

AIR QUALITY CLASS II OPERATING PERMIT

PERMIT NUMBER: OP04S2-003

Facility Name:
Husker Ag, LLC

NDEQ Facility ID#:
73356

Mailing Address:
54048 Highway 20
Plainview, NE 68769

Facility Location:
54048 Highway 20
Pierce County
Plainview, NE 68769

Project Description: This Class II Operating Permit approves the operation of an existing ethanol manufacturing plant that produces 76,000,000 gallons per year of denatured ethanol.

Standard Industrial Classification (SIC) Code: 2869, Industrial Organic Chemicals

Revised or Superseded Operating Permits: None.

Pursuant to Title 129, Chapter 14, of the Nebraska Air Quality Regulations, the public has been notified by prominent advertisement of the proposed operation of an air contaminant source and the thirty (30) day period allowed for comments has elapsed. This Operating Permit approves the operation of an existing ethanol manufacturing plant that produces 76,000,000 gallons per year of denatured ethanol. This Operating Permit approves the operation of this source as identified in the Air Quality Operating Permit Application #04S2-003 (formerly SP-0353) received March 3, 2004, including a revised application received on December 15, 2008, prior to issuance of this permit. Additional details on the source, including estimated pollutant emissions, can be found in the accompanying Fact Sheet.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard. Unless otherwise noted, the conditions of this permit are enforceable by the United States Environmental Protection Agency (USEPA) and the Nebraska Department of Environmental Quality (NDEQ). The permit holder, owner, and operator of the facility shall assure that the operation and maintenance of all equipment is in compliance with all of the conditions of this permit.

The undersigned issues this document on behalf of the Director in accordance with Title 129 – Nebraska Air Quality Regulations as amended May 17, 2009.

06/25/10

{Original Signed}

Date

Shelley Schneider, Air Administrator
Air Quality Division

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ABBREVIATIONS, SYMBOLS, and UNITS OF MEASURE

| | | | |
|------------------|--|-------------------|--|
| AP-42 | Compilation of Air Pollutant Emission Factors, Volume I, Stationary Point and Area Sources | NDEQ | Nebraska Department of Environmental Quality |
| BACT | Best Available Control Technology | NESHAP | National Emission Standards for Hazardous Air Pollutants |
| bhp | Brake Horsepower | NO ₂ | Nitrogen Dioxide |
| BMP | Best Management Practice | NO _x | Nitrogen Oxides |
| btu | British Thermal Unit | NSPS | New Source Performance Standards |
| bu | Bushel | NSR | New Source Review |
| CAA | Clean Air Act | PAL | Plant-wide Applicability Limit |
| CE | Control Equipment | Pb | Lead (chemical abbreviation) |
| CEM | Continuous Emissions Monitor | PbR | Permit-by-Rule |
| CEMS | Continuous Emissions Monitoring System | PEMS | Parametric Emissions Monitoring System |
| cf | Cubic feet | PM | Particulate Matter |
| CFR | Code of Federal Regulations | PM ₁₀ | Particulate Matter with and aerodynamic diameter equal to or less than 10 microns |
| CO | Carbon Monoxide | PM _{2.5} | Particulate Matter with and aerodynamic diameter equal to or less than 2.5 microns |
| CO ₂ | Carbon Dioxide | ppb | Parts per Billion |
| CP | Construction Permit | ppm | Parts per Million |
| DGS | Distillers Grains with Solubles | ppmv | Parts per Million by volume |
| DDGS | Dry Distillers Grains with Solubles | ppmvd | Parts per Million by volume, dry basis |
| dscf | Dry Standard Cubic Feet | PSD | Prevention of Significant Deterioration |
| dscfm | Dry Standard Cubic Feet per Minute | PTE | Potential to Emit |
| EMIS | Emergency Management Information System | RATA | Relative Accuracy Test Audit |
| EPA | Environmental Protection Agency | RMP | Risk Management Plan |
| EQC | Environmental Quality Council | RTO | Regenerative Thermal Oxidizer |
| EP | Emission Point | scf | Standard Cubic Feet |
| ESP | Electrostatic Precipitator | SIC | Standard Industrial Classification |
| EU | Emission Unit | SIP | State Implementation Plan |
| FGR | Flue Gas Recirculation | SO ₂ | Sulfur Dioxide |
| FIP | Federal Implementation Plan | SO _x | Sulfur Oxides |
| FR | Federal Register | TDS | Total Dissolved Solids |
| ft | Feet | TO | Thermal Oxidizer |
| FID | Facility ID Number | TO/HRSG | Thermal Oxidizer with Heat Recovery Steam Generator |
| FTIR | Fourier Transform Infrared | tpy | Tons per year |
| H ₂ S | Hydrogen Sulfide | TRS | Total Reduced Sulfur |
| HAP | Hazardous Air Pollutant | TSP | Total Suspended Particulate Matter |
| hp | Horsepower | ULNB | Ultra Low NO _x Burner |
| hr | Hour | UST | Underground Storage Tank |
| LDAR | Leak Detection and Repair | UTM | Universal Transverse Mercator |
| LNB | Low NO _x Burner | VHAP | Volatile Hazardous Air Pollutant |
| MACT | Maximum Achievable Control Technology | VMT | Vehicle Miles Traveled |
| Mgal | One Thousand gallons | VOC | Volatile Organic Compound |
| MMBtu | One Million British Thermal Units | WDGS | Wet Distillers Grains with Solubles |
| MMscf | One Million Standard Cubic Feet | yr | Year |
| MSDS | Material Safety Data Sheet | | |
| MW | Megawatt | | |
| NA | Not Applicable | | |
| NAAQS | National Ambient Air Quality Standards | | |

I. GENERAL CONDITIONS

- (A) Administrative amendment of this permit for a change in ownership or operational control of this source is allowed provided the NDEQ determines that no other change in the permit is necessary and a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the NDEQ. (Title 129, Chapter 15, Section 001.01D)
- (B) The permittee shall allow the NDEQ, USEPA or an authorized representative, upon presentation of credentials to (Title 129, Chapter 8, Sections 012.02 & 015):
 - (1) Enter upon the permittee's premises at reasonable times where a source subject to this permit is located, emissions-related activity is conducted, or where records must be kept under the conditions of this permit, for the purpose of ensuring compliance with this permit or applicable requirements;
 - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, for the purpose of ensuring compliance with this permit or applicable requirements;
 - (3) Inspect at reasonable times any facilities, pollution control equipment, including monitoring and air pollution control equipment, practices, or operations regulated or required under this permit, for the purpose of ensuring compliance with this permit or applicable requirements;
 - (4) Sample or monitor at reasonable times substances or parameters for the purpose of ensuring compliance with the permit or applicable requirements.
- (C) Regulatory authority:
 - (1) Title 40 Protection of Environment, Code of Federal Regulations that apply to the source including those not currently delegated to Nebraska or not yet included in Title 129 - Nebraska Air Quality Regulations, and
 - (2) Title 129 - Nebraska Air Quality Regulations that apply to the source as amended May 17, 2009.
- (D) This permit is issued for a fixed term of five (5) years. A renewal application shall be submitted to the NDEQ a minimum of six (6) months and a maximum of eighteen (18) months before permit expiration. Provided their application is submitted within the above timeframe, the source may continue to operate from the date the application is determined to be complete until final action on the application is taken by the NDEQ. (Title 129, Chapter 8, Section 003, and Chapter 7, Sections 002.06 & 003.04)
- (E) The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Nebraska Environmental Protection Act and the Federal Clean Air Act, and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (Title 129, Chapter 8, Section 007.01)
- (F) It shall not be a defense for a permittee in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (Title 129, Chapter 8, Sections 007.02 & 015)

- (G) This permit may be modified; revoked, reopened, and reissued; or terminated for cause in accordance with Title 129 and Title 115, Rules of Practice and Procedure. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not supersede any permit condition. (Title 129, Chapter 8, Sections 007.03 & 015)
- (H) Conditions under which this permit will be reopened, revoked, and reissued, or terminated during its term for cause, include but are not limited to: (Title 129, Chapter 8, Sections 010 & 015; and Chapter 15, Section 006)
- (1) Additional applicable requirements under the Nebraska Environmental Protection Act or the Federal Clean Air Act, which become applicable to this source with a remaining permit term of three (3) or more years. No such reopening will occur if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended;
 - (2) Additional requirements, including excess emissions requirements, that become applicable to an affected source under the acid rain program under Chapter 26;
 - (3) A determination by the Director, or the Administrator of USEPA that:
 - (a) The permit must be revoked and reissued to ensure compliance with the applicable requirements;
 - (b) The permit contains a material mistake or that inaccurate statements were made in the emissions standards or other terms or conditions of the permit;
 - (c) An applicable requirement or applicable requirement under the Federal Clean Air Act applies which was not identified by the permittee in its application;
- (I) This permit may be revoked during its term for cause, including but not limited to: (Title 129, Chapter 8, Sections 010 & 015; & Chapter 15, Section 006.02)
- (1) The existence at the facility of unresolved noncompliance with applicable requirements or a term or condition of the permit, and refusal of the permittee to agree to an enforceable schedule of compliance to resolve the noncompliance;
 - (2) The submittal by the permittee of false, incomplete, or misleading information to the NDEQ or USEPA;
 - (3) A determination by the Director that the permitted facility or activity endangers human health or the environment and that the danger cannot be removed by a revision of the permit; or
 - (4) The failure of the permittee to pay a penalty owed pursuant to court order, stipulation and agreement, or order issued by the Administrator of the USEPA.
- (J) The permit does not convey any property rights of any sort, or any exclusive privilege. (Title 129, Chapter 8, Sections 007.04 & 015)
- (K) The permittee shall furnish to the NDEQ, within the time specified by the NDEQ, any information requested by the NDEQ in writing to determine whether

- cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the NDEQ copies of records required to be kept in accordance with the permit or, for information claimed to be confidential, the permittee may furnish such records along with a claim of confidentiality pursuant to Title 115 - Rules of Practice and Procedure. (Title 129, Chapter 8, Section 007.05 & 015)
- (L) The provisions of this permit supersede the provisions of any previously issued operating or construction permit. The applicable requirements of previously issued construction permits are now conditions of this permit. (Title 129, Chapter 8, Sections 002, 007.06, & 015)
- (M) In the event of a challenge to any portions of this permit, the unchallenged permit requirements shall remain valid. (Title 129, Chapter 8, Section 006)
- (N) The following methods may be used to determine compliance with the terms and conditions in this permit (Title 129, Chapter 34, Section 008):
- (1) Any compliance test method specified in the State Implementation Plan;
 - (2) Any test or monitoring method approved for the source in a permit issued pursuant to Title 129, Chapters 8, 17, 19, or 26;
 - (3) Any test or monitoring method provided for in Title 129; or
 - (4) Any other test, monitoring, or information-gathering method that produces information comparable to that produced by any method described in (N)(1) through (3).
- (O) Open fires are prohibited except as allowed by Title 129, Chapter 30.
- (P) Particulate Matter – General Requirements (Title 129, Chapter 32)
- (1) The permittee shall not cause or permit the handling, transporting or storage of any material in a manner which allows particulate matter to become airborne in such quantities and concentrations that it remains visible in the ambient air beyond the property line.
 - (2) The permittee shall not cause or permit the construction, use, repair or demolition of a building, its appurtenances, a road, a driveway, or an open area without applying all reasonable measures to prevent particulate matter from becoming airborne and remaining visible beyond the property line. Such measures include, but are not limited to, paving or frequent cleaning of roads, driveways and parking lots; application of dust-free surfaces; application of water; and planting and maintenance of vegetative ground cover.
- (Q) Application for review of plans or advice furnished by the Director will not relieve the source of legal compliance with any provision of these regulations, or prevent the Director from enforcing or implementing any provision of these regulations. (Title 129, Chapter 37)
- (R) If and when the Director declares an air pollution episode as defined in Title 129, Chapter 38, Section 003.01B, 003.01C, or 003.01D, the permittee shall immediately take all required actions listed in Title 129, Appendix I, Paragraph 1.1, 1.2, and 1.3, respectively, until the Director declares the air pollution episode terminated. (Title 129, Chapter 38, Section 003)

II. SPECIFIC CONDITIONS

- (A) Recordkeeping: To ensure compliance with this permit, records shall be maintained as outlined below. Records include, but are not limited to; copies of all applications, notifications, reports, test protocols, test results, and plans; and, originals of all monitoring results, measurements, inspections, and observations. (Title 129, Chapter 8, Section 015.02):
- (1) All records required throughout this permit shall be kept on-site for a minimum of five (5) years and shall be clear and readily accessible to NDEQ representatives, unless otherwise specified in this permit.
 - (2) Records documenting monthly calculations required by this permit shall be completed no later than the fifteenth (15th) day of each calendar month and shall include all information through the previous calendar month, unless otherwise specified in this permit.
 - (3) Records documenting equipment failures, malfunctions, or other variations, including date and time of occurrence, remedial action taken, and when corrections were made to each piece of permitted equipment, required control equipment, and required monitoring equipment. (Title 129, Chapter 6, Sections 002 & 005; Chapter 8, Sections 004.03B; & 15.05; and Chapter 35, Sections 004 & 005)
 - (4) All records of opacity readings, instrument readings, visual equipment inspections, log book entries, and any other record of equipment performance shall be initialed by the individual who entered the record.
 - (5) Site survey or similar documentation demonstrating compliance with the stack height limitations per Specific Condition II.(E)(1).
 - (6) Should there be inconsistency between the recordkeeping requirements specified in Condition II.(A) and applicable NSPS or NESHAP recordkeeping requirements, the applicable NSPS or NESHAP recordkeeping requirements shall take precedent unless they are less stringent.
- (B) Submittals/Reporting:
- All submittals, including reports, required by this permit shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. (Title 129, Chapter 1, Section 131; Chapter 7, Section 008; & Chapter 8 Sections 012.01 & 015)
- The following reports shall be submitted to the NDEQ as specified:
- (1) Certification of compliance with the terms and conditions of this permit, including emission limitations, standards, or work practices, for the preceding calendar year, shall be submitted to the NDEQ by March 31 of each year. The report must be certified by a responsible official and shall include the following: (Title 129, Chapter 8, Sections 012.05C & 015.03)

- (a) The identification of each term or condition of the permit that is the basis of the certification;
 - (b) The compliance status;
 - (c) A determination of whether compliance was continuous or intermittent;
 - (d) The methods used for determining the compliance status of the source, currently and over the reporting period; and,
 - (e) All instances of deviations from permit requirements, including those attributable to start-ups, shutdowns or malfunctions, the probable cause of such deviations, and any corrective actions or preventive measures taken.
 - (2) The permittee shall submit completed emission inventory forms for the preceding calendar year to the NDEQ by March 31 of each year. (Title 129, Chapter 6)
 - (3) Any emissions due to malfunctions, unplanned shutdowns, and ensuing start-ups that are, or may be, in excess of applicable emission limitations shall be reported to the NDEQ in accordance with Title 129, Chapter 35, Section 005.
 - (4) To demonstrate compliance with Condition II.(D)(2)(d), for emissions units that have had a performance test the owner or operator of the source shall notify the Department within fifteen (15) days of (Title 129, Chapter 34, Section 006):
 - (a) When there is a 10 percent increase in the daily production/throughput rate over the rate recorded during the most recent valid performance test.
 - (b) Each cumulative 5% increase in the production/throughput rate, based on a 30 day rolling average, over the rate recorded during the most recent valid performance test.
 - (c) Exemption: The reporting requirements of this condition do not apply to emissions units that have been tested and use a CEM to demonstrate compliance.

After evaluation of the increase, additional performance testing may be required. The owner or operator shall conduct the performance test using the procedures in (D)(4).
 - (5) Should there be inconsistency between the reporting requirements specified in Condition II.(B) and applicable NSPS or NESHAP reporting requirements, the applicable NSPS or NESHAP reporting requirements shall take precedent unless they are less stringent.
- (C) The permittee may make changes to a permitted facility without a permit revision if the changes would not require a construction permit under Title 129, Chapter 17, 18, 19, 23, 27, or 28; would not result in an exceedence of emissions allowable under this permit; would not violate any terms of this permit related to monitoring, testing, recordkeeping, reporting or compliance certification; would not violate any applicable requirements; and, a written notice is provided as described below. (Title 129, Chapter 15, Section 007)

- (1) Notification requirements:
 - (a) Non emergencies:
 - (i) The written notification must be received by the NDEQ a minimum of thirty (30) days in advance of the proposed changes;
 - (b) Emergencies:
 - 1. Notification within two working days of the date on which the permittee first becomes aware of the need for the change;
 - 2. A follow-up written notification must be submitted as soon as practicable; and,
 - 3. Include an explanation of the nature of the emergency.
 - (c) A brief description of the change within the permitted facility;
 - (d) The date on which the change will occur;
 - (e) Any change in emissions;
 - (f) Any permit term or condition that is no longer applicable as a result of the change; and,
 - (g) A copy of the notification must be attached to the facility's copy of the operating permit.
 - (2) Testing requirements:
 - (a) Testing may be required if the change involves a unit that was previously tested pursuant to a construction permit requirement.
- (D) Testing:
- (1) The owner or operator of the source shall conduct a performance test, using the procedures in (D)(2) below, when the criteria in (a) and (b) are met. Such tests shall be completed within 180 days of when (b) is met. (Title 129, Chapter 8, Section 015.03 & Title 129, Chapter 34, Section 001)
 - (a) A valid performance test has been conducted on the unit; and,
 - (b) The source makes changes that impact the data obtained from the most recent valid performance test. Actions that would impact the data include, but are not limited to, increasing the capacity of an emissions unit, changing the operational parameters of control equipment that potentially makes the control equipment less efficient, etc.
 - (2) Performance tests shall be conducted on the emission points identified in Conditions III.(B), III.(C), and III.(D). The tests shall verify compliance with the applicable emission limits or appropriate corrective action shall be taken. The performance tests shall be conducted according to the schedule in Condition III.(B)(4)(c)(i) for the fermentation operations. The performance tests shall be conducted no more than twenty-four (24) months and no less than twelve (12) months before the expiration date of

the current operating permit for testing done pursuant to Conditions III.(C), and III.(D).

- (3) Performance tests, as required in the permit or by NDEQ, shall be completed in accordance with Title 129, Chapter 34 and submitted to NDEQ as follows;
 - (a) Performance tests shall be conducted while operating at full capacity, unless otherwise specified by the NDEQ. (Title 129, Chapter 8, Section 015.03)
 - (b) Testing shall be conducted according to the methodologies found in Title 129, Chapter 34, Section 002, or other NDEQ approved methodologies. (Title 129, Chapter 34, Section 002)
 - (c) Performance tests shall be conducted for a minimum of three (3) one-hour runs unless another run-time is specified by the applicable Subpart or as deemed appropriate by the NDEQ. (Title 129, Chapter 8, Section 015.03)
 - (d) The owner or operator of a source shall provide the NDEQ at least thirty (30) days written notice prior to testing to afford the NDEQ an opportunity to have an observer present. (Title 129, Chapter 34, Section 015.03)
 - (e) The owner or operator shall provide the NDEQ with an emissions testing protocol at least thirty (30) days prior to testing. (Title 129, Chapter 8, Section 015.03)
 - (f) The owner or operator shall monitor and record the operating parameters for process and control equipment during the performance testing required in the permit. (Title 129, Chapter 8, Section 015.03)
 - (g) A written copy of the test results, signed by the person conducting the test, shall be provided to the NDEQ within forty-five (45) days of completion of the test and will, at a minimum, contain the following items (Title 129, Chapter 34, Section 002.07 and Chapter 8, Section 015.03):
 - (a) A description of the source's operating parameters (i.e., production rates, firing rates or combustion equipment, fuel usage, etc.) control equipment parameters (i.e., baghouse fan speeds, scrubber liquid flow rates, etc.), and ambient conditions (i.e., weather conditions, etc.) during testing.
 - (b) Copies of all data sheets from the test run(s)
 - (iii) A description and explanation of any erroneous data or unusual circumstance(s) and the cause for such situation
 - (iv) A final conclusion section describing the outcome of the testing
- (E) Requirements Becoming Effective During the Term of this Permit: The source will meet, in a timely manner, applicable requirements that become effective

during the permit term, unless a more detailed schedule is expressly required by the applicable requirement. (Title 129, Chapter 7, Section 006.02H, and Chapter 8, Section 012.03 & 015)

- (F) The following conditions apply to the verification of NAAQS modeling analysis: {Chapter 4}
- (1) Stack heights shall not be less than the following heights above ground level. A site survey or similar documentation demonstrating compliance with the stack height requirements shall be kept on site. (CP issued October 4, 2007)

| Emission Point ID# | Emission Point Name | Minimum Stack Height (ft) |
|---------------------------|---|----------------------------------|
| FX-1112 | Unloading Baghouse | 20 |
| FX-1310 | Hammermilling Baghouse #1 | 19 |
| FX-1310B | Hammermilling Baghouse #2 | 27 |
| S-40 | Fermentation (CO ₂) Scrubber #1 | 45 |
| S-40B | Fermentation (CO ₂) Scrubber #2 | 45 |
| E-9401 | TO/HRSG #1 | 125 |
| E-9401B | TO/HRSG #2 | 125 |
| S-7501 | DDGS Cooling System | 35 |
| FX-7508 | DDGS Baghouse | 9 |
| S-50 | Ethanol Loadout Flare | 36 |
| S-11 | Biomethanator Flare #1 | 21 |
| S-11B | Biomethanator Flare #2 | 21 |
| S-80 | Cooling Tower #1 | 32 |
| S-80B | Cooling Tower #2 | 45 |
| EP-110 | Emergency Fire Pump | 11 |

- (2) The source shall sufficiently restrict public access to the facility at the ambient air boundary relied upon in the modeling analysis for the NAAQS compliance demonstration. (CP issued April 9, 2007)
- (a) An ambient air restriction plan detailing the measures for restricting public access (such as fencing) shall be submitted to the NDEQ and kept on site. Public access restrictions shall be in place in accordance with the requirements in the Construction Permit issued April 9, 2007.
- (b) A site survey or similar documentation demonstrating compliance with the ambient air restriction plan shall be kept on site. The site survey or similar documentation shall provide sufficient detail to verify that the ambient air restriction plan has been fully implemented.

(G) Source-Wide Limitations:

(1) The facility shall emit less than the following in any period of twelve (12) consecutive calendar months. Compliance with this condition shall be demonstrated using the results from performance testing conducted in accordance with Specific Condition II.(D). {Title 129, Chapters 27 and 28 and CP issued April 9, 2007}

(a) 10 tons of any individual HAP

(b) 25 tons of total combined HAPs

Compliance with the emissions limitations above shall be demonstrated by performing emission calculations every month and period of twelve (12) consecutive calendar months using the calculation methodology in Attachment IV of this permit. Emission factors and pound per hour emission rates presented in Attachment IV shall be replaced with data obtained from the most current approved emissions test, if available.

(2) Facility-wide NO_x, CO, and VOC emissions from this source shall be limited to less than 100 tons per any period of 12 consecutive calendar months for each pollutant. At no time during the first 11 months after permit issuance shall the sum of all the previous months' NO_x, CO, or VOC emissions exceed this limit. Compliance with these emission limits shall be demonstrated through compliance with this permit, including Condition II.(B)(2) and the performance testing requirements of Conditions III.(B), III.(C), and III.(D). {Title 129, Chapter 5, Sections 001 and 001.03 and Title 129, Chapter 8, Section 015}

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(A) Specific Conditions for Grain Receiving, Handling, Storage, and Milling

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Required Control Equipment ID# and Description | Emission Unit Description |
|--------------------|--|---|
| FX-1112 | Unloading Baghouse | Rail and Truck Unloading Pit, Conveyors, One Grain Elevator, Two 110,000 bushel Grain Storage Bins (T-1202 & T-1203), Two 350,000 bushel Grain Storage Bins (T-1204 & T-1205), One Day Storage Bin, and One Grain Scalper |
| FX-1310 | Hammermill Baghouse #1 | 3,000 bushel Day Storage Bin, Conveyors, and East Hammermill |
| FX-1310B | Hammermill Baghouse #2 | Two Hammermills, Truck Unloading Pit, Conveyors, Grain Elevator, Two Day Storage Bins, Grain Scalper |

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in Condition III.(A)(1).

(3) Emission Limitations and Testing Requirements: {CP issued April 9, 2007}

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition II.(C).

| Emission Point ID# | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit | Performance Testing Required |
|---|-----------|-----------------------------|-------------------------------|---|------------------------------|
| FX-1112 ^[3] | PM | 0.56 lb/hr ^[1] | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | No |
| FX-1310 ^[3] | PM | 0.30 lb/hr ^[1] | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | No |
| FX-1310B ^[2] | PM | 0.30 lb/hr ^[1] | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | No |
| FX-1112 ^[3] FX-1310 ^[3] FX-1310B ^[2] | Opacity | < 20 percent ^[1] | 6-minute | Title 129, Chapter 20, Section 004 | No |

^[1] Compliance with Conditions III.(A)(4) satisfies the testing and monitoring requirements for the PM and opacity emission limits.

^[2] Unit FX-1310B was previously tested on 2/26/08 and demonstrated compliance with the respective emission limits.

^[3] Units FX-1112 and FX-1310 were previously tested on 10/5/05 and demonstrated compliance with the respective emission limits.

- (4) Operational and Monitoring Requirements: {CP issued April 9, 2007}
- (a) PM emissions from all grain receiving, handling, storing, and milling operations shall be captured and controlled by the following baghouses: {Title 129, Chapters 4, 19, and 20}
- FX-1112: Unloading Baghouse
FX-1310: Hammermilling Baghouse #1
FX-1310B: Hammermilling Baghouse #2
- (b) Operation of each dust collector (baghouse) shall be in accordance with the following requirements: {Title 129, Chapters 19 and 20 and CP issued April 9, 2007}
- (i) The baghouses shall be operated whenever the associated emission units are in operation.
- (ii) The baghouses shall be properly installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the dry dust collectors shall be kept on site and readily available to NDEQ representatives.
- (iii) The baghouses shall be equipped with an operational pressure differential indicator. The pressure differential indicator readings shall be recorded at least once each day that the associated dry dust collector is operating. The pressure indicator shall be properly installed, operated, calibrated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the equipment shall be kept on site and readily available to NDEQ representatives.
- (iv) Baghouse filter bags/cartridges/filters are to be inspected and/or replaced according to the operation and maintenance manual or more frequently as indicated by pressure differential indicator readings or other indication of bag/filter failure.
- (v) Routine observations (at least once each day of baghouse operation) shall be conducted during daylight hours to determine whether there are visible emissions from the stack or vent filter, leaks, noise, atypical pressure differential readings, or other indications, which may necessitate corrective action. Corrective action shall be taken immediately if necessary.

- (vi) Collected waste material from the baghouses shall be handled, transported, and stored in a manner that ensures compliance with General Condition I.(P).
 - (vii) The source shall maintain on-site an inventory of spare bags/cartridges/filters of each type used facility-wide to ensure rapid replacement in the event of bag/cartridge/filter failure.
- (5) Recordkeeping and Reporting Requirements: {CP issued April 9, 2007}
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Records documenting when routine observations were performed with a description, including operating parameters (e.g., pressure differential readings) and any atypical observations for each baghouse.
 - (c) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted for each baghouse.
 - (d) Filter replacement records including filter position, type, and date of filter installation for each baghouse. Filter position may be indicated with a grid diagram denoting the location of the bag(s) replaced with respect to a fixed external location or direction, such as the entrance door to the baghouse, a known building at the facility, or with respect to North, such that the location of the replaced bag can easily be determined.
 - (e) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made for each baghouse. Reporting to the NDEQ shall be in accordance with Chapter 35, Section 005.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(B) Specific Conditions for Fermentation Operations:

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Required Control Equipment ID# and Description | Emission Unit Description |
|--------------------|---|---|
| S-40 | V-3502: Two CO ₂ Scrubbers, in parallel, venting to a single stack | Four Fermentation Tanks and One Beer Well |
| S-40B | CO ₂ Scrubber | Four Fermentation Tanks and One Beer Well |

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in Condition III.(B)(1).

(3) Emission Limitations and Testing Requirements: {CP issued April 9, 2007}

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Conditions II.(C) and III.(B)(4)(c).

| Emission Point ID# | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit | Performance Testing Required |
|--------------------|-----------|--|--|---|------------------------------|
| S-40 | VOC | 6.58 lb/hr expressed as weight of VOC | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | Yes |
| | HAP | 65% Control Efficiency or 20.0 ppmvd for combined HAPs | Speciation and Quantification of HAP composition at inlet and outlet | Title 129, Chapter 27 and CP issued April 9, 2007 | Yes |
| S-40B | VOC | 10.05 lb/hr expressed as weight of VOC | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | Yes |
| | HAP | 65% Control Efficiency or 20.0 ppmvd for combined HAPs | Speciation and Quantification of HAP composition at inlet and outlet | Title 129, Chapter 27 and CP issued April 9, 2007 | Yes |
| S-40 & S-40B | Opacity | < 20 percent ¹ | 6-minute | Title 129, Chapter 20, Section 004 | No |

¹ Compliance with Conditions III.(B)(4) satisfies the testing and monitoring requirements for the visible emissions opacity limit.

- (4) Operational and Monitoring Requirements:
- (a) VOC and HAP emissions from the fermentation operations shall be controlled by the following: (Title 129 Chapters 19 and 27, and Construction Permit issued April 9, 2007)
S-40: Two Fermentation (CO₂) Scrubbers in parallel
S-40B: One Fermentation (CO₂) Scrubber
 - (b) The operation and maintenance of scrubbers S-40 and S-40B shall be in accordance with the following requirements: (Title 129, Chapter 8, Section 015; Title 129, Chapters 17, 19, and 27; Construction Permit issued April 9, 2007)
 - (i) The scrubbers shall be operated and be controlling emissions at all times when the associated emission units are in operation.
 - (ii) The scrubbers shall be properly designed, installed, operated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the scrubbers shall be kept on site and readily available to NDEQ representatives.
 - (iii) The scrubber shall be equipped with devices capable of monitoring the following operating parameters in the manner described below:
 1. Scrubbing liquid flow rate shall be monitored continuously;
 2. Chemical addition flow rate shall be monitored continuously;
 3. Scrubber pressure differential shall be monitored continuously; and,
 4. Scrubber liquid temperature shall be monitored by direct measurement.
 - (iv) The total monthly amount of chemical added to the scrubbers shall be monitored and recorded by the permittee.
 - (v) Chemical draw down checks shall be performed upon request by NDEQ personnel to verify that the flow meter is working correctly.
 - (vi) The scrubber operating parameters shall be maintained at the levels recorded during the most recent valid performance test conducted at the facility as described

below:

1. Scrubber liquid shall be comprised of only well water to ensure consistent liquid temperature. In the event that Husker Ag chooses to use an alternate scrubber liquid source, or scrubber liquid recirculation, compliance testing will be required to determine an appropriate scrubber liquid temperature limit.
2. The pressure differential shall be maintained within the range recorded; and,
3. The scrubbing liquid flow rate, flow rate of chemical additions, and concentration of the chemical injected into the scrubber shall be maintained at or above the levels recorded; or,
4. The scrubber operating parameters do not have to be adhered to provided that the facility uses a CEMs device to demonstrate compliance with permitted emission limits.

Note: Condition III.(B)(4)(b)(vi)(4) above differs from Condition III.(B)(4)(b) of CP06-0035 issued April 9, 2007 and CP07-0031 issued October 4, 2007. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The CPs did not contain this condition. NDEQ has determined that there is no need to adhere to scrubber operating parameters if a CEM device is used to demonstrate compliance. Condition III.(B)(4)(b)(vi)(4) has been added to reflect this.

- (vii) Observations at least once each day during daylight hours of scrubber operation shall be conducted to determine whether there are leaks, noise, or other indications that corrective action is necessary. If corrective action is required, it shall occur immediately.
 - (viii) Flow meters for recording scrubbing liquid and chemical addition flow rates shall be maintained and calibrated according to manufacturer's instructions.
- (c) In order to demonstrate compliance with the VOC and HAP limitations in Conditions II.(G) and III.(B)(3), the permittee shall conduct performance testing for VOCs and HAPs on scrubbers S-40 and S-40B. (Title 129, Chapter 8, Section 015 and Title 129, Chapter 34).
- (i) The testing frequency for Scrubbers S-40 and S-40B is based upon the facility-wide rolling 12-month total

emission of the largest single HAP. Testing frequency is determined each March 31 using the Tiers listed below. The 12 month rolling average shall be submitted to the NDEQ Air Division by April 30 of each year.

| Tier | Rolling 12-Month Total Emissions of Largest Single HAP | Testing Frequency |
|------|--|-----------------------|
| 1 | < 2.5 tons per year | Twice per permit term |
| 2 | ≥ 2.5 tons per year and < 5 tons per year | Annual |
| 3 | ≥ 5 tons per year and < 8 tons per year | Semi-Annual |
| 4 | ≥ 8 tons per year and < 10 tons per year | Quarterly |

1. Under each tier, one test must be completed during the third quarter (July through September) each year.
 2. For Tier 1 sources:
 - a. The first test must be completed within one year of permit issuance or becoming a Tier 1 source; and,
 - b. The second test must be completed in the third quarter immediately before the permit expiration date.
 - (ii) Upon issuance of this permit, initial testing frequency shall be in accordance with Tier 3 identified in Condition III.(B)(4)(c)(i).
 - (iii) The protocol required in Condition II.(D)(3)(e) will identify all operating ranges that testing, as required in this condition, will cover.
 - (iv) Only one valid performance test may be conducted at each operating range when conducting performance tests on Scrubbers S-40 and S-40B
 1. Subsequent performance tests may be conducted if the facility chooses to change any one or all operational parameters (chemical addition rate, type of chemical used, chemical concentration, and liquid flow rate) in order to demonstrate compliance with permitted limits.
- (5) Recordkeeping and Reporting Requirements:
- The permittee shall maintain the following for the fermentation Scrubbers S-40 and S-40B in order to demonstrate compliance with Conditions III.(B)(3) and III.(B)(4) [Title 129, Chapter 8, Section 015]
- (a) Recordkeeping and reporting shall be in accordance with

- Conditions II.(A) and II.(B) as applicable.
- (b) Records that document the continuous operating parameter data for the scrubbers. The records shall include:
 - (i) Scrubbing liquid flow rate;
 - (ii) Chemical addition flow rate;
 - (iii) Scrubber pressure differential readings.
 - (c) Monthly records shall be kept that document the amount of chemical injected into the water supplied to the scrubbers. (Title 129, Chapter 8, Section 015.02)
 - (d) Monthly records shall be kept that document the purchase date, concentration, amount, and type of chemical purchased for chemical injection associated with the scrubbers. (Title 129, Chapter 8, Section 015.02)
 - (e) Records shall be kept that document the operating parameters developed during the most recent valid performance test conducted at the facility. (Title 129, Chapter 8, Section 015.02)
 - (f) Records documenting the date, time, observations, and corrective action taken for each day the associated scrubbers are in operation. (Title 129, Chapter 8, Section 015.02)
 - (g) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action performed.
 - (h) Records that document the facility-wide rolling 12 month total emissions of the single largest HAP. (Title 129, Chapter 8, Section 015.02).

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(C) Specific Conditions for Prefermentation, Distillation, DDGS Drying, and Thermal Oxidizer with Heat Recovery Steam Generation (TO/HRSG)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Required Control Equipment ID# and Description | Emission Unit Description |
|---------------------------|---|--|
| E-9401 | TO/HRSG #1, 99 MMBtu/hr, Natural Gas | Prefermentation and Distillation Process Units and Tanks |
| | | DDGS Dryer #1, 40 MMBtu/hr, Natural Gas and Methane |
| E-9401B | TO/HRSG #2, 125 MMBtu/hr, Natural Gas | Prefermentation and Distillation Process Units and Tanks |
| | | DDGS Dryer #2, 42 MMBtu/hr, Natural Gas and Methane |

(2) Applicable NSPS and NESHAP Requirements:

No NESHAP requirements are applicable to this facility/source.

The following NSPSs are applicable to emission units in Condition III.(C)(1):

| Emission Point ID# | Applicable Standard | Title | Rule Citation |
|---------------------------|----------------------------|--|--|
| E-9401 & E-9401B | NSPS | New Source Performance Standards: General Provisions | Title 129, Chapter 18, Sec. <u>001.01</u> Title 40 CFR 60.1, Subpart A |
| E-9401 | NSPS | Small Industrial, Commercial, and Institutional Steam Generating Units | Title 129, Chapter 18, Sec. <u>001.52</u> Title 40 CFR, Part 60, Subpart Dc |
| E-9401B | NSPS | Industrial, Commercial, and Institutional Steam Generating Units | Title 129, Chapter 18, Sec. <u>001.22</u> Title 40 CFR, Part 60, Subpart Db |

The NSPS for General Provisions, Small Industrial, Commercial, Institutional Steam Generation Units, and Industrial, Commercial, and Institutional Steam Generating Units, Subparts A, Db, and Dc (Title 40 CFR 60.1, 60.40b and 60.40c as adopted by Title 129, Chapter 18, Sections 001.01, 001.052, and 001.22) apply to Emission Units TO/HRSG #1 (E-9401) and TO/HRSG #2 (E-9401B) per the table above. In the event of any discrepancies between this condition and the NSPS standards, the NSPS standards take precedence unless they are less stringent. The requirements of Subpart Db and Dc include, but are not limited to, those listed in Attachments V and VI.

(3) Emission Limitations and Testing Requirements: {CP issued April 9, 2007}

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be

conducted in accordance with Condition II.(C).

| Emission Point ID# | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit | Performance Testing Required (Yes/No) |
|--------------------|-----------------|----------------------------|--|--|---------------------------------------|
| E-9401 | PM | 2.21 lb/hr ³ | 3-hr or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | No |
| | NO _x | 13.9 lb/hr ¹ | 3-hr or test method average | Title 129, Chapter 18, NSPS Subpart Dc and Chapter 19, and CP issued April 9, 2007 | |
| | SO _x | 5.09 lb/hr ³ | 3-hr or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | |
| | CO | 8.30 lb/hr ³ | | | |
| | VOC | 1.66 lb/hr ³ | | | |
| | HAP | N/A ³ | Speciation and Quantification of HAP composition | Title 129, Chapter 27 and CP issued April 9, 2007 | |
| E-9401B | PM | 3.06 lb/hr ³ | 3-hr or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | No |
| | NO _x | 0.10 lb/MMBtu ² | 30 day rolling average | Title 129, Chapters 18, NSPS Subpart Db, and Chapter 19, and CP issued April 9, 2007 | |
| | SO _x | 7.03 lb/hr ³ | 3-hr or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | |
| | CO | 19.86 lb/hr ³ | | | |
| | VOC | 4.58 lb/hr ³ | | | |
| | HAP | N/A ³ | Speciation and Quantification of HAP composition | Title 129, Chapter 27 and CP issued April 9, 2007 | |

¹ Testing of this unit is not required by this operating permit because this unit was previously tested on 11/1/05 and demonstrated compliance with the emission limits.

² A Continuous Emission Monitor (CEM) or other approved alternative monitoring plan is required by NSPS Subpart Db for E-9401B and will be utilized to demonstrate compliance with the emission limit.

³ Testing to demonstrate compliance with these emission limits is not required due to the low expected emissions for the fuel types used and compliance with Condition III.(C)(4).

(4) Operational and Monitoring Requirements: {CP issued April 9, 2007}

- (a) Emissions from the prefermentation, distillation and DDGS drying operations shall be controlled by two TO/HRSG systems (E-9401 and E9401B). {Title 129, Chapters 19 and 27}
- (b) Operation of the TO/HRSGs shall be in accordance with the following requirements {Title 129, Chapters 19 and 27}:
 - (i) The TO/HRSGs shall be operated at all times when the associated emission units are in operation.

- (ii) The TO/HRSGs shall be properly designed, installed, operated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the TO/HRSGs shall be kept on site and readily available to NDEQ representatives.
 - (iii) The TO/HRSGs shall be equipped with a thermocouple or equivalent device capable of continuously monitoring the temperature. The thermocouple or equivalent device shall monitor temperature on a continuous basis, with the one-hour average temperature recorded once per hour. The thermocouple or equivalent device shall be properly installed, operated, calibrated and maintained. Manufacturer's documentation, or its equivalent, shall be kept on site and readily available to NDEQ representatives.
 - (iv) The one-hour average operating temperature of the TO/HRSGs shall be maintained at a temperature no less than the temperature the unit was operating during the most recent performance test that demonstrated compliance with the permitted emissions limits. At no time shall the TO/HRSGs temperature be operated below 1,400 degrees Fahrenheit (one-hour average).
 - (v) Routine observations (at least once each day during daylight hours of TO/HRSGs operation) shall be conducted to determine whether there are visible emissions from the stack, leaks, noise, atypical operating parameters (e.g., pressure differential, temperature), or other indications that may necessitate corrective action. Corrective action shall be taken immediately, if necessary.
- (5) Recordkeeping and Reporting Requirements: {CP issued April 9, 2007}
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Records documenting the temperature of the TO/HRSG systems, including hourly temperature readings while the associated emission units are in operation.
 - (c) Records documenting when routine observations were performed on the TO/HRSG systems with a description, including operating parameters (e.g., temperature) and any atypical observations.
 - (d) Records documenting when routine maintenance and preventive actions were performed on the TO/HRSG systems with a description of the maintenance and/or preventive action performed.
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- (e) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made on the TO/HRSG systems. Reporting to the NDEQ shall be in accordance with Chapter 35, Section 005.
- (f) Notifications and recordkeeping as required by 40 CFR 60.7
- (g) Recordkeeping as required by 40 CFR 60.48

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(D) Specific Conditions for DDGS Cooling Cyclone, DDGS Storage, Conveyors, Elevator Leg, and Truck and Rail Loadout with DDGS Loadout Baghouse

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Required Control Equipment ID# and Description | Emission Unit Description |
|--------------------|--|---|
| S70 | Cooling Cyclone S-7501 | DDGS Cooling Cyclone with High Efficiency Baghouse |
| S90 | DDGS Loadout Baghouse FX-7508 | DDGS Storage, Conveyors, Elevator Leg, and Truck and Rail Loadout P20 |

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in Condition III.(D)(1).

(3) Emission Limitations and Testing Requirements: {CP issued April 9, 2007}

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition II.(C).

| Emission Point ID# | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit | Performance Testing Required (Yes/No) |
|--------------------|-----------|-----------------------------|--|---|---------------------------------------|
| S70 | PM | 0.94 lb/hr | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | Yes |
| | VOC | 1.75 lb/hr ^[1] | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | |
| | HAPs | N/A | Speciation and Quantification of HAP composition | Title 129, Chapter 27 and CP issued April 9, 2007 | |
| S90 | PM | 0.32 lb/hr ^[2] | 3-hour or test method average | Title 129, Chapter 19 and CP issued April 9, 2007 | No |
| S70 & S90 | Opacity | < 20 percent ^[2] | 6-minute | Title 129, Chapter 20, Section 004 | |

^[1] Expressed as weight of VOC

^[2] Monitoring and testing requirements are satisfied through compliance with Condition III.(D)(4).

- (4) Operational and Monitoring Requirements: {CP issued April 9, 2007}
- (a) Emissions from the DDGS cooling cyclone (S-7501) shall be captured and controlled by a high efficiency baghouse. {Chapters 4, 19 and 20}
 - (b) Grain receiving and DDGS loadout operations shall occur within a building to minimize fugitive emissions. {Chapter 19 and 20}
 - (c) Operation of the dry dust collector (baghouse) shall be in accordance with the following requirements {Chapters 19 and 20}:
 - (i) The baghouse shall be operated whenever the associated emission units are in operation.
 - (ii) The bughouse shall be properly installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the dry dust collector shall be kept on site and readily available to NDEQ representatives.
 - (iii) The baghouse shall be equipped with an operational pressure differential indicator. The pressure differential indicator readings shall be recorded at least once each day that the associated dry dust collector is operating. The pressure indicator shall be properly installed, operated, calibrated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection, and maintenance of the equipment shall be kept on site and readily available to NDEQ representatives.
 - (iv) Baghouse filters are to be inspected and/or replaced according to the operation and maintenance manual or more frequently as indicated by other evidence of vent failure.
 - (v) Routine observations (at least once each day of baghouse operation) shall be conducted during daylight hours to determine whether there are visible emissions from the vents, leaks, or other indications, which may necessitate corrective action. Corrective action shall be taken immediately if necessary.
 - (vi) Collected waste material from the baghouse shall be handled, transported, and stored in a manner that ensures compliance with General Condition I.(P).

- (vii) The source shall maintain on-site an inventory of baghouse filters of each type used facility-wide to ensure rapid replacement in the event of filter failure.
- (5) Recordkeeping and Reporting Requirements:
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Records documenting when routine observations were performed with a description including any atypical observations for the dry dust collector.
 - (c) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted for each dry dust collector.
 - (d) Filter replacement records including filter position, type, and date of filter installation for each dry dust collector. Filter position may be indicated with a grid diagram denoting the location of the bag(s) replaced with respect to a fixed external location or direction, such as the entrance door to the baghouse, a known building at the facility, or with respect to North, such that the location of the replaced bag can easily be determined.
 - (e) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made for each dry dust collector. Reporting to the NDEQ shall be in accordance with Chapter 35, Section 005.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(E) Specific Conditions for Ethanol Loading

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Required Control Equipment ID# and Description | Emission Unit Description |
|--------------------|--|---------------------------|
| S-50 | 6.4 MMBtu/hr Loadout Vapor Flare with 0.1 MMBtu/hr Natural Gas pilot | Ethanol Truck Loadout |

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in Condition III.(E)(1).

(3) Emission Limitations and Testing Requirements:

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition II.(C).

| Emission Point ID# | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit | Performance Testing Required |
|--------------------|-----------------|-----------------------------|------------------|---|------------------------------|
| S-50 | PM | 3.9 lb/hr ^[1] | 1-hour | Title 129, Chapter 20, Section <u>002</u> | No |
| | Opacity | < 20 percent ^[1] | 6-minutes | Title 129, Chapter 20, Section <u>004</u> | No |
| | SO _x | 2.5 lb/MMBtu ^[2] | 2-hours | Title 129, Chapter 24 Section <u>001</u> | No |

^[1] Compliance with Conditions III.(E)(4) satisfies the testing and monitoring requirements for PM and opacity.

^[2] Compliance with the 2.5 lb/MMBtu SO_x limit in the table is demonstrated through the use of fuels that have negligible sulfur content (ethanol and natural gas).

(4) Operational and Monitoring Requirements {CP issued April 9, 2007}::

- (a) Truck loadout of liquid product shall be controlled by a closed vapor recovery system with a flare at all times liquid product loadout by truck is occurring. {Title 129, Chapters 19 and 27}
- (b) The source shall use submerged loading when transferring liquid product from the storage tanks to tanker railcar or tanker truck. {Title 129, Chapters 19 and 27}
- (c) Operation of the closed vapor recovery system with flare shall be in accordance with the following requirements {Title 129, Chapters 19 and 27}::

- (i) The closed vapor recovery system and flare shall be properly designed, installed, operated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the vapor recovery system and flare shall be kept on site and readily available to NDEQ representatives.
 - (ii) When ethanol loadout is occurring by truck, a flame shall be present at the flare. The facility must install an appropriate safety device or flame monitoring system to ensure that truck loadout cannot occur without the presence of a flame. The safety device or flame monitoring system shall be properly installed, operated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the flare monitoring device/system shall be kept on site and readily available to NDEQ representatives.
- (5) Recordkeeping and Reporting Requirements {CP issued April 9, 2007}:
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Records documenting when routine maintenance and preventive actions were performed on the vapor recovery system with flare with a description of the maintenance and/or preventive action performed.
 - (c) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made on the vapor recovery system with flare. Reporting to the NDEQ shall be in accordance with Chapter 35, Section 005.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(F) Specific Conditions for Biomethanator Flares

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Emission Unit Description | Required Control Equipment ID# and Description | Maximum Heat Input Capacity | Permitted Fuel Type |
|---------------------------|--|--|------------------------------------|--------------------------------|
| S-11 | Wastewater Treatment Tanks and Biomethanator | Biomethanator Flare #1 with 0.1 MMBtu/hr Natural Gas Pilot | 3.2 MMBtu/hr | Methane Vapors and Natural Gas |
| S-11B | Wastewater Treatment Tanks and Biomethanator | Biomethanator Flare #2 with 0.1 MMBtu/hr Natural Gas Pilot | 3.2 MMBtu/hr | Methane Vapors and Natural Gas |

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in Condition III.(F)(1).

(3) Emission Limitations and Testing Requirements:

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition II.(C).

| Emission Point ID# | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit | Performance Testing Required |
|---------------------------|------------------|------------------------|---|------------------------------------|-------------------------------------|
| S-11 and S-11B | PM | 1.98 lb/hr | hourly - per EPA approved test method average | Title 129, Chapter 20, Section 002 | No ^[1] |
| | SOx | 2.5 Lb/MMBtu | 2-hour average | Title 129, Chapter 24, Section 001 | No ^[1] |
| | Opacity | < 20 percent | 6-minute | Title 129, Chapter 20, Section 004 | No ^[1] |

^[1] Compliance with Condition III.(F)(4)(a) satisfies the testing and monitoring requirements for PM, SOx, and opacity limits.

(4) Operational and Monitoring Requirements {CP issued April 9, 2007}:

- (a) Methane generated from the biomethanator shall be combusted in the biomethanator flares (S-11 and S-11B) or the DDGS dryers. {Chapters 19 and 27 per CP issued April 9, 2007}
- (b) Biomethanator flares #1 and #2 shall not exceed a combined

8,760 operating hours in any period of twelve (12) consecutive calendar months. The pilots for the flares may operate continuously. {Chapters 19 and 27 per CP issued April 9, 2007}

- (c) The biomethanator flares shall each be equipped with a non-resettable hour meter to record the operating hours. The hour meter shall be properly installed, operated, calibrated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the hour meters shall be kept on site and readily available to NDEQ representatives. {Chapter 19 per CP issued April 9, 2007}
 - (d) The owner or operator must install an appropriate safety device or monitoring system to ensure that biomethanator off-gases are adequately controlled. The installed safety device or monitoring system must be operated in accordance with manufacturer's instructions. The facility must maintain appropriate documentation at the site, such as flare specifications on the installed safety device or flame monitoring, to demonstrate compliance. {CP issued April 9, 2007}
- (5) Recordkeeping and Reporting Requirements {CP issued April 9, 2007}:
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Records documenting when routine maintenance and preventive actions were performed on the biomethanator flares and associated equipment with a description of the maintenance and/or preventive action performed.
 - (c) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made on the biomethanator flares and associated equipment. Reporting to the NDEQ shall be in accordance with Chapter 35, Section 005.
 - (d) Records of hours of operation of the biomethanator flares for each calendar month and for each period of twelve (12) consecutive months.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(G) Specific Conditions for Emergency Firewater Pump Engine

(1) Permitted Emission Points:

The source is permitted to operate the emission unit identified in the following table using the fuel type listed:

| Emission Point ID# | Associated Emission Units | Nominal Size | Permitted Fuel Type |
|--------------------|---|--------------|--|
| EP-110 | One (1) Emergency Firewater Pump Engine | 300 hp | Diesel Fuel with < 0.4% sulfur by weight |

(2) Applicable NSPS and NESHAP Requirements:

No NSPS requirements are applicable to this equipment.

The following NESHAP are applicable to the 300 hp Emergency Firewater Pump Engine:

| Applicable Standard | Title | Rule Citation |
|---------------------|---|--|
| NEHSAP | National Emissions Standards for Hazardous Air Pollutants: General Provisions | Title 129, Chapter 28, Sec. <u>001.01</u> Title 40 CFR 63.1 Subpart A |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines | Title 129, Chapter 28, Sec. <u>001.88</u> Title 40 CFR, Part 63, Subpart <u>ZZZZ</u> ¹ |

¹The 300 hp Emergency Firewater Pump Engine is subject to NESHAP, Subpart ZZZZ; however, there are no applicable requirements at this time. Please refer to the Fact Sheet for more information.

(3) Emission Limitations and Testing Requirements:

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition II.(C).

| Emission Point/ID# | Pollutant | Permitted Limits | Averaging Period | Basis for Permit Limit | Performance Testing Required (Yes/No) |
|--|-----------|-----------------------------|---|---|---------------------------------------|
| (EP-110) Emergency Fire Water Pump Engine | PM | 1.26 lb/hr ^[1] | hourly - per EPA approved test method average | Title 129, Chapter 20, Section <u>002</u> | No |
| | SOx | 2.5 Lb/MMBtu ^[1] | 2-hour average | Title 129, Chapter 24, Section <u>001</u> | No |
| | Opacity | <20 percent ^[1] | 6-minute | Title 129, Chapter 20, Section <u>004</u> | No |

^[1] Monitoring and testing requirements are satisfied through use of the permitted fuel type in Condition III.(G)(1) which is diesel fuel containing less than 0.4% sulfur by weight, that is equivalent to 0.4 lb/MMBtu and below the limit of 2.5 lb/MMBtu.

- (4) Operational and Monitoring Requirements {CP issued April 9, 2007}:
- (a) The emergency firewater pump engine shall be limited to 100 hours of operation during any 12 consecutive calendar month period. (CP issued April 9, 2007)
 - (b) The emergency firewater pump engine shall be equipped with a non-resettable hour meter to record the operating hours. The hour meter shall be properly installed, operated, calibrated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the hour meter shall be kept on site and readily available to NDEQ representatives. (CP issued April 9, 2007)
- (5) Recordkeeping and Reporting Requirements {CP issued April 9, 2007}:
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Fuel receipts for the distillate fuel from the supplier. Fuel receipt shall state the sulfur content, by weight, in the distillate fuel.
 - (c) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted for the emergency firewater pump engine and the hour meters.
 - (d) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made for the emergency firewater pump engine and the hour meter. Reporting to the NDEQ shall be in accordance with Chapter 35, Section 005.
 - (e) Hours of operation for the emergency firewater pump engine for each calendar month and for each period of twelve (12) consecutive calendar months.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(H) Specific Conditions for Cooling Towers

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Required Control Equipment ID# and Description | Emission Unit Description |
|---------------------------|---|---|
| S-80 | N/A | 720,000 gal/hour Cooling Tower #1 (2 cells) |
| S-80B | N/A | 1,350,000 gal/hour Cooling Tower #2 (3 cells) |

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in Condition III.(H)(1).

(3) Emission Limitations and Testing Requirements:

Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition II.(C).

| Emission Point ID# | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit | Performance Testing Required |
|---------------------------|------------------|------------------------|---|------------------------------------|-------------------------------------|
| S-80 | PM | 92.69 lb/hr | hourly - per EPA approved test method average | Title 129, Chapter 20, Section 001 | No ^[1] |
| S-80B | PM | 102.19 lb/hr | hourly - per EPA approved test method average | Title 129, Chapter 20, Section 001 | No ^[1] |

^[1] Monitoring and testing requirements for the PM emission limits are satisfied through compliance with Condition III.(H)(4).

(4) Operational and Monitoring Requirements {CP issued April 9, 2007}:

(a) A Total Dissolved Solids (TDS) concentration of the cooling water in each cooling tower shall be limited to 2,500 ppm for any single sampling event. A TDS sample shall be collected and tested from each cooling tower a minimum of once per calendar month. The test shall be in accordance with an EPA approved test method. {Chapter 19 and CP issued April 9, 2007}

(b) Drift loss from each cooling tower shall be limited to 0.005 percent. Verification of drift loss shall be by manufacturer's guarantee. Manufacturer's drift loss guarantee shall be kept on site and readily available to NDEQ representatives, upon request. {Chapter 19 and CP issued April 9, 2007}

- (5) Recordkeeping and Reporting Requirements {CP issued April 9, 2007}:
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted for the cooling tower. (CP issued April 9, 2007)
 - (c) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made for the cooling tower. Reporting to the NDEQ shall be in accordance with Chapter 35, Section 005. (CP issued April 9, 2007)
 - (d) TDS concentration in cooling water for each sampling event. (CP issued April 9, 2007)

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(I) Specific Conditions for Equipment Leaks

(1) Permitted Emission Points:

Each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any device or system subject to NSPS Subpart VV or VVa located throughout the ethanol facility.

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NESHAP requirements that apply to the emission points or emission units listed in Specific Condition III.(I)(1). The following NSPS are applicable to the emission points in Condition III.(I)(1):

| Applicable Standard | Title | Rule Citation |
|----------------------------|---|---|
| NSPS | New Source Performance Standards: General Provisions | Title 129, Chapter 18, Sec. <u>001.01</u> 40 CFR 60.1, Subpart A |
| NSPS | New Source Performance Standard for Equipment Leaks in the Synthetic Organic Chemicals Manufacturing Industry ^[1] | Title 129, Chapter 18, Sec. <u>001.14</u> 40 CFR 60.480, Subpart VV ^[2] |
| NSPS | New Source Performance Standard for Equipment Leaks in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 ^[1] | 40 CFR 60 Subpart VVa |

^[1] A summary of the applicable requirements of NSPS, Subpart VV and VVa are contained in permit Attachments VIII and IX.

^[2] Pursuant to 40 CFR 60.480(e)(2), the permittee may comply with the provisions of 40 CFR 60, Subpart VVa to satisfy the requirements of this subpart.

The NSPS for General Provisions and Equipment Leaks in the Synthetic Organic Chemicals Manufacturing Industry, Subparts A, VV, and VVa (Title 129, Chapter 18, Sections 001.01 and 001.014 and 40 CFR §60.1 & §60.480) apply to equipment leaks from equipment specified in Condition III.(I)(1). In the event of any discrepancies between this condition and the NSPS standards, the NSPS standards take precedence unless they are less stringent. The requirements of Subparts A, VV, and VVa include, but are not limited to those listed in Attachments VIII and IX.

(3) Emission Limitations and Testing Requirements:

(a) Emission limitations and testing requirements as established by 40 CFR 60 Subpart VV (see Attachment VIII). Pursuant to 40 CFR 60.480(e)(2), the permittee may comply with the provisions

- of 40 CFR 60, Subpart VVa to satisfy the requirements of this Subpart.
- (b) Emission limitations and testing requirements as established by 40 CFR 60 Subpart VVa. (See Attachment IX)
- (4) Operational and Monitoring Requirements:
- (a) Emissions shall be controlled by the Leak Detection and Repair Program as defined in 40 CFR 60.482-1 through 60.482-10. (See Attachment VIII). Pursuant to 40 CFR 60.480(e)(2), the permittee may comply with the provisions of 40 CFR 60, Subpart VVa to satisfy the requirements of this Subpart.
 - (b) Emissions shall be controlled by the Leak Detection and Repair Program as defined in 40 CFR 60.482-2a through 60.482-11a. (see Attachment IX)
- (5) Recordkeeping and Reporting Requirements {Title 129, Chapter 8, Section 015.02 and Title 40 CFR 60 Subparts A, VV, and VVa} (refer to Attachments VIII and IX as necessary):
- (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (c) Recordkeeping and reporting as required by 40 CFR §60.486 and 40 CFR §60.487. Pursuant to 40 CFR 60.480(e)(2), the permittee may choose to comply with the provisions of 40 CFR 60, Subpart VVa to satisfy the requirements of Subpart VV.
 - (c) Recordkeeping and reporting as required by 40 CFR §60.486a and 40 CFR §60.487a.
 - (d) Notifications and record keeping as required by 40 CFR §60.7. Per 40 CFR §60.486(k) and §60.486a(k) the provisions of §60.7 (b) and (d) do not apply to affected facilities subject to this subpart.
 - (e) Records, including the date in which leak detection testing occurred, which valves, pumps, seals, open-ended lines, flanges, connectors, etc. were tested, and who conducted the testing.
 - (f) The owner or operator shall submit a semi-annual leak detection and repair report every six (6) calendar months to the NDEQ. Reports for each six (6) calendar month reporting period shall be submitted within 45 days following June 30 and December 31 of each year. Each report must be certified by a responsible official and include the following items:
 - (i) Date and time testing occurred

- (ii) Who conducted the testing
- (iii) Additional information required to be reported to the NDEQ in accordance with 40 CFR §60.480.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(J) Specific Conditions for Plant Haul Roads

- (1) Permitted Emission Points:
The source is permitted to operate the following:
All on-site haul roads with production-related truck traffic.
- (2) Applicable NSPS and NESHAP Requirements:
The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in Condition III.(J)(1).
- (3) Emission Limitations and Testing Requirements:
The haul road silt loading shall not exceed 3.0 g/m². {Chapters 4 and 19 per CP issued April 9, 2007}
- (4) Operational and Monitoring Requirements {CP issued April 9, 2007}:
 - (a) The permittee shall utilize best management practices (BMP) to control emissions from haul roads to comply with General Condition I.(P). The effectiveness of the BMP to minimize emissions from haul roads and maintain the permitted silt loading value will be demonstrated by compliance with General Condition I.(P.). {Title 129, Chapters 17, 20, and 32 per CP issued February 26, 2009}
 - (b) For each day of operation, the owner or operator shall conduct a survey of the plant property and haul roads to determine if visible fugitive emissions are being generated and leaving plant property. Documentation of all corrective actions and daily surveys shall be maintained in a log. {CP issued April 9, 2007}
 - (c) All on-site haul roads with production-related truck traffic shall be paved. {Chapters 4 and 19}
- (5) Recordkeeping and Reporting Requirements {CP issued April 9, 2007}:
 - (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) Records documenting use of fugitive dust control measures on haul roads.
 - (c) Records of haul road visible emissions surveys taken daily during operation and a description of corrective action taken, if needed.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(K) Specific Conditions for Storage Tanks

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table:

| Emission Point ID# | Control Equipment Description | Subject to NSPS Subparts A and Kb? | Maximum Capacity | Emission Unit Description |
|---------------------------|--------------------------------------|---|-------------------------|---|
| T-8201 | NA | No | 39,000 gallons | Vertical Fixed Roof Storage Tank for storing 190-Proof Ethanol |
| T-8203 | NA | No | 39,000 gallons | Vertical Fixed Roof Storage Tank for storing 200-Proof Ethanol |
| T-8204 | NA | No | 39,000 gallons | Vertical Fixed Roof Storage Tank for storing 200-Proof Ethanol |
| T-8205 | NA | No | 1,450 gallons | Conventional Storage Tank for storing corrosion inhibitor |
| T-8206 | Floating Roof | Yes | 39,000 gallons | Internal Floating Roof Storage Tank for storing Denaturant |
| T-8207 | Floating Roof | Yes | 775,000 gallons | Internal Floating Roof Storage Tank for storing Denatured Ethanol |
| T-8208 | Floating Roof | Yes | 675,000 gallons | Internal Floating Roof Storage Tank for storing Denatured Ethanol |
| TF-8401 | Floating Roof | Yes | 100,000 gallons | Internal Floating Roof Storage Tank for storing 190-Proof Ethanol |
| TF-8403 | Floating Roof | Yes | 100,000 gallons | Internal Floating Roof Storage Tank for storing 200-Proof Ethanol |
| TF-8411 | NA | No | 1,450 gallons | Conventional Storage Tank for storing corrosion inhibitor |
| TF-8414 | Floating Roof | Yes | 100,000 gallons | Internal Floating Roof Storage Tank for storing Denaturant |
| TF-8422 | Floating Roof | Yes | 500,000 gallons | Internal Floating Roof Storage Tank for storing Denatured Ethanol |
| TF-8433 | Floating Roof | Yes | 500,000 gallons | Internal Floating Roof Storage Tank for storing Denatured Ethanol |

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NESHAP requirements that apply to the emission points or emission units listed in Specific Condition III.(K)(1).

The following NSPS are applicable to emission units in Condition III.(K)(1), except T-8201, T-8203 through T-8205, and TF-8211:

| Applicable Standard | Title | Rule Citation |
|----------------------------|---|---|
| NSPS | New Source Performance Standards: General Provisions | Title 129, Chapter 18, Sec. <u>001.01</u> 40 CFR §60.1, Subpart A |
| NSPS | New Source Performance Standards for Volatile Organic Liquid Storage Vessels (Including Liquid Storage Vessels) | Title 129, Chapter 18, Sec. <u>001.62</u> 40 CFR §60.110b, Subpart Kb ¹ |

¹A summary of the applicable requirements of NSPS, Subpart Kb is contained in Attachment VII.

The NSPS for General Provisions and Volatile Organic Liquid Storage Vessels (Including Liquid Storage Vessels), Subparts A and Kb, (Title 129, Chapter 18, Sections 001.01 and 001.62) apply to the storage tanks listed in III.(K)(1) at Husker Ag. In the event of any discrepancies between this condition and the NSPS standards, the NSPS standards take precedence unless they are less stringent. The requirements of Subpart Kb include, but are not limited to, those listed in Attachment VII.

- (3) Emission Limitations and Testing Requirements:
 No emission limitations or testing requirements are associated with the tanks identified in Condition III.(K)(1) aside from requirements contained in Condition III.(K)(4).
- (4) Operational and Monitoring Requirements {CP issued April 9, 2007: (refer to Attachment VII as necessary)}
 - (a) The storage tanks listed in Condition III.(K)(1), except T-8201, T-8203 through T-8205, and TF-8211, shall be equipped with internal floating roofs utilizing a vapor mounted primary seal.
 - (b) The floating roof and primary seals of the storage tanks listed in Condition III.(K)(1), except T-8201, T-8203 through T-8205, and TF-8211, shall be visually inspected and repaired in accordance with the inspection and testing procedures of 40 CFR §60.113b(a).
- (5) Recordkeeping and Reporting Requirements {CP issued April 9, 2007: (refer to Attachment VII as necessary)}
 - (a) Recordkeeping and reporting shall be in accordance with Conditions II.(A) and II.(B) as applicable.
 - (b) The storage tanks listed in Condition III.(K)(1), except T-8201, T-8203 through T-8205, and TF-8211, are subject to the notifications, reporting, and recordkeeping requirements contained in 40 CFR §60.7 and 40 §CFR 60.115b.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS

(L) Specific Conditions for Insignificant Activities (reserved):

(1) The source is permitted for insignificant activities in accordance with Form 8.0, Section 8.2. This section is reserved for insignificant activities. No insignificant activities were declared by Husker Ag on Form 8.0, Section 8.2 of their Class II operating permit application revision received by NDEQ on December 15, 2008. Husker Ag indicated on Form 8.0, Section 8.2 of their Class II operating permit application that they do not use space heaters or comfort cooling towers that qualify as insignificant activities.

(2) Emission Limitations (reserved):

If the source declares insignificant activities at a later time, emission limits may apply. Each insignificant activity shall not exceed the permitted limits identified in the following table.

| Insignificant Activities | Pollutant | Permitted Limit | Averaging Period | Basis for Permit Limit |
|---|-----------------|-----------------|------------------|---|
| All combustion units identified in III.(L)(1) | Opacity | < 20 percent | 6-minute | Title 129, Chapter 20, Section <u>004</u> |
| All combustion units identified in III.(L)(1) | PM | 0.60 lb/MMBtu | 1-hour | Title 129, Chapter 20, Section <u>002</u> |
| All combustion units identified in III.(L)(1) | SO _x | 2.5 lb/MMBtu | 2-hours | Title 129, Chapter 24 Section <u>001</u> |

(3) Operational and Monitoring Requirements:

There are no specific requirements for the insignificant activities identified in Condition III.(L)(1).

(4) Recordkeeping and Reporting Requirements:

A written notification in accordance with Condition II.(C) of this permit shall be made to the NDEQ if there are additions, or changes, to the list of insignificant activities in Specific Condition III.(L)(1) (insignificant activities are as defined in Operating Permit Application Forms). Notification is only required for those insignificant activities that must be included in an application.

IV. HAP Emission Calculation Methodology

To demonstrate compliance with Specific Condition II.(F)(1), emissions shall be calculated each calendar month using data from the following sources listed in descending order of preference. For compliance purposes, total HAP is equivalent to the sum of individual HAPs.

- a. Continuous Emission Monitoring System (CEMS)
- b. Most recent, valid performance test results performed within the past five years
- c. Manufacturer’s guarantees and Material Safety Data Sheet (MSDS)
- d. Manufacturer/engineering estimates
- e. Emission factors from AP-42 or other EPA published documents

Emission factors and pound per hour (lb/hr) emission rates presented in Attachment IV shall be replaced with data obtained from the most current, approved emissions test conducted in accordance with Specific Condition II.(C). If it is necessary to convert uncontrolled to controlled emissions, multiply the uncontrolled emissions by one minus the overall control efficiency (fraction) of the control equipment.

Additional individual HAPs not specifically addressed in this calculation method that are found to be emitted from the emission points listed below must be incorporated into the facility-wide HAP calculation.

Fermentation Operations

Emissions from the fermentation (CO₂) scrubber shall be calculated using Equation (1) if a CEMS is not used.

$$(1) \quad E_s = [(UEF \times OH_u) + (CEF_Q \times OH_Q)] / (2,000 \text{ lbs/ton})$$

- Where
- E_s = Emissions from Scrubber (tons/month)
 - UEF = Uncontrolled process emission factor (lbs/hr)
 - CEF_Q = Controlled process emission factor (lbs/hr), dependent on recorded hourly scrubber water flow rate (Q)
 - OH_u = Total hours of scrubber down time. See Condition III.(B)(4)(c) of this permit (hr/month)
 - OH_Q = Total hours the fermentation scrubber is controlling emissions with a scrubber water flow rate above minimum, dependent on recorded daily scrubber water flow rate (hr/month)
 - Q = Hourly scrubber water flow rate, calculated as the minimum flow rate recorded each hour, excluding periods of scrubber down time.

| Hazardous Air Pollutant | UEF (lbs/hr) | CEF _Q (lbs/hr) @ hourly scrubber water flow rate (Q, gpm) | | |
|-------------------------|--------------|--|-------------|---------------|
| | | 30 ≤ Q < 35 | 35 ≤ Q < 40 | 40 or greater |
| Acetaldehyde | 10.5 | 2.8000 | 2.0430 | 1.8560 |
| Acrolein | 0.35 | 0.0700 | 0.0720 | 0.0740 |
| Formaldehyde | 0.22 | 0.0125 | 0.0125 | 0.0125 |
| Methanol | 0.28 | 0.0400 | 0.0410 | 0.0430 |
| Total HAPs | 11.35 | 2.9225 | 2.1685 | 1.9855 |

Distillation and DDGS Drying Operations

Emissions from the Distillation Operations and Dryer (emitted from Thermal Oxidizer Stack) shall each be calculated using Equation (2a) or (2b)

(2a) $E_{TO} = [\{ (EF) \times (NG_D) \} + \{ (EF) \times (NG_{TO}) \}] / (2,000 \text{ lbs/ton})$

(2b) $E_{TO} = (ER_{TO}) \times OT / (2,000 \text{ lbs/ton})$

Where

- E_{TO} = Emissions from Thermal Oxidizer (tons/month)
- EF = Natural Gas Emission factor (lbs/MMscf)
- NG_D = Natural Gas Usage of Dryer (MMscf/month)
- NG_{TO} = Natural Gas Usage of Thermal Oxidizer (MMscf/month)
- ER_{TO} = Emission Rate {Process HAPs} (lbs/hr)
- OT = Operating Time (hours/month)

| | Controlled Process Emission Factors | |
|---------------------------------|---|--|
| Hazardous Air Pollutant | Dryer, Pre-Fermentation and Distillation Emissions | TO without Dryer (Pre-Fermentation and Distillation Emissions only) |
| Process HAPs | Lb/hr | Lb/hr |
| Acetaldehyde | 0.2300 | Test to determine |
| Acrolein | 0.0600 | Test to determine |
| Formaldehyde | 0.0300 | Test to determine |
| Methanol | 0.0300 | Test to determine |
| Combustion HAPs | Lb/MMscf | |
| Benzene | 0.0021 | |
| Dichlorobenzene | 0.0012 | |
| Hexane | 1.8 | |
| Lead Compounds | 0.0005 | |
| Naphthalene | 0.00061 | |
| Polycyclic Organic Matter (POM) | 0.0000882 | |
| Toluene | 0.0034 | |
| Arsenic Compounds (ASC) | 0.0002 | |
| Beryllium Compounds (BEC) | 0.000012 | |
| Cadmium Compounds (CDC) | 0.0011 | |
| Chromium Compounds (CRC) | 0.0014 | |
| Cobalt Compounds (COC) | 0.000084 | |
| Manganese Compounds (MNC) | 0.00038 | |
| Mercury Compounds (HGC) | 0.00026 | |
| Nickel Compounds (NIC) | 0.0021 | |
| Selenium Compounds (SEC) | 0.000024 | |
| Total HAP | Summation of Individual HAPs | |

DDGS Cooling Cyclone (includes DDGS Storage and Loadout)

Emissions from the DDGS Cooling Cyclone shall be calculated using Equation (3).

(3) $E_{CC} = (CE_{F_{CC}}) \times (OH) / (2,000 \text{ lbs/ton})$

Where E_{CC} = Emissions from DDGS Cooling Cyclone (tons/month)
 $CE_{F_{CC}}$ = Controlled process emission factor (lbs/hr)
 OH = Operation Hours (hr/month)

| Hazardous Air Pollutant | Controlled Process Emission Factors (lbs/hr) |
|-------------------------|--|
| Acetaldehyde | 0.0300 |
| Acrolein | 0.0400 |
| Formaldehyde | 0.00125 |
| Methanol | 0.0200 |
| Total HAPs | 0.0913 |

Tanks

VOC emissions from storage tanks shall be calculated using the EPA’s TANKS program. HAP emissions from each of the storage tanks shall be calculated using Equation (4).

(4) $E_{ST-HAP} = (E_{ST-VOC}) \times (\text{HAP Fraction})$

Where: E_{ST-HAP} = Individual HAP emissions from storage tank (tons/month)
 E_{ST-VOC} = VOC emissions from storage tank (tons/month) from TANKS
 HAP Fraction = HAP Fraction in material stored in storage tank

| Material | Hazardous Air Pollutant | HAP Fraction |
|-------------------|-------------------------|--------------|
| Anhydrous Ethanol | Acetaldehyde | 0.0002 |
| | Methanol | 0.0002 |
| Denaturant | Benzene | 0.025 |
| | n-Hexane | 0.075 |
| | Toluene | 0.055 |

Ethanol Loadout

Emissions from liquid product loadout shall each be calculated using Equations (5a) through (5j).

(5a) $E_{VOC,LL} = E_{VOC,LL,T} + E_{VOC,LL,R}$

(5b) $E_{VOC,LL,T} = E_{VOC,LL,T,G} + E_{VOC,LL,T,E} + E_{VOC,LL,T,D}$

(5c) $E_{VOC,LL,T} = \{[(E_{F_{VOC,LL,T,G}}) \times (P_{LL,T})] + [(E_{F_{VOC,LL,T,E}}) \times (P_{LL,T})] + [(E_{F_{VOC,LL,T,D}}) \times (P_{LL,T})]\} / (2,000 \text{ lbs/ton})$

$$(5d) \quad E_{VOC,LL,R} = E_{VOC,LL,R,E} + E_{VOC,LL,R,D}$$

$$(5e) \quad E_{VOC,LL,R} = \{[(EF_{VOC,LL,R,E}) \times (P_{LL,R})] + [(EF_{VOC,LL,R,D}) \times (P_{LL,R})]\} / (2,000 \text{ lbs/ton})$$

Where

- $E_{VOC,LL}$ = VOC Emissions from Liquid Loadout (tons/month)
- $E_{VOC,LL,T}$ = VOC Emissions from Liquid Loadout into Trucks (tons/month)
- $E_{VOC,LL,R}$ = VOC Emissions from Liquid Loadout into Railcars (tons/month)
- $E_{VOC,LL,T,G}$ = VOC Emissions from Displacing Gasoline from Trucks (tons/month)
- $E_{VOC,LL,T,E}$ = VOC Emissions from Loading Ethanol into Trucks (tons/month)
- $E_{VOC,LL,T,D}$ = VOC Emissions from Loading Denaturant into Trucks (tons/month)
- $EF_{VOC,LL,T,G}$ = VOC Controlled Emission Factor for Displacing Gasoline from Trucks (lbs/Mgal)
- $EF_{VOC,LL,T,E}$ = VOC Controlled Emission Factor for Loading Ethanol into Trucks (lbs/Mgal)
- $EF_{VOC,LL,T,D}$ = VOC Controlled Emission Factor for Loading Denaturant into Trucks (lbs/Mgal)
- $P_{LL,T}$ = Product loaded into Trucks (Mgal/month)
- $E_{VOC,LL,R,E}$ = VOC Emissions from Loading Ethanol into Railcars (tons/month)
- $E_{VOC,LL,R,D}$ = VOC Emissions from Loading Denaturant into Railcars (tons/month)
- $EF_{VOC,LL,R,E}$ = VOC Emission Factor for Loading Ethanol into Railcars (lbs/Mgal)
- $EF_{VOC,LL,R,D}$ = VOC Emission Factor for Loading Denaturant into Railcars (lbs/Mgal)
- $P_{LL,R}$ = Product loaded into Railcars (Mgal/month)

| Pollutant | Controlled Emission Factors (lbs/Mgal) | |
|------------|---|--------------|
| | Truck Loadout | Rail Loadout |
| VOC | | |
| Gasoline | 0.066 | |
| Ethanol | 0.041 | 0.49 |
| Denaturant | 0.011 | 0.132 |

$$(5f) \quad E_{HAP,LL} = E_{HAP,LL,T} + E_{HAP,LL,R}$$

$$(5g) \quad E_{HAP,LL,T} = E_{HAP,LL,T,G} + E_{HAP,LL,T,E} + E_{HAP,LL,T,D}$$

$$(5h) \quad E_{HAP,LL,T} = (E_{VOC,LL,T,G} \times WF_{HAP,G}) + (E_{VOC,LL,T,E} \times WF_{HAP,E}) + (E_{VOC,LL,T,D} \times WF_{HAP,D})$$

$$(5i) \quad E_{HAP,LL,R} = E_{HAP,LL,R,E} + E_{HAP,LL,R,D}$$

$$(5j) \quad E_{HAP,LL,R} = (E_{VOC,LL,R,E} \times WF_{HAP,E}) + (E_{VOC,LL,R,D} \times WF_{HAP,D})$$

Where:

- $E_{HAP,LL}$ = HAP emissions from Liquid Loadout (tons/month)
- $E_{HAP,LL,T}$ = HAP Emissions from Liquid Loadout into Trucks (tons/month)
- $E_{HAP,LL,R}$ = HAP Emissions from Liquid Loadout into Railcars (tons/month)
- $E_{HAP,LL,T,G}$ = HAP Emissions from Displacing Gasoline from Trucks (tons/month)
- $E_{HAP,LL,T,E}$ = HAP Emissions from Loading Ethanol into Trucks (tons/month)
- $E_{HAP,LL,T,D}$ = HAP Emissions from Loading Denaturant into Trucks (tons/month)
- $WF_{HAP,G}$ = Weight Fraction of HAP in Gasoline (HAP/VOC)
- $WF_{HAP,E}$ = Weight Fraction of HAP in Ethanol (HAP/VOC)
- $WF_{HAP,D}$ = Weight Fraction of HAP in Denaturant (HAP/VOC)
- $E_{HAP,LL,R,E}$ = HAP Emissions from Loading Ethanol into Railcars (tons/month)
- $E_{HAP,LL,R,D}$ = HAP Emissions from Loading Denaturant into Railcars (tons/month)

| Pollutants | Weight Fraction of HAP Emissions | | |
|-----------------|----------------------------------|---------|------------|
| | Gasoline | Ethanol | Denaturant |
| Individual HAPs | | | |
| Acetaldehyde | N/A | 0.0002 | N/A |
| Benzene | 0.0245 | N/A | 0.025 |
| Cumene | 0.01 | N/A | N/A |
| Ethyl benzene | 0.02 | N/A | N/A |
| n-Hexane | N/A | N/A | 0.075 |
| Methanol | N/A | 0.0002 | N/A |
| Toluene | 0.15 | N/A | 0.055 |
| Xylenes | 0.12 | N/A | N/A |
| Total HAPs | 0.3245 | 0.0004 | 0.155 |

Loadout Flare Pilot, and Biomethanator Flare Pilot

Emissions from the boilers and loadout flare pilot shall each be calculated using Equation (6).

(6)
$$E_U = (EF) \times (NG_U) / (2,000 \text{ lbs/ton})$$

Where E_U = Emissions from Unit (tons/month)
 EF = Emission factor (lbs/MMscf)
 NG_U = Natural Gas Usage of Unit (MMscf/month)

| Pollutant | Emission Factor (lb/MMscf) |
|---------------------------------|----------------------------|
| Individual HAPs | |
| Benzene | 0.0021 |
| Dichlorobenzene | 0.0012 |
| Formaldehyde | 0.075 |
| Hexane | 1.8 |
| Lead Compounds | 0.0005 |
| Naphthalene | 0.00061 |
| Polycyclic Organic Matter (POM) | 0.0000882 |
| Toluene | 0.0034 |
| Arsenic Compounds (ASC) | 0.0002 |
| Beryllium Compounds (BEC) | 0.000012 |
| Cadmium Compounds (CDC) | 0.0011 |
| Chromium Compounds (CRC) | 0.0014 |
| Cobalt Compounds (COC) | 0.000084 |
| Manganese Compounds (MNC) | 0.00038 |
| Mercury Compounds (HGC) | 0.00026 |
| Nickel Compounds (NIC) | 0.0021 |
| Selenium Compounds (SEC) | 0.000024 |
| Total HAPs | 1.89 |

Equipment Leaks

VOC emissions from equipment leaks shall be calculated using Equation (7a). HAP emissions from equipment leaks shall be calculated using Equation (7b). These equations are based on compliance with the LDAR program.

$$(7a) \quad LK_{VOC} = \{\Sigma[(N-LK) \times (EF-LK) \times (1-(CE-LK/100))]\} \times (OH-LK) \times (2.21 \text{ lbs/kg}) / (2,000 \text{ lbs/ton})$$

Where: LK_{VOC} = VOC emissions from equipment leaks (tons/month)
 Σ = Summation over all types of components
 N-LK = Number of components in each type
 EF-LK = Equipment leak emission factor (kg/hr/source)
 CE-LK = Control efficiency of LDAR system (%)
 OH-LK = Operating hours (hrs/month)

$$(7b) \quad LK_{HAP} = (LK_{VOC}) \times (PPM-LK/10^6)$$

Where: LK_{HAP} = HAP emissions from equipment leaks (tons/month)
 LK_{VOC} = VOC emissions from equipment leaks (tons/month)
 PPM-LK = HAP content of anhydrous ethanol (ppm by weight)

Emergency Firewater Pump Engine

Emissions from the emergency firewater pump engine shall be calculated using Equation (8).

$$(8) \quad E_E = (EF_E) \times (HI_E) \times OT / (2,000 \text{ lbs/ton})$$

Where E_E = Emissions from Engine (tons/month)
 EF_E = Emission factor for Engine (lbs/MMBtu)
 HI_E = Heat Input of Engine (MMBtu/hr)
 OT = Operating Time of Engine (hours/month)

| Pollutant | Emission Factor (lb/MMBtu) |
|---|----------------------------|
| Individual Hazardous Air Pollutants (HAP) | |
| 1,3 – Butadiene | 3.91E-05 |
| Acetaldehyde | 7.67E-04 |
| Acrolein | 9.25E-04 |
| Benzene | 9.33E-04 |
| Formaldehyde | 1.18E-03 |
| Naphthalene | 8.48E-05 |
| Polycyclic Organic Matter (POM) | 8.32E-05 |
| Toluene | 4.09E-04 |
| Xylenes | 2.85E-04 |
| Total HAPs | 4.71E-03 |

WDGS Storage

Emissions from the WDGS storage shall be calculated using Equation (9).

$$(9) \quad E_{WC} = (EF_{WC}) \times (P_{WC}) / (2,000 \text{ lbs/ton})$$

Where: E_{WC} = Emissions from WDGS storage (tons/month)

EF_{wc} = Emission factor for WDGS storage (lbs/ton WDGS)
 P_{wc} = WDGS stored as product (tons WDGS/month)

| Pollutant | Emission Factor (lb/ton) |
|------------------|-------------------------------------|
| Acetaldehyde | 1.11E-04 |
| Acrolein | 1.67E-05 |
| Formaldehyde | 2.22E-04 |
| Methanol | 4.44E-05 |
| Total HAPs | 3.94E-04 |

V. NSPS Subpart Db Requirements—Standards of Performance for Industrial, Commercial, and Institutional Steam Generating Units

§ 60.41b Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Clean Air Act and in subpart A of this part.

Annual capacity factor means the ratio between the actual heat input to a steam generating unit from the fuels listed in §60.42b(a), §60.43b(a), or §60.44b(a), as applicable, during a calendar year and the potential heat input to the steam generating unit had it been operated for 8,760 hours during a calendar year at the maximum steady state design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility in a calendar year.

Chemical manufacturing plants mean industrial plants that are classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 28.

Federally enforceable means all limitations and conditions that are enforceable by the Administrator, including the requirements of 40 CFR parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 51.24.

Heat input means heat derived from combustion of fuel in a steam generating unit and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, kilns, etc.

Low heat release rate means a heat release rate of 730,000 J/sec-m³ (70,000 Btu/hr-ft³) or less.

§ 60.44b Standard for nitrogen oxides (NO_x)

(a) Except as provided under paragraphs (k) and (l) of this section, on and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that is subject to the provisions of this section and that combusts only coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain NO_x(expressed as NO₂) in excess of the following emission limits:

| Fuel/steam generating unit type | Nitrogen oxide emission limits (expressed as NO ₂) heat input | |
|------------------------------------|---|----------|
| | ng/J | lb/MMBtu |
| (1) Natural gas and distillate oil | | |
| (i) Low heat release rate | 43 | 0.10 |
| (ii) High heat release rate | 86 | 0.20 |

(h) For purposes of paragraph (i) of this section, the NO_x standards under this section apply at all times including periods of startup, shutdown, or malfunction.

(i) Except as provided under paragraph (j) of this section, compliance with the emission limits under this section is determined on a 30-day rolling average basis.

(j) Compliance with the emission limits under this section is determined on a 24-hour average basis for the initial performance test and on a 3-hour average basis for subsequent performance tests for any affected facilities that:

(1) Combust, alone or in combination, only natural gas, distillate oil, or residual oil with a nitrogen content of 0.30 weight percent or less;

(2) Have a combined annual capacity factor of 10 percent or less for natural gas, distillate oil, and residual oil with a nitrogen content of 0.30 weight percent or less; and

(3) Are subject to a federally enforceable requirement limiting operation of the affected facility to the firing of natural gas, distillate oil, and/or residual oil with a nitrogen content of 0.30 weight percent or less and limiting operation of the affected facility to a combined annual capacity factor of 10 percent or less for natural gas, distillate oil, and residual oil with a nitrogen content of 0.30 weight percent or less.

(l) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction or reconstruction after July 9, 1997 shall cause to be discharged into the atmosphere from that affected facility any gases that contain NO_x (expressed as NO₂) in excess of the following limits:

(1) If the affected facility combusts coal, oil, natural gas, a mixture of these fuels, or a mixture of these fuels with any other fuels: A limit of 86 ng/J (0.20 lb/MMBtu) heat input unless the affected facility has an annual capacity factor for coal, oil, and natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the facility to an annual capacity factor of 10 percent (0.10) or less for coal, oil, and natural gas; or

(2) If the affected facility has a low heat release rate and combusts natural gas or distillate oil in excess of 30 percent of the heat input on a 30-day rolling average from the combustion of all fuels, a limit determined by use of the following formula:

$$E_n = \frac{(0.10 \times H_{go}) + (0.20 \times H_r)}{(H_{go} + H_r)}$$

Where:

E_n = NO_x emission limit, (lb/MMBtu);

H_{go} = 30-day heat input from combustion of natural gas or distillate oil; and

H_r = 30-day heat input from combustion of any other fuel.

[72 FR 32742, June 13, 2007, as amended at 74 FR 5086, Jan. 28, 2009]

VI. Subpart Dc —Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

§ 60.48c Reporting and recordkeeping requirements.

- (a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:
- (1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.
 - (2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §60.42c, or §60.43c.
 - (3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.
 - (4) Notification if an emerging technology will be used for controlling SO₂ emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.
- (g)(1) Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.
- (2) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.
- (i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.
- (j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

**VII. Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels
(Including Petroleum Liquid Storage Vessels)**

§ 60.112b Standard for volatile organic compounds (VOC).

(a) The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m³ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or with a design capacity greater than or equal to 75 m³ but less than 151 m³ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa, shall equip each storage vessel with one of the following:

(1) A fixed roof in combination with an internal floating roof meeting the following specifications:

(i) The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

(ii) Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

(A) A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

(B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

(C) A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

(iii) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

(iv) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

(v) Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

- (vi) Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.
- (vii) Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.
- (viii) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.
- (ix) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

§ 60.113b Testing and procedures.

The owner or operator of each storage vessel as specified in §60.112b(a) shall meet the requirements of paragraph (a), (b), or (c) of this section. The applicable paragraph for a particular storage vessel depends on the control equipment installed to meet the requirements of §60.112b.

(a) After installing the control equipment required to meet §60.112b(a)(1) (permanently affixed roof and internal floating roof), each owner or operator shall:

(1) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.

(3) For vessels equipped with a double-seal system as specified in §60.112b(a)(1)(ii)(B):

(i) Visually inspect the vessel as specified in paragraph (a)(4) of this section at least every 5 years; or

(ii) Visually inspect the vessel as specified in paragraph (a)(2) of this section.

(4) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels conducting the annual visual inspection as specified in paragraphs (a)(2) and (a)(3)(ii) of this section and at intervals no greater than 5 years in the case of vessels specified in paragraph (a)(3)(i) of this section.

(5) Notify the Administrator in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraphs (a)(1) and (a)(4) of this section to afford the Administrator the opportunity to have an observer present. If the inspection required by paragraph (a)(4) of this section is not planned and the owner or operator could not have known about the

inspection 30 days in advance or refilling the tank, the owner or operator shall notify the Administrator at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to the refilling.

§ 60.115b Reporting and recordkeeping requirements.

The owner or operator of each storage vessel as specified in §60.112b(a) shall keep records and furnish reports as required by paragraphs (a), (b), or (c) of this section depending upon the control equipment installed to meet the requirements of §60.112b. The owner or operator shall keep copies of all reports and records required by this section, except for the record required by (c)(1), for at least 2 years. The record required by (c)(1) will be kept for the life of the control equipment.

(a) After installing control equipment in accordance with §60.112b(a)(1) (fixed roof and internal floating roof), the owner or operator shall meet the following requirements.

(1) Furnish the Administrator with a report that describes the control equipment and certifies that the control equipment meets the specifications of §60.112b(a)(1) and §60.113b(a)(1). This report shall be an attachment to the notification required by §60.7(a)(3).

(2) Keep a record of each inspection performed as required by §60.113b (a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).

(3) If any of the conditions described in §60.113b(a)(2) are detected during the annual visual inspection required by §60.113b(a)(2), a report shall be furnished to the Administrator within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.

(4) After each inspection required by §60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in §60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of §61.112b(a)(1) or §60.113b(a)(3) and list each repair made.

§ 60.116b Monitoring of operations.

(a) The owner or operator shall keep copies of all records required by this section, except for the record required by paragraph (b) of this section, for at least 2 years. The record required by paragraph (b) of this section will be kept for the life of the source.

(b) The owner or operator of each storage vessel as specified in §60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.

(c) Except as provided in paragraphs (f) and (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.

(d) Except as provided in paragraph (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kPa or with a design capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa shall notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range.

(e) Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below.

(1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

(3) For other liquids, the vapor pressure:

- (i) May be obtained from standard reference texts, or
- (ii) Determined by ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17); or
- (iii) Measured by an appropriate method approved by the Administrator; or
- (iv) Calculated by an appropriate method approved by the Administrator.

[52 FR 11429, Apr. 8, 1987, as amended at 65 FR 61756, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000; 68 FR 59333, Oct. 15, 2003]

§ 60.117b Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States: §§60.111b(f)(4), 60.114b, 60.116b(e)(3)(iii), 60.116b(e)(3)(iv), and 60.116b(f)(2)(iii).

[52 FR 11429, Apr. 8, 1987, as amended at 52 FR 22780, June 16, 1987]

VIII. Subpart VV—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

§ 60.482-1 Standards: General.

(a) Each owner or operator subject to the provisions of this subpart shall demonstrate compliance with the requirements of §§60.482-1 through 60.482-10 or §60.480(e) for all equipment within 180 days of initial startup.

(b) Compliance with §§60.482-1 to 60.482-10 will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in §60.485.

(c)

(1) An owner or operator may request a determination of equivalence of a means of emission limitation to the requirements of §§60.482-2, 60.482-3, 60.482-5, 60.482-6, 60.482-7, 60.482-8, and 60.482-10 as provided in §60.484.

(2) If the Administrator makes a determination that a means of emission limitation is at least equivalent to the requirements of §§60.482-2, 60.482-3, 60.482-5, 60.482-6, 60.482-7, 60.482-8, or 60.482-10, an owner or operator shall comply with the requirements of that determination.

(d) Equipment that is in vacuum service is excluded from the requirements of §§60.482-2 to 60.482-10 if it is identified as required in §60.486(e)(5).

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 78276, Dec. 14, 2000]

§ 60.482-2 Standards: Pumps in light liquid service.

(a) (1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in §60.485(b), except as provided in §60.482-1(c) and paragraphs (d), (e), and (f) of this section.

(2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(b) (1) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(2) If there are indications of liquids dripping from the pump seal, a leak is detected.

(c) (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (a), *Provided* the following requirements are met:

(1) Each dual mechanical seal system is—

(i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

- (ii) Equipment with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of §60.482–10; or
 - (iii) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.
- (2) The barrier fluid system is in heavy liquid service or is not in VOC service.
- (3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.
- (4) Each pump is checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.
- (5) (i) Each sensor as described in paragraph (d)(3) is checked daily or is equipped with an audible alarm, and
- (ii) The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
- (6) (i) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in paragraph (d)(5)(ii), a leak is detected.
- (ii) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9.
 - (iii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
- (e) Any pump that is designated, as described in §60.486(e)(1) and (2), for no detectable emission, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a), (c), and (d) of this section if the pump:
- (1) Has no externally actuated shaft penetrating the pump housing,
 - (2) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485(c), and
 - (3) Is tested for compliance with paragraph (e)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.
- (f) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the requirements of §60.482–10, it is exempt from paragraphs (a) through (e) of this section.
- (g) Any pump that is designated, as described in §60.486(f)(1), as an unsafe-to-monitor pump is exempt from the monitoring and inspection requirements of paragraphs (a) and (d)(4) through (6) of this section if:
- (1) The owner or operator of the pump demonstrates that the pump is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a) of this section; and
 - (2) The owner or operator of the pump has a written plan that requires monitoring of the pump as frequently as practicable during safe-to-monitor times but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the equipment according

to the procedures in paragraph (c) of this section if a leak is detected.

(h) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (a)(2) and (d)(4) of this section, and the daily requirements of paragraph (d)(5) of this section, provided that each pump is visually inspected as often as practicable and at least monthly.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78276, Dec. 14, 2000]

§ 60.482-3 Standards: Compressors.

(a) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere, except as provided in §60.482-1(c) and paragraph (h) and (i) of this section.

(b) Each compressor seal system as required in paragraph (a) shall be:

- (1) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or
- (2) Equipped with a barrier fluid system degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of §60.482-10; or
- (3) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(c) The barrier fluid system shall be in heavy liquid service or shall not be in VOC service.

(d) Each barrier fluid system as described in paragraph (a) shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(e) (1) Each sensor as required in paragraph (d) shall be checked daily or shall be equipped with an audible alarm.

(2) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(f) If the sensor indicates failure of the seal system, the barrier system, or both based on the criterion determined under paragraph (e)(2), a leak is detected.

(g) (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(h) A compressor is exempt from the requirements of paragraphs (a) and (b) of this section, if it is equipped with a closed vent system to capture and transport leakage from the compressor drive shaft back to a process or fuel gas system or to a control device that complies with the requirements of §60.482-10, except as provided in paragraph (i) of this section.

(i) Any compressor that is designated, as described in §60.486(e) (1) and (2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a)–(h) if the compressor:

- (1) Is demonstrated to be operating with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the methods specified in §60.485(c); and

(2) Is tested for compliance with paragraph (i)(1) of this section initially upon designation, annually, and at other times requested by the Administrator.

(j) Any existing reciprocating compressor in a process unit which becomes an affected facility under provisions of §60.14 or §60.15 is exempt from §60.482(a), (b), (c), (d), (e), and (h), provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs (a) through (e) and (h) of this section.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000]

§ 60.482-4 Standards: Pressure relief devices in gas/vapor service.

(a) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in §60.485(c).

(b) (1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in §60.482-9.

(2) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in §60.485(c).

(c) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in §60.482-10 is exempted from the requirements of paragraphs (a) and (b) of this section.

(d) (1) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of paragraphs (a) and (b) of this section, provided the owner or operator complies with the requirements in paragraph (d)(2) of this section.

(2) After each pressure release, a new rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in §60.482-9.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000]

§ 60.482-5 Standards: Sampling connection systems.

(a) Each sampling connection system shall be equipped with a closed-purged, closed-loop, or closed-vent system, except as provided in §60.482-1(c). Gases displaced during filling of the sample container are not required to be collected or captured.

(b) Each closed-purge, closed-loop, or closed-vent system as required in paragraph (a) of this section shall comply with the requirements specified in paragraphs (b)(1) through (4) of this section:

(1) Return the purged process fluid directly to the process line; or

(2) Collect and recycle the purged process fluid to a process; or

(3) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of §60.482-10; or

(4) Collect, store, and transport the purged process fluid to any of the following systems or

facilities:

- (i) A waste management unit as defined in 40 CFR 63.111, if the waste management unit is subject to, and operated in compliance with the provisions of 40 CFR part 63, subpart G, applicable to Group 1 wastewater streams;
 - (ii) A treatment, storage, or disposal facility subject to regulation under 40 CFR part 262, 264, 265, or 266; or
 - (iii) A facility permitted, licensed, or registered by a State to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261.
- (c) In situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (a) and (b) of this section.

[60 FR 43258, Aug. 18, 1995, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78277, Dec. 14, 2000]

§ 60.482-6 Standards: Open-ended valves or lines.

- (a) (1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in §60.482-1(c).
- (2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.
- (b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
- (c) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) at all other times.
- (d) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (a), (b) and (c) of this section.
- (e) Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (a) through (c) of this section are exempt from the requirements of paragraphs (a) through (c) of this section.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22607, May 30, 1984; 65 FR 78277, Dec. 14, 2000]

§ 60.482-7 Standards: Valves in gas/vapor service and in light liquid service.

- (a) Each valve shall be monitored monthly to detect leaks by the methods specified in §60.485(b) and shall comply with paragraphs (b) through (e), except as provided in paragraphs (f), (g), and (h), §60.483-1, 2, and §60.482-1(c).
- (b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.
- (c) (1) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.
- (2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.
- (d) (1) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in §60.482-9.

- (2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
- (e) First attempts at repair include, but are not limited to, the following best practices where practicable:
- (1) Tightening of bonnet bolts;
 - (2) Replacement of bonnet bolts;
 - (3) Tightening of packing gland nuts;
 - (4) Injection of lubricant into lubricated packing.
- (f) Any valve that is designated, as described in §60.486(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraph (a) if the valve:
- (1) Has no external actuating mechanism in contact with the process fluid,
 - (2) Is operated with emissions less than 500 ppm above background as determined by the method specified in §60.485(c), and
 - (3) Is tested for compliance with paragraph (f)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.
- (g) Any valve that is designated, as described in §60.486(f)(1), as an unsafe-to-monitor valve is exempt from the requirements of paragraph (a) if:
- (1) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a), and
 - (2) The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.
- (h) Any valve that is designated, as described in §60.486(f)(2), as a difficult-to-monitor valve is exempt from the requirements of paragraph (a) if:
- (1) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.
 - (2) The process unit within which the valve is located either becomes an affected facility through §60.14 or §60.15 or the owner or operator designates less than 3.0 percent of the total number of valves as difficult-to-monitor, and
 - (3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 61762, Oct. 17, 2000]

§ 60.482-8 Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors.

- (a) If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors, the owner or operator shall follow either one of the following procedures:
- (1) The owner or operator shall monitor the equipment within 5 days by the method specified in §60.485(b) and shall comply with the requirements of paragraphs (b) through (d) of this

section.

(2) The owner or operator shall eliminate the visual, audible, olfactory, or other indication of a potential leak.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c) (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9.

(2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) First attempts at repair include, but are not limited to, the best practices described under §60.482-7(e).

[48 CFR 48335, Oct. 18, 1983, as amended at 65 FR 78277, Dec. 14, 2000]

§ 60.482-9 Standards: Delay of repair.

(a) Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.

(c) Delay of repair for valves will be allowed if:

(1) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and

(2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with §60.482-10.

(d) Delay of repair for pumps will be allowed if:

(1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and

(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

(e) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 78277, Dec. 14, 2000]

§ 60.482-10 Standards: Closed vent systems and control devices.

(a) Owners or operators of closed vent systems and control devices used to comply with provisions of this subpart shall comply with the provisions of this section.

(b) Vapor recovery systems (for example, condensers and absorbers) shall be designed and operated to recover the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 parts per million by volume, whichever is less stringent.

(c) Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 parts

per million by volume, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 °C.

- (d) Flares used to comply with this subpart shall comply with the requirements of §60.18.
- (e) Owners or operators of control devices used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.
- (f) Except as provided in paragraphs (i) through (k) of this section, each closed vent system shall be inspected according to the procedures and schedule specified in paragraphs (f)(1) and (f)(2) of this section.

(1) If the vapor collection system or closed vent system is constructed of hard-piping, the owner or operator shall comply with the requirements specified in paragraphs (f)(1)(i) and (f)(1)(ii) of this section:

- (i) Conduct an initial inspection according to the procedures in §60.485(b); and
- (ii) Conduct annual visual inspections for visible, audible, or olfactory indications of leaks.

(2) If the vapor collection system or closed vent system is constructed of ductwork, the owner or operator shall:

- (i) Conduct an initial inspection according to the procedures in §60.485(b); and
- (ii) Conduct annual inspections according to the procedures in §60.485(b).

(g) Leaks, as indicated by an instrument reading greater than 500 parts per million by volume above background or by visual inspections, shall be repaired as soon as practicable except as provided in paragraph (h) of this section.

- (1) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
- (2) Repair shall be completed no later than 15 calendar days after the leak is detected.

(h) Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown.

(i) If a vapor collection system or closed vent system is operated under a vacuum, it is exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section.

(j) Any parts of the closed vent system that are designated, as described in paragraph (l)(1) of this section, as unsafe to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (j)(1) and (j)(2) of this section:

- (1) The owner or operator determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with paragraphs (f)(1)(i) or (f)(2) of this section; and
- (2) The owner or operator has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.

(k) Any parts of the closed vent system that are designated, as described in paragraph (l)(2) of this section, as difficult to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (k)(1) through (k)(3) of this section:

- (1) The owner or operator determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and
- (2) The process unit within which the closed vent system is located becomes an affected facility through §§60.14 or 60.15, or the owner or operator designates less than 3.0 percent of the total number of closed vent system equipment as difficult to inspect; and
- (3) The owner or operator has a written plan that requires inspection of the equipment at least once every 5 years. A closed vent system is exempt from inspection if it is operated under a vacuum.

(l) The owner or operator shall record the information specified in paragraphs (l) (1) through (l) (5) of this section.

- (1) Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.
- (2) Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.
- (3) For each inspection during which a leak is detected, a record of the information specified in §60.486(c).
- (4) For each inspection conducted in accordance with §60.485(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.
- (5) For each visual inspection conducted in accordance with paragraph (f)(1)(ii) of this section during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(m) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

[48 FR 48335, Oct. 18, 1983, as amended at 51 FR 2702, Jan. 21, 1986; 60 FR 43258, Aug. 18, 1995; 61 FR 29878, June 12, 1996; 65 FR 78277, Dec. 14, 2000]

§ 60.483-1 Alternative standards for valves—allowable percentage of valves leaking.

(a) An owner or operator may elect to comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent.

(b) The following requirements shall be met if an owner or operator wishes to comply with an allowable percentage of valves leaking:

- (1) An owner or operator must notify the Administrator that the owner or operator has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in §60.487(d).
- (2) A performance test as specified in paragraph (c) of this section shall be conducted initially upon designation, annually, and at other times requested by the Administrator.
- (3) If a valve leak is detected, it shall be repaired in accordance with §60.482-7(d) and (e).

(c) Performance tests shall be conducted in the following manner:

- (1) All valves in gas/vapor and light liquid service within the affected facility shall be monitored within 1 week by the methods specified in §60.485(b).
- (2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.
- (3) The leak percentage shall be determined by dividing the number of valves for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility.

(d) Owners and operators who elect to comply with this alternative standard shall not have an affected facility with a leak percentage greater than 2.0 percent.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000]

§ 60.483-2 Alternative standards for valves—skip period leak detection and repair.

(a) (1) An owner or operator may elect to comply with one of the alternative work practices specified in paragraphs (b)(2) and (3) of this section.

(2) An owner or operator must notify the Administrator before implementing one of the alternative work practices, as specified in §60.487(d).

(b) (1) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in §60.482–7.

(2) After 2 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 1 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(3) After 5 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(4) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in §60.482–7 but can again elect to use this section.

(5) The percent of valves leaking shall be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this section.

(6) An owner or operator must keep a record of the percent of valves found leaking during each leak detection period.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61762, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000]

§ 60.485 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the standards in §§60.482, 60.483, and 60.484 as follows:

(1) Method 21 shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21.

The following calibration gases shall be used:

- (i) Zero air (less than 10 ppm of hydrocarbon in air); and
 - (ii) A mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane.
- (c) The owner or operator shall determine compliance with the no detectable emission standards in §§60.482-2(e), 60.482-3(i), 60.482-4, 60.482-7(f), and 60.482-10(e) as follows:
- (1) The requirements of paragraph (b) shall apply.
 - (2) Method 21 shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.
- (d) The owner or operator shall test each piece of equipment unless he demonstrates that a process unit is not in VOC service, i.e., that the VOC content would never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:
- (1) Procedures that conform to the general methods in ASTM E260-73, 91, or 96, E168-67, 77, or 92, E169-63, 77, or 93 (incorporated by reference—see §60.17) shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment.
 - (2) Organic compounds that are considered by the Administrator to have negligible photochemical reactivity may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid.
 - (3) Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in service. If the Administrator disagrees with the judgment, paragraphs (d) (1) and (2) of this section shall be used to resolve the disagreement.
- (e) The owner or operator shall demonstrate that an equipment is in light liquid service by showing that all the following conditions apply:
- (1) The vapor pressure of one or more of the components is greater than 0.3 kPa at 20 °C (1.2 in. H₂O at 68 °F). Standard reference texts or ASTM D2879-83, 96, or 97 (incorporated by reference—see §60.17) shall be used to determine the vapor pressures.
 - (2) The total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20 °C (1.2 in. H₂O at 68 °F) is equal to or greater than 20 percent by weight.
 - (3) The fluid is a liquid at operating conditions.
- (f) Samples used in conjunction with paragraphs (d), (e), and (g) of this section shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.
- (g) The owner or operator shall determine compliance with the standards of flares as follows:
- (1) Method 22 shall be used to determine visible emissions.
 - (2) A thermocouple or any other equivalent device shall be used to monitor the presence of a pilot flame in the flare.
 - (3) The maximum permitted velocity for air assisted flares shall be computed using the following equation:

$$V_{\max} = K_1 + K_2 H_T$$

Where:

V_{\max} = Maximum permitted velocity, m/sec (ft/sec)

H_T = Net heating value of the gas being combusted, MJ/scm (Btu/scf).

K_1 = 8.706 m/sec (metric units)

= 28.56 ft/sec (English units)

K_2 = 0.7084 m⁴/(MJ-sec) (metric units)

= 0.087 ft⁴/(Btu-sec) (English units)

(4) The net heating value (HT) of the gas being combusted in a flare shall be computed using the following equation:

$$H_T = K \sum_{i=1}^n C_i H_i$$

Where:

K = Conversion constant, 1.740 × 10⁷ (g-mole)(MJ)/ (ppm-scm-kcal) (metric units)

= 4.674 × 10⁸ [(g-mole)(Btu)/(ppm-scf-kcal)] (English units)

C_i = Concentration of sample component “i,” ppm

H_i = net heat of combustion of sample component “i” at 25 °C and 760 mm Hg (77 °F and 14.7 psi), kcal/g-mole

(5) Method 18 and ASTM D2504–67, 77, or 88 (Reapproved 1993) (incorporated by reference—see §60.17) shall be used to determine the concentration of sample component “i.”

(6) ASTM D2382–76 or 88 or D4809–95 (incorporated by reference—see §60.17) shall be used to determine the net heat of combustion of component “i” if published values are not available or cannot be calculated.

(7) Method 2, 2A, 2C, or 2D, as appropriate, shall be used to determine the actual exit velocity of a flare. If needed, the unobstructed (free) cross-sectional area of the flare tip shall be used.

[54 FR 6678, Feb. 14, 1989, as amended at 54 FR 27016, June 27, 1989; 65 FR 61763, Oct. 17, 2000]

§ 60.486 Recordkeeping requirements.

(a) (1) Each owner or operator subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section.

(2) An owner or operator of more than one affected facility subject to the provisions of this subpart may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(b) When each leak is detected as specified in §§60.482–2, 60.482–3, 60.482–7, 60.482–8, and 60.483–2, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

(2) The identification on a valve may be removed after it has been monitored for 2 successive

months as specified in §60.482-7(c) and no leak has been detected during those 2 months.

(3) The identification on equipment except on a valve, may be removed after it has been repaired.

(c) When each leak is detected as specified in §§60.482-2, 60.482-3, 60.482-7, 60.482-8, and 60.483-2, the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:

(1) The instrument and operator identification numbers and the equipment identification number.

(2) The date the leak was detected and the dates of each attempt to repair the leak.

(3) Repair methods applied in each attempt to repair the leak.

(4) "Above 10,000" if the maximum instrument reading measured by the methods specified in §60.485(a) after each repair attempt is equal to or greater than 10,000 ppm.

(5) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

(6) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

(7) The expected date of successful repair of the leak if a leak is not repaired within 15 days.

(8) Dates of process unit shutdowns that occur while the equipment is unrepaired.

(9) The date of successful repair of the leak.

(d) The following information pertaining to the design requirements for closed vent systems and control devices described in §60.482-10 shall be recorded and kept in a readily accessible location:

(1) Detailed schematics, design specifications, and piping and instrumentation diagrams.

(2) The dates and descriptions of any changes in the design specifications.

(3) A description of the parameter or parameters monitored, as required in §60.482-10(e), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(4) Periods when the closed vent systems and control devices required in §§60.482-2, 60.482-3, 60.482-4, and 60.482-5 are not operated as designed, including periods when a flare pilot light does not have a flame.

(5) Dates of startups and shutdowns of the closed vent systems and control devices required in §§60.482-2, 60.482-3, 60.482-4, and 60.482-5.

(e) The following information pertaining to all equipment subject to the requirements in §§60.482-1 to 60.482-10 shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for equipment subject to the requirements of this subpart.

(2) (i) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of §§60.482-2(e), 60.482-3(i) and 60.482-7(f).

(ii) The designation of equipment as subject to the requirements of §60.482-2(e), §60.482-3(i), or §60.482-7(f) shall be signed by the owner or operator.

(3) A list of equipment identification numbers for pressure relief devices required to comply with §60.482-4.

- (4) (i) The dates of each compliance test as required in §§60.482–2(e), 60.482–3(i), 60.482–4, and 60.482–7(f).
- (ii) The background level measured during each compliance test.
- (iii) The maximum instrument reading measured at the equipment during each compliance test.
- (5) A list of identification numbers for equipment in vacuum service.
- (f) The following information pertaining to all valves subject to the requirements of §60.482–7(g) and (h) and to all pumps subject to the requirements of §60.482–2(g) shall be recorded in a log that is kept in a readily accessible location:
- (1) A list of identification numbers for valves and pumps that are designated as unsafe-to-monitor, an explanation for each valve or pump stating why the valve or pump is unsafe-to-monitor, and the plan for monitoring each valve or pump.
- (2) A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.
- (g) The following information shall be recorded for valves complying with §60.483–2:
- (1) A schedule of monitoring.
- (2) The percent of valves found leaking during each monitoring period.
- (h) The following information shall be recorded in a log that is kept in a readily accessible location:
- (1) Design criterion required in §§60.482–2(d)(5) and 60.482–3(e)(2) and explanation of the design criterion; and
- (2) Any changes to this criterion and the reasons for the changes.
- (i) The following information shall be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in §60.480(d):
- (1) An analysis demonstrating the design capacity of the affected facility,
- (2) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol, and
- (3) An analysis demonstrating that equipment is not in VOC service.
- (j) Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log that is kept in a readily accessible location.
- (k) The provisions of §60.7 (b) and (d) do not apply to affected facilities subject to this subpart.

[48 FR 48335, Oct. 18, 1983, as amended at 65 FR 61763, Oct. 17, 2000; 65 FR 78278, Dec. 14, 2000]

§ 60.487 Reporting requirements.

- (a) Each owner or operator subject to the provisions of this subpart shall submit semiannual reports to the Administrator beginning six months after the initial startup date.
- (b) The initial semiannual report to the Administrator shall include the following information:
- (1) Process unit identification.
- (2) Number of valves subject to the requirements of §60.482–7, excluding those valves

designated for no detectable emissions under the provisions of §60.482-7(f).

(3) Number of pumps subject to the requirements of §60.482-2, excluding those pumps designated for no detectable emissions under the provisions of §60.482-2(e) and those pumps complying with §60.482-2(f).

(4) Number of compressors subject to the requirements of §60.482-3, excluding those compressors designated for no detectable emissions under the provisions of §60.482-3(i) and those compressors complying with §60.482-3(h).

(c) All semiannual reports to the Administrator shall include the following information, summarized from the information in §60.486:

(1) Process unit identification.

(2) For each month during the semiannual reporting period,

(i) Number of valves for which leaks were detected as described in §60.482(7)(b) or §60.483-2,

(ii) Number of valves for which leaks were not repaired as required in §60.482-7(d)(1),

(iii) Number of pumps for which leaks were detected as described in §60.482-2(b) and (d)(6)(i),

(iv) Number of pumps for which leaks were not repaired as required in §60.482-2(c)(1) and (d)(6)(ii),

(v) Number of compressors for which leaks were detected as described in §60.482-3(f),

(vi) Number of compressors for which leaks were not repaired as required in §60.482-3(g)(1), and

(vii) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.

(3) Dates of process unit shutdowns which occurred within the semiannual reporting period.

(4) Revisions to items reported according to paragraph (b) if changes have occurred since the initial report or subsequent revisions to the initial report.

(d) An owner or operator electing to comply with the provisions of §§60.483-1 or 60.483-2 shall notify the Administrator of the alternative standard selected 90 days before implementing either of the provisions.

(e) An owner or operator shall report the results of all performance tests in accordance with §60.8 of the General Provisions. The provisions of §60.8(d) do not apply to affected facilities subject to the provisions of this subpart except that an owner or operator must notify the Administrator of the schedule for the initial performance tests at least 30 days before the initial performance tests.

(f) The requirements of paragraphs (a) through (c) of this section remain in force until and unless EPA, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such State. In that event, affected sources within the State will be relieved of the obligation to comply with the requirements of paragraphs (a) through (c) of this section, provided that they comply with the requirements established by the State.

[48 FR 48335, Oct. 18, 1983, as amended at 49 FR 22608, May 30, 1984; 65 FR 61763, Oct. 17, 2000]

IX. Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

Source: 72 FR 64883, Nov. 16, 2007, unless otherwise noted.

§ 60.482-2a Standards: Pumps in light liquid service.

(a)(1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in §60.485a(b), except as provided in §60.482-1a(c) and (f) and paragraphs (d), (e), and (f) of this section. A pump that begins operation in light liquid service after the initial startup date for the process unit must be monitored for the first time within 30 days after the end of its startup period, except for a pump that replaces a leaking pump and except as provided in §60.482-1a(c) and paragraphs (d), (e), and (f) of this section.

(2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal, except as provided in §60.482-1a(f).

(b)(1) The instrument reading that defines a leak is specified in paragraphs (b)(1)(i) and (ii) of this section.

(i) 5,000 parts per million (ppm) or greater for pumps handling polymerizing monomers;

(ii) 2,000 ppm or greater for all other pumps.

(2) If there are indications of liquids dripping from the pump seal, the owner or operator shall follow the procedure specified in either paragraph (b)(2)(i) or (ii) of this section. This requirement does not apply to a pump that was monitored after a previous weekly inspection and the instrument reading was less than the concentration specified in paragraph (b)(1)(i) or (ii) of this section, whichever is applicable.

(i) Monitor the pump within 5 days as specified in §60.485a(b). A leak is detected if the instrument reading measured during monitoring indicates a leak as specified in paragraph (b)(1)(i) or (ii) of this section, whichever is applicable. The leak shall be repaired using the procedures in paragraph (c) of this section.

(ii) Designate the visual indications of liquids dripping as a leak, and repair the leak using either the procedures in paragraph (c) of this section or by eliminating the visual indications of liquids dripping.

(c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9a.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. First attempts at repair include, but are not limited to, the practices described in paragraphs (c)(2)(i) and (ii) of this section, where practicable.

(i) Tightening the packing gland nuts;

(ii) Ensuring that the seal flush is operating at design pressure and temperature.

(d) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (a) of this section, provided the requirements specified in paragraphs (d)(1) through (6) of this section are met.

(1) Each dual mechanical seal system is:

(i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

(ii) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of §60.482-10a; or

(iii) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(2) The barrier fluid system is in heavy liquid service or is not in VOC service.

(3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(4)(i) Each pump is checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.

(ii) If there are indications of liquids dripping from the pump seal at the time of the weekly inspection, the owner or operator shall follow the procedure specified in either paragraph (d)(4)(ii)(A) or (B) of this section prior to the next required inspection.

(A) Monitor the pump within 5 days as specified in §60.485a(b) to determine if there is a leak of VOC in the barrier fluid. If an instrument reading of 2,000 ppm or greater is measured, a leak is detected.

(B) Designate the visual indications of liquids dripping as a leak.

(5)(i) Each sensor as described in paragraph (d)(3) is checked daily or is equipped with an audible alarm.

(ii) The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(iii) If the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion established in paragraph (d)(5)(ii) of this section, a leak is detected.

(6)(i) When a leak is detected pursuant to paragraph (d)(4)(ii)(A) of this section, it shall be repaired as specified in paragraph (c) of this section.

(ii) A leak detected pursuant to paragraph (d)(5)(iii) of this section shall be repaired within 15 days of detection by eliminating the conditions that activated the sensor.

(iii) A designated leak pursuant to paragraph (d)(4)(ii)(B) of this section shall be repaired within 15 days of detection by eliminating visual indications of liquids dripping.

(e) Any pump that is designated, as described in §60.486a(e)(1) and (2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a), (c), and (d) of this section if the pump:

(1) Has no externally actuated shaft penetrating the pump housing;

(2) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485a(c); and

(3) Is tested for compliance with paragraph (e)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.

(f) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a process or to a fuel gas system or to a control device that complies with the requirements of §60.482-10a, it is exempt from paragraphs (a) through (e) of this section.

(g) Any pump that is designated, as described in §60.486a(f)(1), as an unsafe-to-monitor pump is exempt from the monitoring and inspection requirements of paragraphs (a) and (d)(4) through (6) of this section if:

(1) The owner or operator of the pump demonstrates that the pump is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a) of this section; and

(2) The owner or operator of the pump has a written plan that requires monitoring of the pump as frequently as practicable during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the equipment according to the procedures in paragraph (c) of this section if a leak is detected.

(h) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (a)(2) and (d)(4) of this section, and the daily requirements of paragraph (d)(5) of this section, provided that each pump is visually inspected as often as practicable and at least monthly.

§ 60.482-3a Standards: Compressors.

(a) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere, except as provided in §60.482-1a(c) and paragraphs (h), (i), and (j) of this section.

(b) Each compressor seal system as required in paragraph (a) of this section shall be:

- (1) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or
 - (2) Equipped with a barrier fluid system degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of §60.482–10a; or
 - (3) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.
- (c) The barrier fluid system shall be in heavy liquid service or shall not be in VOC service.
- (d) Each barrier fluid system as described in paragraph (a) shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.
- (e)(1) Each sensor as required in paragraph (d) of this section shall be checked daily or shall be equipped with an audible alarm.
- (2) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
- (f) If the sensor indicates failure of the seal system, the barrier system, or both based on the criterion determined under paragraph (e)(2) of this section, a leak is detected.
- (g)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9a.
- (2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
- (h) A compressor is exempt from the requirements of paragraphs (a) and (b) of this section, if it is equipped with a closed vent system to capture and transport leakage from the compressor drive shaft back to a process or fuel gas system or to a control device that complies with the requirements of §60.482–10a, except as provided in paragraph (i) of this section.
- (i) Any compressor that is designated, as described in §60.486a(e)(1) and (2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a) through (h) of this section if the compressor:
- (1) Is demonstrated to be operating with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the methods specified in §60.485a(c); and
 - (2) Is tested for compliance with paragraph (i)(1) of this section initially upon designation, annually, and at other times requested by the Administrator.
- (j) Any existing reciprocating compressor in a process unit which becomes an affected facility under provisions of §60.14 or §60.15 is exempt from paragraphs (a) through (e) and (h) of this section, provided the owner or operator demonstrates that recasting the distance piece or

replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs (a) through (e) and (h) of this section.

§ 60.482-4a Standards: Pressure relief devices in gas/vapor service.

(a) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in §60.485a(c).

(b)(1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in §60.482-9a.

(2) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in §60.485a(c).

(c) Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in §60.482-10a is exempted from the requirements of paragraphs (a) and (b) of this section.

(d)(1) Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of paragraphs (a) and (b) of this section, provided the owner or operator complies with the requirements in paragraph (d)(2) of this section.

(2) After each pressure release, a new rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in §60.482-9a.

§ 60.482-5a Standards: Sampling connection systems.

(a) Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system, except as provided in §60.482-1a(c) and paragraph (c) of this section.

(b) Each closed-purge, closed-loop, or closed-vent system as required in paragraph (a) of this section shall comply with the requirements specified in paragraphs (b)(1) through (4) of this section.

(1) Gases displaced during filling of the sample container are not required to be collected or captured.

(2) Containers that are part of a closed-purge system must be covered or closed when not being filled or emptied.

(3) Gases remaining in the tubing or piping between the closed-purge system valve(s) and sample container valve(s) after the valves are closed and the sample container is disconnected are not required to be collected or captured.

(4) Each closed-purge, closed-loop, or closed-vent system shall be designed and operated to meet requirements in either paragraph (b)(4)(i), (ii), (iii), or (iv) of this section.

(i) Return the purged process fluid directly to the process line.

(ii) Collect and recycle the purged process fluid to a process.

(iii) Capture and transport all the purged process fluid to a control device that complies with the requirements of §60.482–10a.

(iv) Collect, store, and transport the purged process fluid to any of the following systems or facilities:

(A) A waste management unit as defined in 40 CFR 63.111, if the waste management unit is subject to and operated in compliance with the provisions of 40 CFR part 63, subpart G, applicable to Group 1 wastewater streams;

(B) A treatment, storage, or disposal facility subject to regulation under 40 CFR part 262, 264, 265, or 266;

(C) A facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261;

(D) A waste management unit subject to and operated in compliance with the treatment requirements of 40 CFR 61.348(a), provided all waste management units that collect, store, or transport the purged process fluid to the treatment unit are subject to and operated in compliance with the management requirements of 40 CFR 61.343 through 40 CFR 61.347; or

(E) A device used to burn off-specification used oil for energy recovery in accordance with 40 CFR part 279, subpart G, provided the purged process fluid is not hazardous waste as defined in 40 CFR part 261.

(c) In-situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (a) and (b) of this section.

§ 60.482-6a Standards: Open-ended valves or lines.

(a)(1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in §60.482–1a(c) and paragraphs (d) and (e) of this section.

(2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

(b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(c) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) of this section at all other times.

(d) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (a), (b), and (c) of this section.

(e) Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (a) through (c) of this section are exempt from the requirements of paragraphs (a) through (c) of this section.

§ 60.482-7a Standards: Valves in gas/vapor service and in light liquid service.

(a)(1) Each valve shall be monitored monthly to detect leaks by the methods specified in §60.485a(b) and shall comply with paragraphs (b) through (e) of this section, except as provided in paragraphs (f), (g), and (h) of this section, §60.482-1a(c) and (f), and §§60.483-1a and 60.483-2a.

(2) A valve that begins operation in gas/vapor service or light liquid service after the initial startup date for the process unit must be monitored according to paragraphs (a)(2)(i) or (ii), except for a valve that replaces a leaking valve and except as provided in paragraphs (f), (g), and (h) of this section, §60.482-1a(c), and §§60.483-1a and 60.483-2a.

(i) Monitor the valve as in paragraph (a)(1) of this section. The valve must be monitored for the first time within 30 days after the end of its startup period to ensure proper installation.

(ii) If the existing valves in the process unit are monitored in accordance with §60.483-1a or §60.483-2a, count the new valve as leaking when calculating the percentage of valves leaking as described in §60.483-2a(b)(5). If less than 2.0 percent of the valves are leaking for that process unit, the valve must be monitored for the first time during the next scheduled monitoring event for existing valves in the process unit or within 90 days, whichever comes first.

(b) If an instrument reading of 500 ppm or greater is measured, a leak is detected.

(c)(1)(i) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.

(ii) As an alternative to monitoring all of the valves in the first month of a quarter, an owner or operator may elect to subdivide the process unit into two or three subgroups of valves and monitor each subgroup in a different month during the quarter, provided each subgroup is monitored every 3 months. The owner or operator must keep records of the valves assigned to each subgroup.

(2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.

(d)(1) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in §60.482-9a.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(e) First attempts at repair include, but are not limited to, the following best practices where practicable:

- (1) Tightening of bonnet bolts;
- (2) Replacement of bonnet bolts;
- (3) Tightening of packing gland nuts;
- (4) Injection of lubricant into lubricated packing.

(f) Any valve that is designated, as described in §60.486a(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraph (a) of this section if the valve:

- (1) Has no external actuating mechanism in contact with the process fluid,
- (2) Is operated with emissions less than 500 ppm above background as determined by the method specified in §60.485a(c), and
- (3) Is tested for compliance with paragraph (f)(2) of this section initially upon designation, annually, and at other times requested by the Administrator.

(g) Any valve that is designated, as described in §60.486a(f)(1), as an unsafe-to-monitor valve is exempt from the requirements of paragraph (a) of this section if:

- (1) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a) of this section, and
- (2) The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(h) Any valve that is designated, as described in §60.486a(f)(2), as a difficult-to-monitor valve is exempt from the requirements of paragraph (a) of this section if:

- (1) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.
- (2) The process unit within which the valve is located either:
 - (i) Becomes an affected facility through §60.14 or §60.15 and was constructed on or before January 5, 1981; or
 - (ii) Has less than 3.0 percent of its total number of valves designated as difficult-to-monitor by the owner or operator.
- (3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

§ 60.482-8a Standards: Pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service.

(a) If evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service, the owner or operator shall follow either one of the following procedures:

(1) The owner or operator shall monitor the equipment within 5 days by the method specified in §60.485a(b) and shall comply with the requirements of paragraphs (b) through (d) of this section.

(2) The owner or operator shall eliminate the visual, audible, olfactory, or other indication of a potential leak within 5 calendar days of detection.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c)(1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9a.

(2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) First attempts at repair include, but are not limited to, the best practices described under §§60.482-2a(c)(2) and 60.482-7a(e).

§ 60.482-9a Standards: Delay of repair.

(a) Delay of repair of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. Monitoring to verify repair must occur within 15 days after startup of the process unit.

(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.

(c) Delay of repair for valves and connectors will be allowed if:

(1) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and

(2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with §60.482-10a.

(d) Delay of repair for pumps will be allowed if:

(1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and

(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

(e) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

(f) When delay of repair is allowed for a leaking pump, valve, or connector that remains in service, the pump, valve, or connector may be considered to be repaired and no longer subject to delay of repair requirements if two consecutive monthly monitoring instrument readings are below the leak definition.

§ 60.482-10a Standards: Closed vent systems and control devices.

(a) Owners or operators of closed vent systems and control devices used to comply with provisions of this subpart shall comply with the provisions of this section.

(b) Vapor recovery systems (for example, condensers and absorbers) shall be designed and operated to recover the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 parts per million by volume (ppmv), whichever is less stringent.

(c) Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 °C.

(d) Flares used to comply with this subpart shall comply with the requirements of §60.18.

(e) Owners or operators of control devices used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.

(f) Except as provided in paragraphs (i) through (k) of this section, each closed vent system shall be inspected according to the procedures and schedule specified in paragraphs (f)(1) and (2) of this section.

(1) If the vapor collection system or closed vent system is constructed of hard-piping, the owner or operator shall comply with the requirements specified in paragraphs (f)(1)(i) and (ii) of this section:

(i) Conduct an initial inspection according to the procedures in §60.485a(b); and

(ii) Conduct annual visual inspections for visible, audible, or olfactory indications of leaks.

(2) If the vapor collection system or closed vent system is constructed of ductwork, the owner or operator shall:

- (i) Conduct an initial inspection according to the procedures in §60.485a(b); and
 - (ii) Conduct annual inspections according to the procedures in §60.485a(b).
- (g) Leaks, as indicated by an instrument reading greater than 500 ppmv above background or by visual inspections, shall be repaired as soon as practicable except as provided in paragraph (h) of this section.
- (1) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
 - (2) Repair shall be completed no later than 15 calendar days after the leak is detected.
- (h) Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown.
- (i) If a vapor collection system or closed vent system is operated under a vacuum, it is exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section.
- (j) Any parts of the closed vent system that are designated, as described in paragraph (l)(1) of this section, as unsafe to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (j)(1) and (2) of this section:
- (1) The owner or operator determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with paragraphs (f)(1)(i) or (f)(2) of this section; and
 - (2) The owner or operator has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- (k) Any parts of the closed vent system that are designated, as described in paragraph (l)(2) of this section, as difficult to inspect are exempt from the inspection requirements of paragraphs (f)(1)(i) and (f)(2) of this section if they comply with the requirements specified in paragraphs (k)(1) through (3) of this section:
- (1) The owner or operator determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and
 - (2) The process unit within which the closed vent system is located becomes an affected facility through §§60.14 or 60.15, or the owner or operator designates less than 3.0 percent of the total number of closed vent system equipment as difficult to inspect; and
 - (3) The owner or operator has a written plan that requires inspection of the equipment at least once every 5 years. A closed vent system is exempt from inspection if it is operated under a vacuum.

(l) The owner or operator shall record the information specified in paragraphs (l)(1) through (5) of this section.

(1) Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.

(2) Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.

(3) For each inspection during which a leak is detected, a record of the information specified in §60.486a(c).

(4) For each inspection conducted in accordance with §60.485a(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(5) For each visual inspection conducted in accordance with paragraph (f)(1)(ii) of this section during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(m) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

§ 60.482-11a Standards: Connectors in gas/vapor service and in light liquid service.

(a) The owner or operator shall initially monitor all connectors in the process unit for leaks by the later of either 12 months after the compliance date or 12 months after initial startup. If all connectors in the process unit have been monitored for leaks prior to the compliance date, no initial monitoring is required provided either no process changes have been made since the monitoring or the owner or operator can determine that the results of the monitoring, with or without adjustments, reliably demonstrate compliance despite process changes. If required to monitor because of a process change, the owner or operator is required to monitor only those connectors involved in the process change.

(b) Except as allowed in §60.482-1a(c), §60.482-10a, or as specified in paragraph (e) of this section, the owner or operator shall monitor all connectors in gas and vapor and light liquid service as specified in paragraphs (a) and (b)(3) of this section.

(1) The connectors shall be monitored to detect leaks by the method specified in §60.485a(b) and, as applicable, §60.485a(c).

(2) If an instrument reading greater than or equal to 500 ppm is measured, a leak is detected.

(3) The owner or operator shall perform monitoring, subsequent to the initial monitoring required in paragraph (a) of this section, as specified in paragraphs (b)(3)(i) through (iii) of this section, and shall comply with the requirements of paragraphs (b)(3)(iv) and (v) of this section. The required period in which monitoring must be conducted shall be determined from paragraphs (b)(3)(i) through (iii) of this section using the monitoring results from the preceding monitoring

period. The percent leaking connectors shall be calculated as specified in paragraph (c) of this section.

(i) If the percent leaking connectors in the process unit was greater than or equal to 0.5 percent, then monitor within 12 months (1 year).

(ii) If the percent leaking connectors in the process unit was greater than or equal to 0.25 percent but less than 0.5 percent, then monitor within 4 years. An owner or operator may comply with the requirements of this paragraph by monitoring at least 40 percent of the connectors within 2 years of the start of the monitoring period, provided all connectors have been monitored by the end of the 4-year monitoring period.

(iii) If the percent leaking connectors in the process unit was less than 0.25 percent, then monitor as provided in paragraph (b)(3)(iii)(A) of this section and either paragraph (b)(3)(iii)(B) or (b)(3)(iii)(C) of this section, as appropriate.

(A) An owner or operator shall monitor at least 50 percent of the connectors within 4 years of the start of the monitoring period.

(B) If the percent of leaking connectors calculated from the monitoring results in paragraph (b)(3)(iii)(A) of this section is greater than or equal to 0.35 percent of the monitored connectors, the owner or operator shall monitor as soon as practical, but within the next 6 months, all connectors that have not yet been monitored during the monitoring period. At the conclusion of monitoring, a new monitoring period shall be started pursuant to paragraph (b)(3) of this section, based on the percent of leaking connectors within the total monitored connectors.

(C) If the percent of leaking connectors calculated from the monitoring results in paragraph (b)(3)(iii)(A) of this section is less than 0.35 percent of the monitored connectors, the owner or operator shall monitor all connectors that have not yet been monitored within 8 years of the start of the monitoring period.

(iv) If, during the monitoring conducted pursuant to paragraphs (b)(3)(i) through (iii) of this section, a connector is found to be leaking, it shall be re-monitored once within 90 days after repair to confirm that it is not leaking.

(v) The owner or operator shall keep a record of the start date and end date of each monitoring period under this section for each process unit.

(c) For use in determining the monitoring frequency, as specified in paragraphs (a) and (b)(3) of this section, the percent leaking connectors as used in paragraphs (a) and (b)(3) of this section shall be calculated by using the following equation:

$$\%C_L = C_L / C_t * 100$$

Where:

$\%C_L$ = Percent of leaking connectors as determined through periodic monitoring required in paragraphs (a) and (b)(3)(i) through (iii) of this section.

C_L = Number of connectors measured at 500 ppm or greater, by the method specified in §60.485a(b).

C_t = Total number of monitored connectors in the process unit or affected facility.

(d) When a leak is detected pursuant to paragraphs (a) and (b) of this section, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482–9a. A first attempt at repair as defined in this subpart shall be made no later than 5 calendar days after the leak is detected.

(e) Any connector that is designated, as described in §60.486a(f)(1), as an unsafe-to-monitor connector is exempt from the requirements of paragraphs (a) and (b) of this section if:

(1) The owner or operator of the connector demonstrates that the connector is unsafe-to-monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraphs (a) and (b) of this section; and

(2) The owner or operator of the connector has a written plan that requires monitoring of the connector as frequently as practicable during safe-to-monitor times but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the equipment according to the procedures in paragraph (d) of this section if a leak is detected.

(f) Inaccessible, ceramic, or ceramic-lined connectors. (1) Any connector that is inaccessible or that is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined), is exempt from the monitoring requirements of paragraphs (a) and (b) of this section, from the leak repair requirements of paragraph (d) of this section, and from the recordkeeping and reporting requirements of §§63.1038 and 63.1039. An inaccessible connector is one that meets any of the provisions specified in paragraphs (f)(1)(i) through (vi) of this section, as applicable:

(i) Buried;

(ii) Insulated in a manner that prevents access to the connector by a monitor probe;

(iii) Obstructed by equipment or piping that prevents access to the connector by a monitor probe;

(iv) Unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold that would allow access to connectors up to 7.6 meters (25 feet) above the ground;

(v) Inaccessible because it would require elevating the monitoring personnel more than 2 meters (7 feet) above a permanent support surface or would require the erection of scaffold; or

(vi) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited to, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines, or would risk damage to equipment.

(2) If any inaccessible, ceramic, or ceramic-lined connector is observed by visual, audible, olfactory, or other means to be leaking, the visual, audible, olfactory, or other indications of a leak to the atmosphere shall be eliminated as soon as practical.

(g) Except for instrumentation systems and inaccessible, ceramic, or ceramic-lined connectors meeting the provisions of paragraph (f) of this section, identify the connectors subject to the requirements of this subpart. Connectors need not be individually identified if all connectors in a designated area or length of pipe subject to the provisions of this subpart are identified as a group, and the number of connectors subject is indicated.

§ 60.483-1a Alternative standards for valves—allowable percentage of valves leaking.

(a) An owner or operator may elect to comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent.

(b) The following requirements shall be met if an owner or operator wishes to comply with an allowable percentage of valves leaking:

(1) An owner or operator must notify the Administrator that the owner or operator has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in §60.487a(d).

(2) A performance test as specified in paragraph (c) of this section shall be conducted initially upon designation, annually, and at other times requested by the Administrator.

(3) If a valve leak is detected, it shall be repaired in accordance with §60.482–7a(d) and (e).

(c) Performance tests shall be conducted in the following manner:

(1) All valves in gas/vapor and light liquid service within the affected facility shall be monitored within 1 week by the methods specified in §60.485a(b).

(2) If an instrument reading of 500 ppm or greater is measured, a leak is detected.

(3) The leak percentage shall be determined by dividing the number of valves for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility.

(d) Owners and operators who elect to comply with this alternative standard shall not have an affected facility with a leak percentage greater than 2.0 percent, determined as described in §60.485a(h).

§ 60.483-2a Alternative standards for valves—skip period leak detection and repair.

(a)(1) An owner or operator may elect to comply with one of the alternative work practices specified in paragraphs (b)(2) and (3) of this section.

(2) An owner or operator must notify the Administrator before implementing one of the alternative work practices, as specified in §60.487(d)a.

(b)(1) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in §60.482–7a.

- (2) After 2 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 1 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.
- (3) After 5 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.
- (4) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in §60.482–7a but can again elect to use this section.
- (5) The percent of valves leaking shall be determined as described in §60.485a(h).
- (6) An owner or operator must keep a record of the percent of valves found leaking during each leak detection period.
- (7) A valve that begins operation in gas/vapor service or light liquid service after the initial startup date for a process unit following one of the alternative standards in this section must be monitored in accordance with §60.482–7a(a)(2)(i) or (ii) before the provisions of this section can be applied to that valve.

§ 60.484a *Equivalence of means of emission limitation.*

- (a) Each owner or operator subject to the provisions of this subpart may apply to the Administrator for determination of equivalence for any means of emission limitation that achieves a reduction in emissions of VOC at least equivalent to the reduction in emissions of VOC achieved by the controls required in this subpart.
- (b) Determination of equivalence to the equipment, design, and operational requirements of this subpart will be evaluated by the following guidelines:
 - (1) Each owner or operator applying for an equivalence determination shall be responsible for collecting and verifying test data to demonstrate equivalence of means of emission limitation.
 - (2) The Administrator will compare test data for demonstrating equivalence of the means of emission limitation to test data for the equipment, design, and operational requirements.
 - (3) The Administrator may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.
- (c) Determination of equivalence to the required work practices in this subpart will be evaluated by the following guidelines:
 - (1) Each owner or operator applying for a determination of equivalence shall be responsible for collecting and verifying test data to demonstrate equivalence of an equivalent means of emission limitation.

(2) For each affected facility for which a determination of equivalence is requested, the emission reduction achieved by the required work practice shall be demonstrated.

(3) For each affected facility, for which a determination of equivalence is requested, the emission reduction achieved by the equivalent means of emission limitation shall be demonstrated.

(4) Each owner or operator applying for a determination of equivalence shall commit in writing to work practice(s) that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practice.

(5) The Administrator will compare the demonstrated emission reduction for the equivalent means of emission limitation to the demonstrated emission reduction for the required work practices and will consider the commitment in paragraph (c)(4) of this section.

(6) The Administrator may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practice.

(d) An owner or operator may offer a unique approach to demonstrate the equivalence of any equivalent means of emission limitation.

(e)(1) After a request for determination of equivalence is received, the Administrator will publish a notice in the Federal Register and provide the opportunity for public hearing if the Administrator judges that the request may be approved.

(2) After notice and opportunity for public hearing, the Administrator will determine the equivalence of a means of emission limitation and will publish the determination in the Federal Register.

(3) Any equivalent means of emission limitations approved under this section shall constitute a required work practice, equipment, design, or operational standard within the meaning of section 111(h)(1) of the CAA.

(f)(1) Manufacturers of equipment used to control equipment leaks of VOC may apply to the Administrator for determination of equivalence for any equivalent means of emission limitation that achieves a reduction in emissions of VOC achieved by the equipment, design, and operational requirements of this subpart.

(2) The Administrator will make an equivalence determination according to the provisions of paragraphs (b), (c), (d), and (e) of this section.

§ 60.485a Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the standards in §§60.482–1a through 60.482–11a, 60.483a, and 60.484a as follows:

(1) Method 21 shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21 of appendix A-7 of this part. The following calibration gases shall be used:

(i) Zero air (less than 10 ppm of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration no more than 2,000 ppm greater than the leak definition concentration of the equipment monitored. If the monitoring instrument's design allows for multiple calibration scales, then the lower scale shall be calibrated with a calibration gas that is no higher than 2,000 ppm above the concentration specified as a leak, and the highest scale shall be calibrated with a calibration gas that is approximately equal to 10,000 ppm. If only one scale on an instrument will be used during monitoring, the owner or operator need not calibrate the scales that will not be used during that day's monitoring.

(2) A calibration drift assessment shall be performed, at a minimum, at the end of each monitoring day. Check the instrument using the same calibration gas(es) that were used to calibrate the instrument before use. Follow the procedures specified in Method 21 of appendix A-7 of this part, Section 10.1, except do not adjust the meter readout to correspond to the calibration gas value. Record the instrument reading for each scale used as specified in §60.486a(e)(7). Calculate the average algebraic difference between the three meter readings and the most recent calibration value. Divide this algebraic difference by the initial calibration value and multiply by 100 to express the calibration drift as a percentage. If any calibration drift assessment shows a negative drift of more than 10 percent from the initial calibration value, then all equipment monitored since the last calibration with instrument readings below the appropriate leak definition and above the leak definition multiplied by (100 minus the percent of negative drift/divided by 100) must be re-monitored. If any calibration drift assessment shows a positive drift of more than 10 percent from the initial calibration value, then, at the owner/operator's discretion, all equipment since the last calibration with instrument readings above the appropriate leak definition and below the leak definition multiplied by (100 plus the percent of positive drift/divided by 100) may be re-monitored.

(c) The owner or operator shall determine compliance with the no-detectable-emission standards in §§60.482-2a(e), 60.482-3a(i), 60.482-4a, 60.482-7a(f), and 60.482-10a(e) as follows:

(1) The requirements of paragraph (b) shall apply.

(2) Method 21 of appendix A-7 of this part shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

(d) The owner or operator shall test each piece of equipment unless he demonstrates that a process unit is not in VOC service, i.e., that the VOC content would never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:

(1) Procedures that conform to the general methods in ASTM E260-73, 91, or 96, E168-67, 77, or 92, E169-63, 77, or 93 (incorporated by reference—see §60.17) shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment.

(2) Organic compounds that are considered by the Administrator to have negligible photochemical reactivity may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid.

(3) Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in service. If the Administrator disagrees with the judgment, paragraphs (d)(1) and (2) of this section shall be used to resolve the disagreement.

(e) The owner or operator shall demonstrate that a piece of equipment is in light liquid service by showing that all the following conditions apply:

(1) The vapor pressure of one or more of the organic components is greater than 0.3 kPa at 20 °C (1.2 in. H₂O at 68 °F). Standard reference texts or ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17) shall be used to determine the vapor pressures.

(2) The total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at 20 °C (1.2 in. H₂O at 68 °F) is equal to or greater than 20 percent by weight.

(3) The fluid is a liquid at operating conditions.

(f) Samples used in conjunction with paragraphs (d), (e), and (g) of this section shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

(g) The owner or operator shall determine compliance with the standards of flares as follows:

(1) Method 22 of appendix A–7 of this part shall be used to determine visible emissions.

(2) A thermocouple or any other equivalent device shall be used to monitor the presence of a pilot flame in the flare.

(3) The maximum permitted velocity for air assisted flares shall be computed using the following equation:

$$V_{\max} = K_1 + K_2 H_T$$

Where:

V_{\max} = Maximum permitted velocity, m/sec (ft/sec).

H_T = Net heating value of the gas being combusted, MJ/scm (Btu/scf).

K_1 = 8.706 m/sec (metric units) = 28.56 ft/sec (English units).

K_2 = 0.7084 m⁴/(MJ-sec) (metric units) = 0.087 ft⁴/(Btu-sec) (English units).

(4) The net heating value (HT) of the gas being combusted in a flare shall be computed using the following equation:

$$H_T = K \sum_{i=1}^n C_i H_i$$

Where:

K = Conversion constant, 1.740×10^{-7} (g-mole)(MJ)/(ppm-scm-kcal) (metric units) = 4.674×10^{-6} [(g-mole)(Btu)/(ppm-scf-kcal)] (English units).

C_i = Concentration of sample component “i,” ppm

H_i = net heat of combustion of sample component “i” at 25 °C and 760 mm Hg (77 °F and 14.7 psi), kcal/g-mole.

(5) Method 18 of appendix A-6 of this part or ASTM D6420-99 (2004) (where the target compound(s) are those listed in Section 1.1 of ASTM D6420-99, and the target concentration is between 150 parts per billion by volume and 100 ppmv) and ASTM D2504-67, 77, or 88 (Reapproved 1993) (incorporated by reference-see §60.17) shall be used to determine the concentration of sample component “i.”

(6) ASTM D2382-76 or 88 or D4809-95 (incorporated by reference-see §60.17) shall be used to determine the net heat of combustion of component “i” if published values are not available or cannot be calculated.

(7) Method 2, 2A, 2C, or 2D of appendix A-7 of this part, as appropriate, shall be used to determine the actual exit velocity of a flare. If needed, the unobstructed (free) cross-sectional area of the flare tip shall be used.

(h) The owner or operator shall determine compliance with §60.483-1a or §60.483-2a as follows:

(1) The percent of valves leaking shall be determined using the following equation:

$$\%V_L = (V_L / V_T) * 100$$

Where:

$\%V_L$ = Percent leaking valves.

V_L = Number of valves found leaking.

V_T = The sum of the total number of valves monitored.

(2) The total number of valves monitored shall include difficult-to-monitor and unsafe-to-monitor valves only during the monitoring period in which those valves are monitored.

(3) The number of valves leaking shall include valves for which repair has been delayed.

(4) Any new valve that is not monitored within 30 days of being placed in service shall be included in the number of valves leaking and the total number of valves monitored for the monitoring period in which the valve is placed in service.

(5) If the process unit has been subdivided in accordance with §60.482-7a(c)(1)(ii), the sum of valves found leaking during a monitoring period includes all subgroups.

(6) The total number of valves monitored does not include a valve monitored to verify repair.

§ 60.486a Recordkeeping requirements.

(a)(1) Each owner or operator subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section.

(2) An owner or operator of more than one affected facility subject to the provisions of this subpart may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(3) The owner or operator shall record the information specified in paragraphs (a)(3)(i) through (v) of this section for each monitoring event required by §§60.482-2a, 60.482-3a, 60.482-7a, 60.482-8a, 60.482-11a, and 60.483-2a.

(i) Monitoring instrument identification.

(ii) Operator identification.

(iii) Equipment identification.

(iv) Date of monitoring.

(v) Instrument reading.

(b) When each leak is detected as specified in §§60.482-2a, 60.482-3a, 60.482-7a, 60.482-8a, 60.482-11a, and 60.483-2a, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

(2) The identification on a valve may be removed after it has been monitored for 2 successive months as specified in §60.482-7a(c) and no leak has been detected during those 2 months.

(3) The identification on a connector may be removed after it has been monitored as specified in §60.482-11a(b)(3)(iv) and no leak has been detected during that monitoring.

(4) The identification on equipment, except on a valve or connector, may be removed after it has been repaired.

(c) When each leak is detected as specified in §§60.482–2a, 60.482–3a, 60.482–7a, 60.482–8a, 60.482–11a, and 60.483–2a, the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:

- (1) The instrument and operator identification numbers and the equipment identification number, except when indications of liquids dripping from a pump are designated as a leak.
- (2) The date the leak was detected and the dates of each attempt to repair the leak.
- (3) Repair methods applied in each attempt to repair the leak.
- (4) Maximum instrument reading measured by Method 21 of appendix A–7 of this part at the time the leak is successfully repaired or determined to be nonrepairable, except when a pump is repaired by eliminating indications of liquids dripping.
- (5) “Repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
- (6) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.
- (7) The expected date of successful repair of the leak if a leak is not repaired within 15 days.
- (8) Dates of process unit shutdowns that occur while the equipment is unrepaired.
- (9) The date of successful repair of the leak.

(d) The following information pertaining to the design requirements for closed vent systems and control devices described in §60.482–10a shall be recorded and kept in a readily accessible location:

- (1) Detailed schematics, design specifications, and piping and instrumentation diagrams.
- (2) The dates and descriptions of any changes in the design specifications.
- (3) A description of the parameter or parameters monitored, as required in §60.482–10a(e), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.
- (4) Periods when the closed vent systems and control devices required in §§60.482–2a, 60.482–3a, 60.482–4a, and 60.482–5a are not operated as designed, including periods when a flare pilot light does not have a flame.
- (5) Dates of startups and shutdowns of the closed vent systems and control devices required in §§60.482–2a, 60.482–3a, 60.482–4a, and 60.482–5a.

(e) The following information pertaining to all equipment subject to the requirements in §§60.482–1a to 60.482–11a shall be recorded in a log that is kept in a readily accessible location:

- (1) A list of identification numbers for equipment subject to the requirements of this subpart.
- (2)
 - (i) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of §§60.482–2a(e), 60.482–3a(i), and 60.482–7a(f).
 - (ii) The designation of equipment as subject to the requirements of §60.482–2a(e), §60.482–3a(i), or §60.482–7a(f) shall be signed by the owner or operator. Alternatively, the owner or operator may establish a mechanism with their permitting authority that satisfies this requirement.
- (3) A list of equipment identification numbers for pressure relief devices required to comply with §60.482–4a.
- (4)
 - (i) The dates of each compliance test as required in §§60.482–2a(e), 60.482–3a(i), 60.482–4a, and 60.482–7a(f).
 - (ii) The background level measured during each compliance test.
 - (iii) The maximum instrument reading measured at the equipment during each compliance test.
- (5) A list of identification numbers for equipment in vacuum service.
- (6) A list of identification numbers for equipment that the owner or operator designates as operating in VOC service less than 300 hr/yr in accordance with §60.482–1a(e), a description of the conditions under which the equipment is in VOC service, and rationale supporting the designation that it is in VOC service less than 300 hr/yr.
- (7) The date and results of the weekly visual inspection for indications of liquids dripping from pumps in light liquid service.
- (8) Records of the information specified in paragraphs (e)(8)(i) through (vi) of this section for monitoring instrument calibrations conducted according to sections 8.1.2 and 10 of Method 21 of appendix A–7 of this part and §60.485a(b).
 - (i) Date of calibration and initials of operator performing the calibration.
 - (ii) Calibration gas cylinder identification, certification date, and certified concentration.
 - (iii) Instrument scale(s) used.
 - (iv) A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value in accordance with section 10.1 of Method 21 of appendix A–7 of this part.
 - (v) Results of each calibration drift assessment required by §60.485a(b)(2) (i.e., instrument reading for calibration at end of monitoring day and the calculated percent difference from the initial calibration value).
 - (vi) If an owner or operator makes their own calibration gas, a description of the procedure used.

(9) The connector monitoring schedule for each process unit as specified in §60.482–11a(b)(3)(v).

(10) Records of each release from a pressure relief device subject to §60.482–4a.

(f) The following information pertaining to all valves subject to the requirements of §60.482–7a(g) and (h), all pumps subject to the requirements of §60.482–2a(g), and all connectors subject to the requirements of §60.482–11a(e) shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for valves, pumps, and connectors that are designated as unsafe-to-monitor, an explanation for each valve, pump, or connector stating why the valve, pump, or connector is unsafe-to-monitor, and the plan for monitoring each valve, pump, or connector.

(2) A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.

(g) The following information shall be recorded for valves complying with §60.483–2a:

(1) A schedule of monitoring.

(2) The percent of valves found leaking during each monitoring period.

(h) The following information shall be recorded in a log that is kept in a readily accessible location:

(1) Design criterion required in §§60.482–2a(d)(5) and 60.482–3a(e)(2) and explanation of the design criterion; and

(2) Any changes to this criterion and the reasons for the changes.

(i) The following information shall be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in §60.480a(d):

(1) An analysis demonstrating the design capacity of the affected facility,

(2) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol, and

(3) An analysis demonstrating that equipment is not in VOC service.

(j) Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log that is kept in a readily accessible location.

(k) The provisions of §60.7(b) and (d) do not apply to affected facilities subject to this subpart.

§ 60.487a Reporting requirements.

- (a) Each owner or operator subject to the provisions of this subpart shall submit semiannual reports to the Administrator beginning 6 months after the initial startup date.
- (b) The initial semiannual report to the Administrator shall include the following information:
- (1) Process unit identification.
 - (2) Number of valves subject to the requirements of §60.482–7a, excluding those valves designated for no detectable emissions under the provisions of §60.482–7a(f).
 - (3) Number of pumps subject to the requirements of §60.482–2a, excluding those pumps designated for no detectable emissions under the provisions of §60.482–2a(e) and those pumps complying with §60.482–2a(f).
 - (4) Number of compressors subject to the requirements of §60.482–3a, excluding those compressors designated for no detectable emissions under the provisions of §60.482–3a(i) and those compressors complying with §60.482–3a(h).
 - (5) Number of connectors subject to the requirements of §60.482–11a.
- (c) All semiannual reports to the Administrator shall include the following information, summarized from the information in §60.486a:
- (1) Process unit identification.
 - (2) For each month during the semiannual reporting period,
 - (i) Number of valves for which leaks were detected as described in §60.482–7a(b) or §60.483–2a,
 - (ii) Number of valves for which leaks were not repaired as required in §60.482–7a(d)(1),
 - (iii) Number of pumps for which leaks were detected as described in §60.482–2a(b), (d)(4)(ii)(A) or (B), or (d)(5)(iii),
 - (iv) Number of pumps for which leaks were not repaired as required in §60.482–2a(c)(1) and (d)(6),
 - (v) Number of compressors for which leaks were detected as described in §60.482–3a(f),
 - (vi) Number of compressors for which leaks were not repaired as required in §60.482–3a(g)(1),
 - (vii) Number of connectors for which leaks were detected as described in §60.482–11a(b)
 - (viii) Number of connectors for which leaks were not repaired as required in §60.482–11a(d), and

- (xi) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.
- (3) Dates of process unit shutdowns which occurred within the semiannual reporting period.
- (4) Revisions to items reported according to paragraph (b) of this section if changes have occurred since the initial report or subsequent revisions to the initial report.
- (d) An owner or operator electing to comply with the provisions of §§60.483–1a or 60.483–2a shall notify the Administrator of the alternative standard selected 90 days before implementing either of the provisions.
- (e) An owner or operator shall report the results of all performance tests in accordance with §60.8 of the General Provisions. The provisions of §60.8(d) do not apply to affected facilities subject to the provisions of this subpart except that an owner or operator must notify the Administrator of the schedule for the initial performance tests at least 30 days before the initial performance tests.
- (f) The requirements of paragraphs (a) through (c) of this section remain in force until and unless EPA, in delegating enforcement authority to a state under section 111(c) of the CAA, approves reporting requirements or an alternative means of compliance surveillance adopted by such state. In that event, affected sources within the state will be relieved of the obligation to comply with the requirements of paragraphs (a) through (c) of this section, provided that they comply with the requirements established by the state.

§ 60.488a Reconstruction.

For the purposes of this subpart:

- (a) The cost of the following frequently replaced components of the facility shall not be considered in calculating either the “fixed capital cost of the new components” or the “fixed capital costs that would be required to construct a comparable new facility” under §60.15: Pump seals, nuts and bolts, rupture disks, and packings.
- (b) Under §60.15, the “fixed capital cost of new components” includes the fixed capital cost of all depreciable components (except components specified in §60.488a(a)) which are or will be replaced pursuant to all continuous programs of component replacement which are commenced within any 2-year period following the applicability date for the appropriate subpart. (See the “Applicability and designation of affected facility” section of the appropriate subpart.) For purposes of this paragraph, “commenced” means that an owner or operator has undertaken a continuous program of component replacement or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of component replacement.

§ 60.489a List of chemicals produced by affected facilities.

Process units that produce, as intermediates or final products, chemicals listed in §60.489 are covered under this subpart. The applicability date for process units producing one or more of these chemicals is November 8, 2006.