emissions during the filling of underground gasoline storage tanks, in its **CP-201, Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities** (Certification Procedure) as last amended February 9, 2005 incorporated by reference in title 17, California Code of Regulations, section 94011;

WHEREAS, ARB has established, pursuant to California Health and Safety Code sections 39600, 39601 and 41954, test procedures for determining the compliance of Phase I vapor recovery systems with emission standards;

WHEREAS, EMCO Wheaton Retail has applied for certification of the Phase I Vapor Recovery System (EMCO System);

WHEREAS, the Certification Procedure provides that the ARB Executive Officer shall issue an Executive Order if he or she determines that the vapor recovery system conforms to all of the applicable requirements set forth in the Certification Procedure;

WHEREAS, I, Catherine Witherspoon, California Air Resources Board Executive Officer, find that the EMCO Wheaton Phase I Vapor Recovery System conforms with all the requirements set forth in the Certification Procedure and results in a vapor recovery system which is at least 98.0 percent efficient as tested pursuant to the test procedure **TP-201.1, Volumetric Efficiency for Phase I Systems (October 8, 2003)**;

NOW THEREFORE, IT IS HEREBY ORDERED that the EMCO Wheaton System is certified to be at least 98.0 percent efficient when installed and maintained as specified herein and in the following exhibits. Exhibit 1 contains a list of the certified components, Exhibit 2 contains the performance standards and specifications, typical installation drawings, and maintenance intervals applicable to the EMCO Wheaton System as installed in a gasoline dispensing facility (GDF). Exhibit 3 contains the manufacturing specifications.

IT IS FURTHER ORDERED that compliance with the applicable certification requirements, rules and regulations of the Division of Measurement Standards of the Department of Food and Agriculture, the Office of the State Fire Marshal of the Department of Forestry and Fire Protection, the Division of Occupational Safety and Health of the Department of Industrial Relations, and the Division of Water Quality of the State Water Resources Control Board are made conditions of this certification.

IT IS FURTHER ORDERED that EMCO Wheaton shall provide a warranty for the vapor recovery system and components to the initial purchaser. The warranty shall be passed on to each subsequent purchaser within the warranty period. The manufacturer of components listed in Exhibit 1 not manufactured by EMCO Wheaton shall provide a warranty to each of their components certified herein. The warranty shall include the ongoing compliance with all applicable performance standards and specifications, and shall comply with all warranty requirements in Section 9.2 of the Certification Procedure. EMCO Wheaton or other manufacturers may specify that the warranty is contingent upon the use of trained installers.

IT IS FURTHER ORDERED that each certified component manufactured by EMCO Wheaton and Husky shall be performance tested by the manufacturer as provided in Exhibit 3.

IT IS FURTHER ORDERED that the certified EMCO Wheaton System shall be installed, operated and maintained in accordance with the **ARB-Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System**. A copy of this Executive Order and manual shall be maintained at each GDF where a certified EMCO Wheaton System is installed.

IT IS FURTHER ORDERED that all equipment listed in Exhibit 1, unless exempted, shall be clearly identified with a permanent identification showing the manufacturer's name and model number. Within 60 days after the issuance of this Executive Order, EMCO shall provide ARB a picture, in the format designated by the Executive Officer or Executive Officer Delegate, showing permanent identification of each equipment listed in Exhibit 1.

IT IS FURTHER ORDERED that any alteration in the equipment parts, design, installation or operation of the system certified hereby is prohibited and deemed inconsistent with this certification unless the alteration has been submitted in writing and approved in writing by the Executive Officer or Executive Officer's delegate.

IT IS FURTHER ORDERED that the following requirements be made a condition of certification. The owner or operator of the EMCO Wheaton System shall conduct, and pass, the following tests no later than 60 days after startup and at least once every (3) years after startup testing, using the following test procedures: TP-201.3, **Determination of 2 Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities (March 17, 1999)**, TP-201.1B, **Static Torque of Rotatable Phase I Adaptors (October 8, 2003)** and TP-201.1D, **Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves (October 8, 2003)**. Shorter time periods may be specified in accordance with local district requirements. Notification of testing, and submittal of test results, shall be done in accordance with local district requirements and pursuant to the policies established by that district. Testing the pressure/vacuum (P/V) vent valve will be at the option of the local districts. If P/V vent valve testing is required by the district, the test shall be conducted in accordance with TP-201.1E, **Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003)** and section 2 of Exhibit 2. Alternate test procedures, including most recent versions of test procedures listed above, may be used if determined by the ARB Executive Officer or Executive Officer delegate, in writing, to yield equivalent results.

IT IS FURTHER ORDERED that the EMCO Wheaton system shall be compatible with gasoline in common use in California at the time of certification. Any modifications to comply with future California gasoline requirements shall be approved in writing by the Executive Officer or Executive Officer delegate.

IT IS FURTHER ORDERED that the certification of the EMCO Wheaton Phase I Vapor Recovery System is valid through November 1, 2010.

Executed at Sacramento, California, this 20~~th~~ day of October 2006.



Catherine Witherspoon
Executive Officer

Attachments:

- Exhibit 1 EMCO Wheaton Phase I Vapor Recovery System Equipment List
- Exhibit 2 Installation, Maintenance and Compliance Standards and Specifications
- Exhibit 3 Manufacturing Performance Standards and Specifications

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Exhibit 1

EMCO Wheaton Phase I Vapor Recovery System Equipment List

<u>Equipment</u>	<u>Manufacturer/Model Number</u>
Pressure/Vacuum Vent Valve¹	Husky Corporation Model 4885, 2-Inch threaded
Spill Container	EMCO A1004EVR Multi-port Configuration and Direct Burial Configuration
Drain Valve	EMCO Wheaton Retail 494118
Drop Tube Overfill Prevention Device	EMCO Wheaton Retail A1100EVR
Riser Seal	EMCO Wheaton Retail 494096
Product Adaptor	EMCO Wheaton Retail A0030-124S
Vapor Adaptor	EMCO Wheaton Retail A0076-124S
Dust Caps	EMCO Wheaton Retail A0097-005 (product) EMCO Wheaton Retail A0099-X (vapor) X = 002, no chain or 003, with chain
Tank Gauge Port Components	EMCO Wheaton Retail A0097-010 (Cap) EMCO Wheaton Retail A0030-014 (Adaptor)
Extractor Assembly²	EMCO Wheaton Retail A0079-X X = 043, 044, 050, 051, 052, 150 or 152

¹ As of the date of issuance of this Executive Order, ARB expects to evaluate modifications to the Husky 4885 pressure/vacuum (P/V) vent valve and to conduct certification testing. Once the improved P/V valve is certified and commercially available, it will be the only P/V valve that can be used as a replacement. This Executive Order will be modified to require the use of the improved P/V valve when that certification process is complete.

² If these components are installed or required by regulations of other agencies, only those components and model numbers specified above shall be installed or used.

Table 1
Components Exempt from Identification Requirements

Component Name	Manufacturer	Model Number
Riser Seal	EMCO	494096
Sump / Sump Lids / Spill Container Covers	Varies	Varies

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Exhibit 2 Installation, Maintenance, and Compliance Specifications

This exhibit contains the installation, maintenance and compliance standards and specifications applicable to EMCO Wheaton Phase I Vapor Recovery System (EMCO Wheaton System) installed in a gasoline dispensing facility (GDF).

General Specifications

1. Typical installations of the EMCO Wheaton System are shown in Figures 2A, 2B, 2C and 2D.
2. The EMCO Wheaton System shall be installed, operated and maintained in accordance with the **ARB Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System**.
3. Any repair or replacement of system components shall be done in accordance with the **ARB Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System**.
4. The EMCO Wheaton System shall comply with the applicable performance standards and performance specifications in CP-201.
5. Maintenance and repair of system components, including removal and installation of such components in the course of any required tests, shall be performed by EMCO Certified Technicians.

Pressure/Vacuum Vent Valves For Storage Tank Vent Pipes

1. No more than three certified pressure/vacuum vent valves (P/V Valves) listed in Exhibit 1 shall be installed on any GDF underground storage tank system.
2. Compliance determination of the following P/V valve performance specifications shall be at the option of the districts:
 - a. The leak rate of each P/V valve shall not exceed 0.05 cubic feet per hour (CFH) at 2.0 inches of H₂O positive pressure and 0.21 CFH at -4.0 inches negative pressure as determined by TP-201.1E, **Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003)**. NOTE: If the positive pressure leak rate is exceeded, a second positive pressure leak test shall be conducted per TP-201.1E (excluding alternate TP-201.1E) to determine compliance with the leak rate specification. This second positive leak rate test shall be run only after completing the sequence of tests specified by sections 7.2 through 7.5 of TP-201.1E.
 - b. The positive pressure setting is 2.5 to 6.0 inches of H₂O and the negative pressure setting is 6.0 to 10.0 inches of H₂O as determined by TP-201.1E, **Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003)**.

3. A manifold may be installed on the vent pipes to reduce the number of potential leak sources and P/V valves installed. Vent pipe manifolds shall be constructed of steel pipe or an equivalent material that has been listed for use with gasoline. If a material other than steel is used, the GDF operator shall make available information demonstrating that the material is compatible for use with gasoline. One example of a typical vent pipe manifold is shown in Figure 2F. This shows only one typical configuration: other manifold configurations may be used. For example, a tee may be located in a different position, or fewer vent pipes may be connected, or more than one P/V valve may be installed on the manifold.
4. Each P/V valve shall have permanently affixed to it a yellow or gold-colored label with black lettering stating the positive and negative cracking pressures and leak rates.

Positive pressure setting: 2.5 to 6.0 inches H₂O
Negative pressure setting: 6.0 to 10.0 inches H₂O
Positive Leak rate: 0.05 CFH at 2.0 inches H₂O
Negative Leak rate: 0.21 CFH at -4.0 inches H₂O

Rotatable Product and Vapor Recovery Adaptors

1. Rotatable product and vapor recovery adaptors shall be capable of at least 360-degree rotation and have an average static torque not to exceed 108 pound-inch (9 pound-foot). Use EMCO Wheaton Torque Test Tool Part Number 494240 or any torque test tool stated in TP-201.1B. Compliance with this requirement shall be demonstrated in accordance with TP-201.1B, **Static Torque of Rotatable Phase I Adaptors (October 8, 2003)**.
2. The vapor adaptor poppet shall not leak when closed. Compliance with this requirement shall be verified by the use of commercial liquid leak detection solution, or by bagging, when the vapor containment space of the underground storage tank is subjected to a non-zero gauge pressure. (Note: leak detection solution will detect leaks only when positive gauge pressure exists.)

Vapor Recovery and Product Adaptor Dust Caps

Dust caps with intact gaskets shall be installed on all Phase I tank adaptors.

Spill Container Drain Valve

The spill container drain valve shall be configured to drain liquid directly into the drop tube and shall be isolated from the underground storage tank ullage space. The leak rate of the drain valve shall not exceed 0.17 CFH at 2.00 inches H₂O. Compliance with this requirement shall be demonstrated in accordance with TP-201.1D, **Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves (October 8, 2003)**.

Vapor Recovery Riser Offset

1. The vapor recovery tank riser may be offset from the tank connection to the vapor recovery Spill Container provided that the maximum horizontal distance (offset distance) does not exceed twenty (20) inches. One example of an offset is shown in Figure 2G.

2. The vapor recovery riser may be offset up to 20 inches horizontal distance with use of commercially available, four (4) inch diameter steel pipe fittings.

Tank Gauge Port Components

The tank gauge adaptor and cap are paired. Therefore, an adaptor manufactured by one company shall be used only with a cap manufactured by the same company. Figure 2E shows a typical installation of tank gauge port components.

Connections and Fittings

All connections and fittings not specifically certified with an allowable leak rate shall not leak. The absence of vapor leaks shall be verified with the use of commercial liquid leak detection solution, or by bagging, when the vapor containment space of the underground storage tank is subjected to a non-zero gauge pressure. (Note: leak detection solution will detect leaks only when positive gauge pressure exists.)

Maintenance Records

Each GDF operator/owner shall keep records of maintenance performed at the facility. Such record shall be maintained on site or in accordance with district requirements or policies. The records shall include the maintenance or test date, repair date to correct test failure, maintenance or test performed, affiliation, telephone number, name and Certified Technician Identification Number of individual conducting maintenance or test. An example of a Phase I Maintenance Record is shown in Figure 2H.

**Table 2-1
Gasoline Dispensing Facility Compliance Standards and Specifications**

Component / System	Test Method	Standard or Specification
Rotatable Phase I Adaptors	TP-201.1B	Minimum, 360-degree rotation Maximum, 108 pound-inch average static torque
Overfill Prevention Device	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H ₂ O
Spill Container Drain Valve	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H ₂ O
P/V Vent Valve ¹	TP-201.1E	Positive pressure setting: 2.5 to 6.0 inches H ₂ O Negative pressure setting: 6.0 to 10.0 inches H ₂ O Positive Leak rate: 0.05 CFH at 2.0 inches H ₂ O Negative Leak rate: 0.21 CFH at -4.0 inches H ₂ O
Vapor Recovery System	TP-201.3	As specified in TP-201.3 and/or CP-201
All connections and fittings certified without an allowable leak rate	Leak Detection Solution or bagging	No Leaks

¹ Reference Exhibit 2, Pressure/Vacuum Vent Valves For Storage Tank Vent Pipes, Item 2a.

**Table 2-2
Maintenance Intervals for System Components**

Manufacturer	Component	Maintenance Interval
Husky	Pressure/Vacuum Vent Valve	Annual
EMCO Wheaton	Tank Gauge Port Components	Annual
EMCO Wheaton	Dust Caps	Annual
EMCO Wheaton	Overfill Prevention Device	Annual
EMCO Wheaton	Rotatable Phase I Product and Vapor Adaptors	Annual
EMCO Wheaton	Spill Container Drain Valve	Quarterly
EMCO Wheaton	Spill Container	Quarterly and After Each Delivery

Figure 2A

Typical Multi-Port Product Side Installation of EMCO Wheaton System

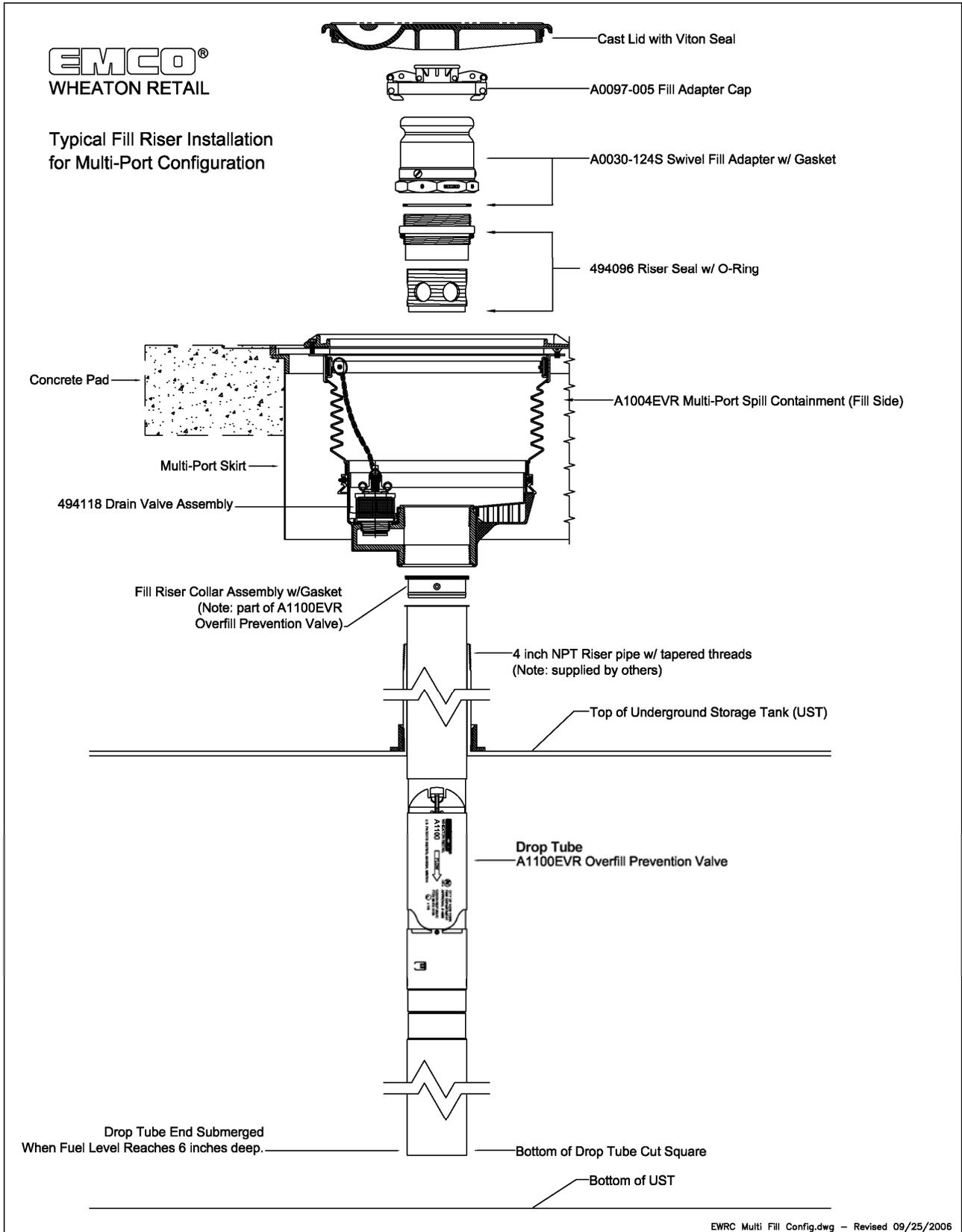


Figure 2B

Typical Multi-Port Vapor Recovery Installation of EMCO Wheaton System

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Typical Vapor Riser Installation
for Multi-Port Configuration

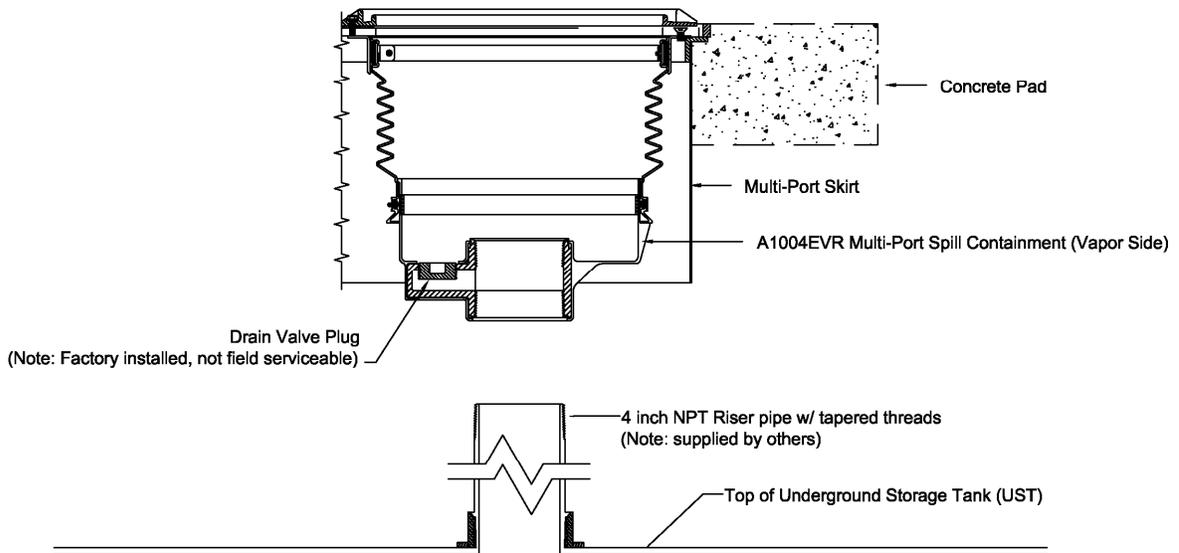
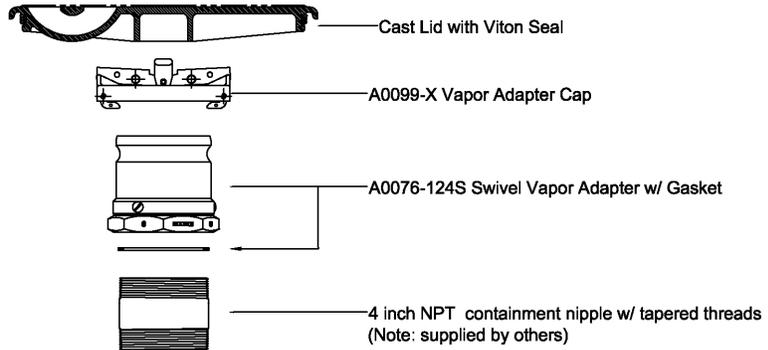


Figure 2C

Typical Direct Burial Product Side Installation of EMCO Wheaton System

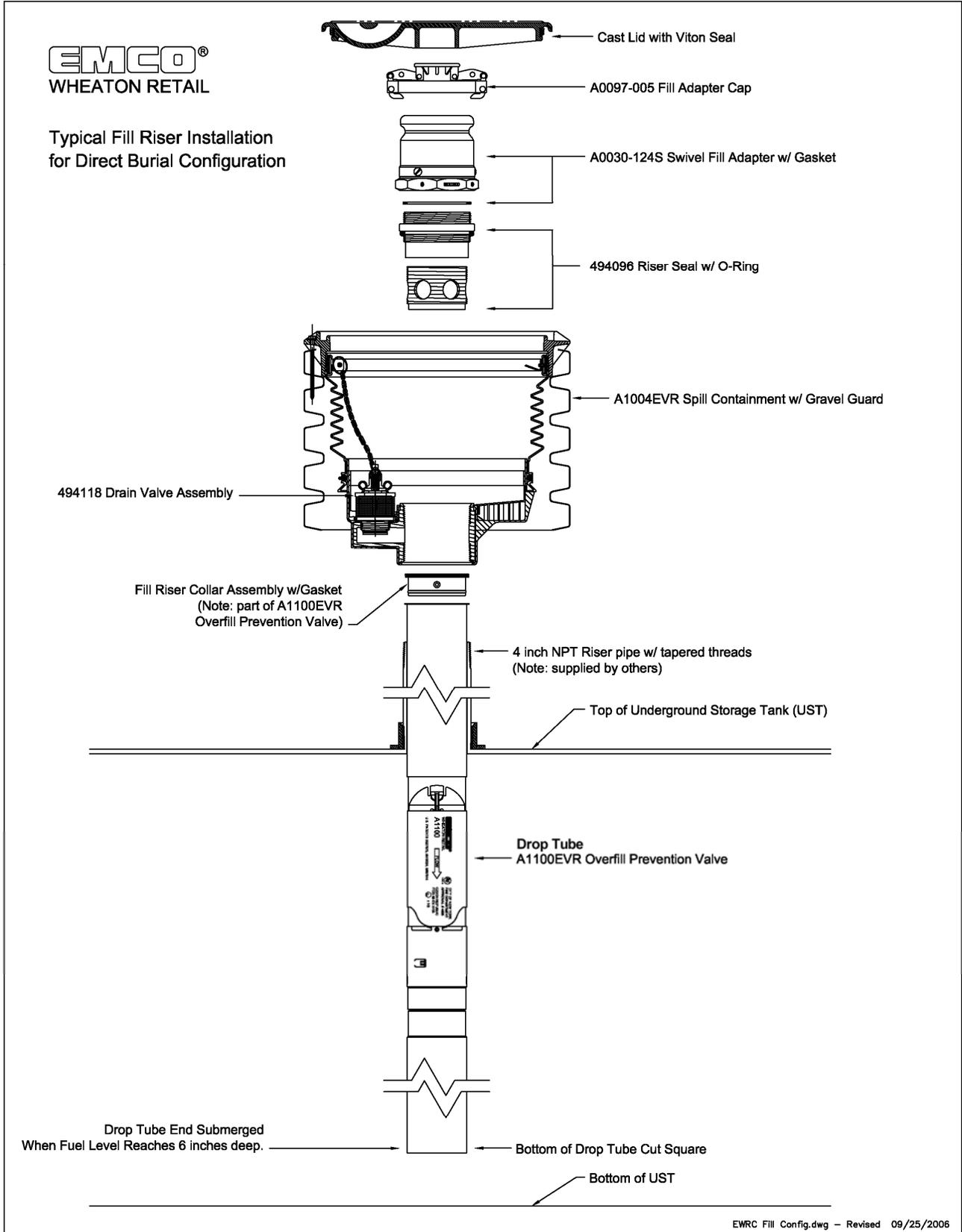


Figure 2D

Typical Direct Burial Vapor Recovery Installation of EMCO Wheaton System

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Typical Vapor Riser Installation
for Direct Burial Configuration

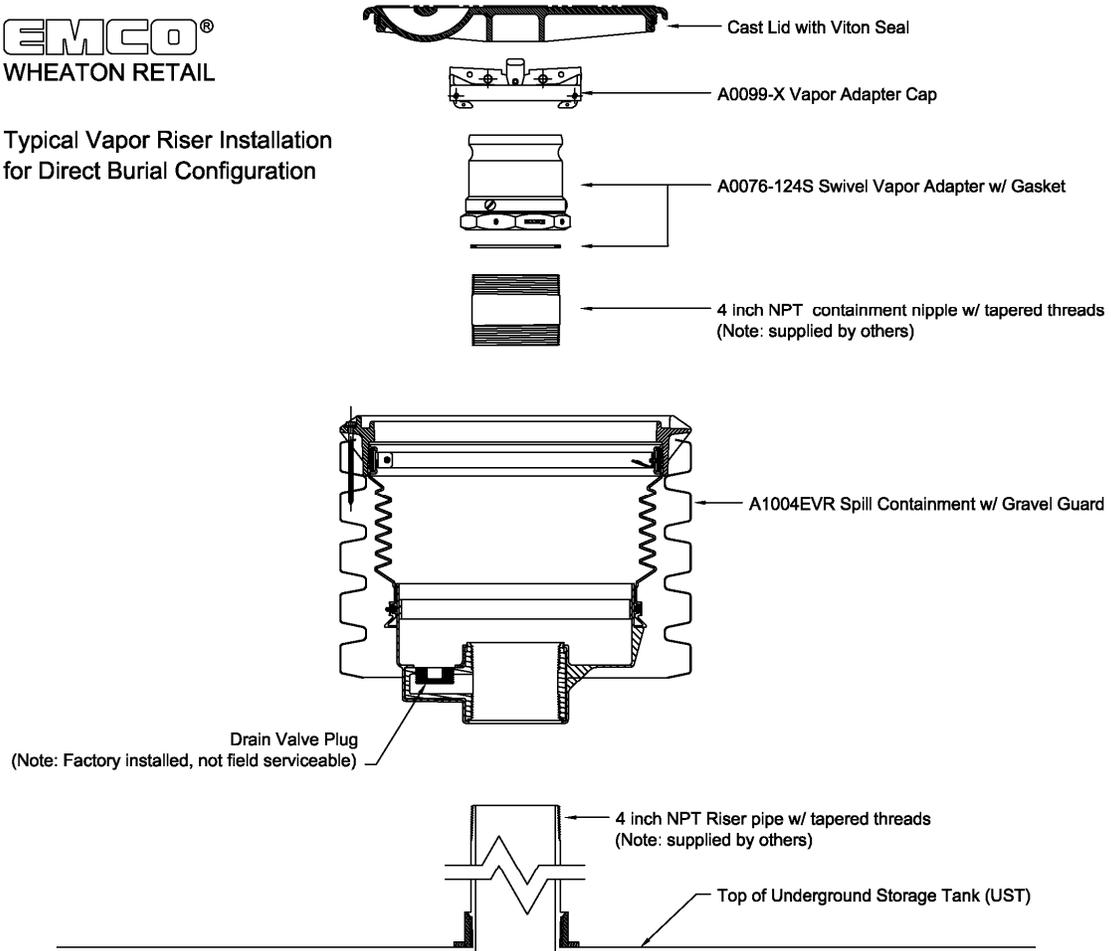


Figure 2E

Typical Automatic Tank Gauge Probe Riser Installation
Of the EMCO Wheaton Retail System

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Typical Automatic Tank Gauge (ATG)
Probe Riser Installation

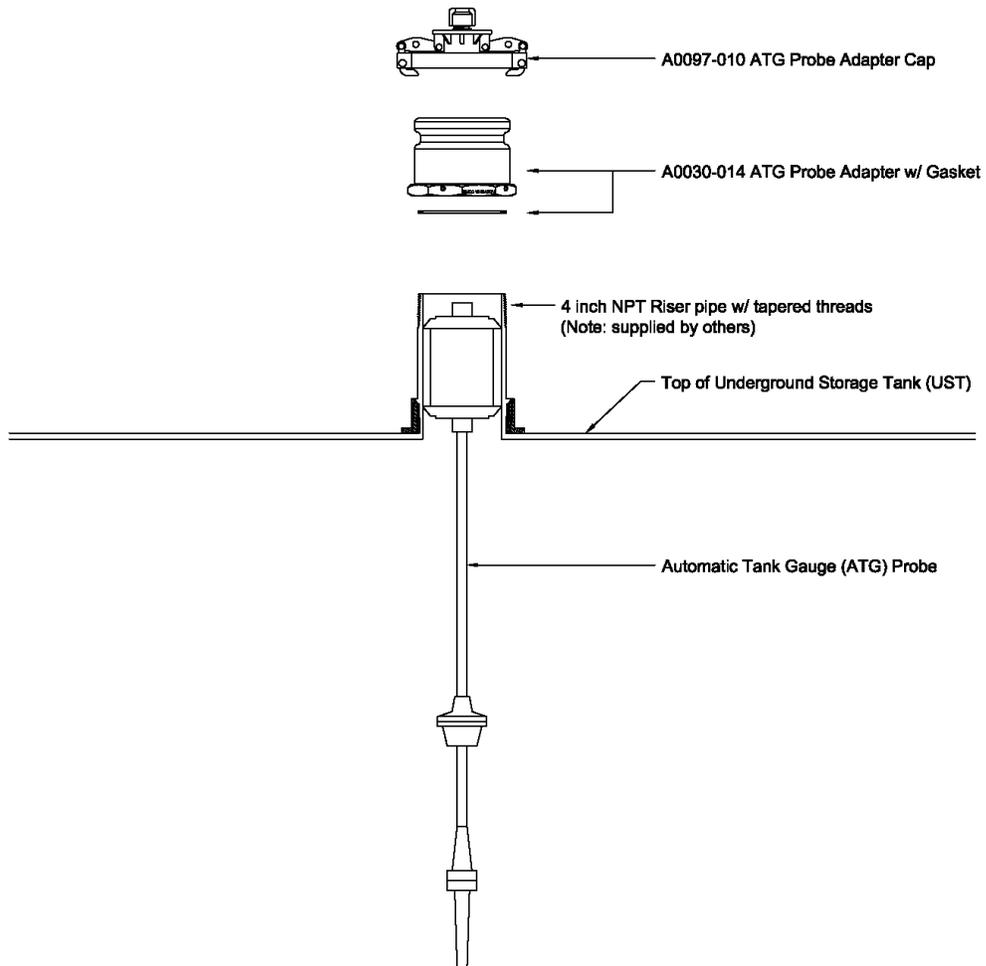
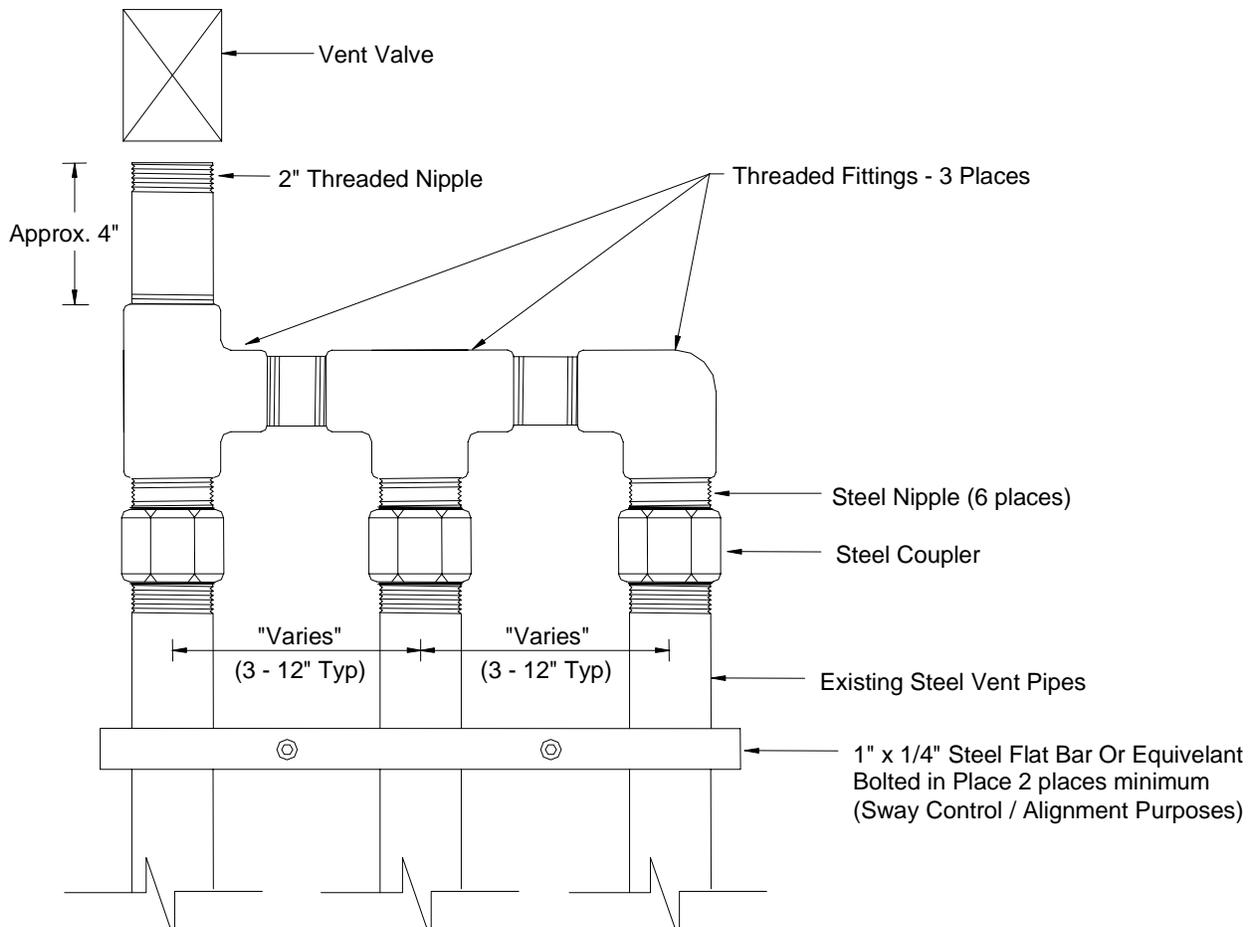


Figure 2F

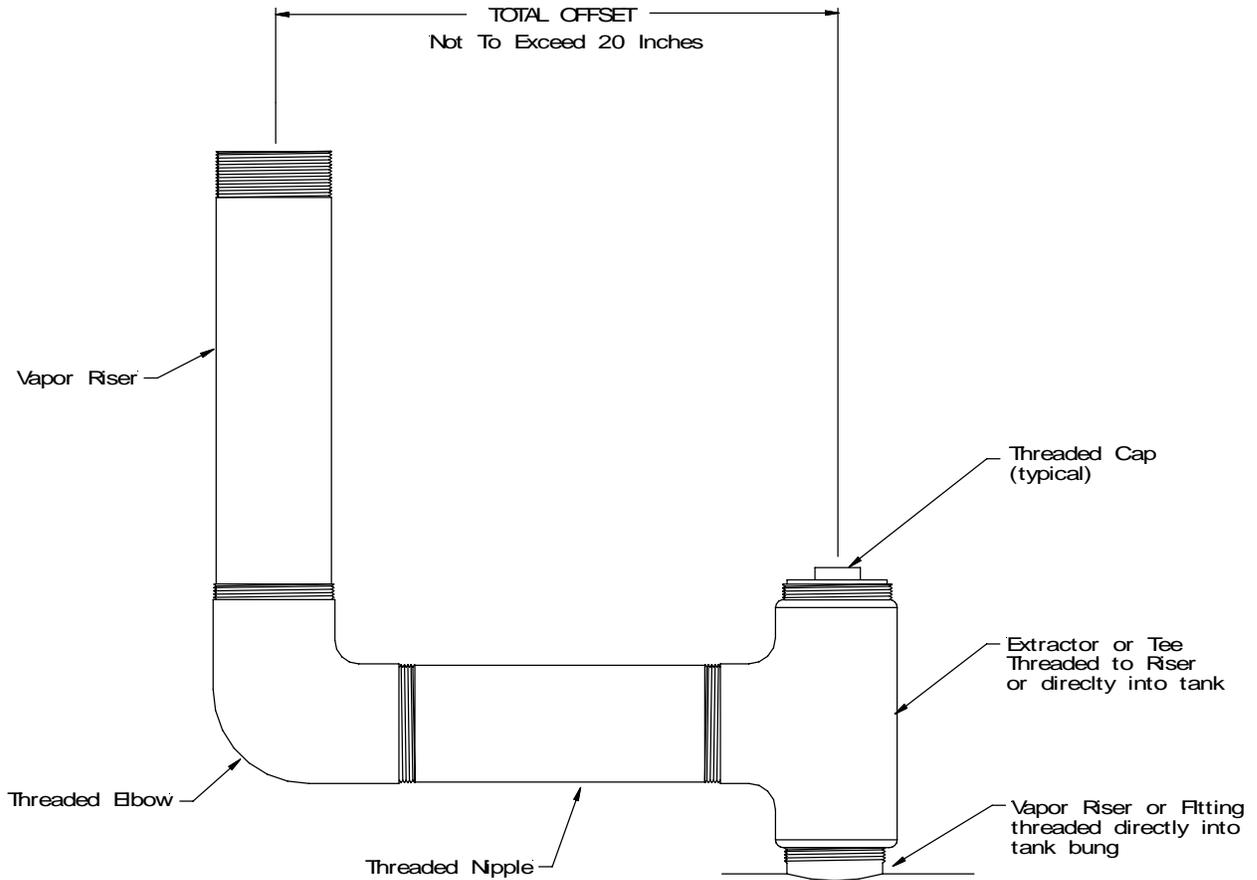
Typical Vent Pipe Manifold



Note: This shows only one typical configuration; other manifold configurations may be used. For example, a tee may be located in a different position, or fewer vent pipes may be connected, or more than one P/V valve may be installed on the manifold.

Figure 2G

Typical Vapor Recovery Riser Offset



Note: This figure represents one instance where a vapor recovery riser has been offset in order to construct a two-point Phase I vapor recovery system. The above figure illustrates an offset using a 90-degree elbow. However, in some instances, elbows less than 90 degrees may be used. All fittings and pipe nipples shall be 4-inch diameter similar to those of the spill container and rotatable Phase I adaptors in order to reduce back pressure during a gasoline delivery.

Figure 2H

Example of a GDF Maintenance Record

Date of Maintenance/ Test/Inspection/Failure	Repair Date To Correct Test Failure	Maintenance/Test/Inspection Performed and Outcome	Affiliation	Name and Certified Technician Identification Number of Individual Conducting Maintenance or Test	Telephone Number

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Exhibit 3 Manufacturing Performance Standards and Specifications

The EMCO Wheaton System and all components shall be manufactured in compliance with the applicable Phase I performance standards and specifications in CP-201, as well as the requirements specified in this Executive Order. All components shall be manufactured as certified; no change to the equipment, parts, design, materials or manufacturing process shall be made unless approved in writing by the Executive Officer. Unless specified in Exhibit 2 or in the **ARB Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Phase I Vapor Recovery System**, the requirements of this section apply to the manufacturing process and are not appropriate for determining the compliance status of a GDF.

Pressure/Vacuum Vent Valves for Storage Tank Vent Pipes

1. Each pressure/vacuum vent valve (P/V valve) shall be tested at the factory for cracking pressure and leak rate at each specified pressure setting when tested in accordance with TP-201.1E, **Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves (October 8, 2003)**.
2. Each P/V valve shall be shipped with a card or label stating the performance specifications listed in Table 3-1, and a statement that the valve was tested to, and met, these specifications.
3. Each P/V valve shall have permanently affixed to it a yellow or gold label with black lettering listing the positive and negative pressure settings listed in Table 3-1. The lettering of the label shall have a minimum font size of twenty (20).

Rotatable Product and Vapor Recovery Adaptors

1. The rotatable product and vapor recovery adaptors shall not leak.
2. The product adaptor cam and groove shall be manufactured in accordance with the cam and groove specifications shown in Figure 3A of CP-201.
3. The vapor recovery adaptor cam and groove shall be manufactured in accordance with the cam and groove specifications shown in Figure 3B of CP-201.
4. Each product and vapor recovery adaptor shall be tested at the factory to, and met, the specifications listed in Table 3-1 and shall have affixed to it a card or label listing these performance specifications and a statement that the adaptor was tested to, and met, such specifications. (Reference EMCO test procedures TP-157 and TP-158)

Spill Container and Drain Valves

Each spill container drain valve shall be tested at the factory to, and met, the following specification listed in Table 3-1 and shall have affixed to it a card or label listing the following performance specification and a statement that the drain valve was tested to, and met, such performance specification.

Drop Tube Overfill Prevention Device

Each Drop Tube Overfill Prevention Device shall be tested at the factory to, and met, the specification listed in Table 3-1 and shall have affixed to it a card or label stating the performance specification listed below and a statement that the device was tested to, and met, such performance specification.

**Table 3-1
Manufacturing Component Standards and Specifications**

Component	Test Method	Standard or Specification
Rotatable Phase I Adaptors	TP-201.1B	Minimum, 360-degree rotation Maximum, 108 lb-inch average static torque
Rotatable Phase I Adaptors	Micrometer	Cam and Groove Standard (CP-201)
Spill Container Drain Valve	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H ₂ O
Overfill Prevention Device	TP-201.1D	Leak rate ≤ 0.17 CFH at 2.00 inches H ₂ O
Pressure/Vacuum Vent Valve	TP-201.1E	Positive Pressure: 2.5 to 6.0 inches H ₂ O Negative Pressure: 6.0 to 10.0 inches H ₂ O Leak rate: ≤ 0.05 CFH at +2.0 inches H ₂ O ≤ 0.21 CFH at -4.0 inches H ₂ O