

*West Virginia Department of Environmental Protection
Division of Air Quality*

*Earl Ray Tomblin
Governor*

*Randy C. Huffman
Cabinet Secretary*

Modification



R13-0641D

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:
Bayer CropScience
Institute Facility
039-00007

John A. Benedict
Director
Issued:

This permit will supercede and replace Permit R13-0641C issued January 16, 2013.

Facility Location: Institute, Kanawha County, West Virginia
Mailing Address: P.O. Box 1005; Institute, WV 25112
Facility Description: Chemical Manufacturing
NAICS Codes: 325320
UTM Coordinates: 432.0 km Easting • 4,248.3 km Northing • Zone 17
Permit Type: Modification
Description of Change: Routing a vent stream from the Larvin production process to the Unit's Process Thermal Oxidizer (PTO) and Flare which will result in increased emission limits.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

The source is subject to 45CSR30. The permittee has the duty to update the facility's Title V (45CSR30) permit application to reflect the changes permitted herein.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
B-1	A331	MOM Storage Bin	1983	292,500 lbs	Baghouse w/ Absolute Filter (A331)
B-2	A331	MOM Storage Bin	1983	292,500 lbs	Baghouse w/ Absolute Filter (A331)
B-3	332A	Storage Bin	1983	48,000 lbs	Baghouse w/ Absolute Filter (A332)
B-4	332A	Storage Bin	1983	48,000 lbs	Baghouse w/ Absolute Filter (A332)
E-26	330b(15E) 332c	North Weigh Tank	1984	500 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-27	330b(15E) 332c	West Weigh Tank	1984	500 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-28	330b(15E) 332c	East Weigh Tank	1984	500 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-29	330b(15E) 332c	North Reactor	1984	6,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-30	330b(15E) 332c	West Reactor	1984	6,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-31	330b(15E) 332c	East Reactor	1984	6,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-32	330b(15E) 332c	Methomyl Solution Tank	1996	6,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-33	330b(15E) 332c	Quench Tank	1984	4,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-34	330b(15E) 332c	Belt Filter	1984	8,575 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-35	330b(15E) 332c	Re-slurry Tank	1984	1,500 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
E-36	330b(15E) 332c	North Centrifuge	1984	147 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-37	330b(15E) 332c	South Centrifuge	1984	147 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-38	330b(15E) 332c	Dryer	1984	15,835 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-39	332A	Larvin Packaging	1984	1.85 ft ³ /min	Baghouse and Absolute Filter (A332)
E-40	330b(15E) 332c	4-PPC Reactor	1983	15,674 lb/hr	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-41	330b(15E) 332c	Neutralization Reactor	1984	6,450 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-42	330b(15E) 332c	Toad Column	1984	17,132 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-43	330b(15E) 332c	Toad Column Decanter	1983	n/a	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-44	330b(15E) 332c	Drying Column	1984	11,450 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-45	330b(15E) 332c	Recovery Column	1984	10,800 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-46	330A	Sump	1982	5,000 gal	Scrubber (A330)
E-47	N/A	Sump	1982	10,700 gal	N/A
E-48	330b(15E) 332c	Process Vent Scrubber	1983	3,106 lb/hr	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-49	330b(15E) 332c	Vent Blowers	1982	500 scfm	PTO/Scrubber (B332/C332), or Flare (B330(7c))
E-51	N/A	Instrument Air Dryer	1982	14kW	N/A
E-52	N/A	Refrigeration	1982	629 tons	N/A
T-1	335A	Storage Tank	1982	282,000 gal	N/A
T-2	335B	Storage Tank	1982	282,000 gal	N/A

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
T-4	330b(15E) 332c	Storage Tank	1984	40,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-5	330b(15E) 332c	Storage Tank	1984	40,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-6	330b(15E) 332c	Storage Tank	1984	40,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-7	335C	Storage Tank	1984	40,000 gal	N/A
T-11	330b(15E) 332c	Storage Tank	1984	40,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-18	330b(15E) 332c	Storage Tank	1985	20,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-23	330b(15E) 332c	Storage Tank	1985	44,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-24	330b(15E) 332c	Storage Tank	2011	40,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-25	330b(15E) 332c	Storage Tank	1984	40,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-26	330b(15E) 332c	Storage Tank	1984	10,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-27	330b(15E) 332c	Storage Tank	1984	15,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-28	330b(15E) 332c	Storage Tank	1984	15,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-29	330b(15E) 332c	Storage Tank	1984	2,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-30	330b(15E) 332c	Storage Tank	1984	1,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-31	330b(15E) 332c	Storage Tank	1984	1,500 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
T-32	330b(15E) 332c	Storage Tank	1984	1,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-33	330b(15E) 332c	Storage Tank	1984	15,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-34	330b(15E) 332c	Storage Tank	1984	6,400 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-35	330b(15E) 332c	Storage Tank	1984	24,400 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-37	337A	Storage Tank	2008	50,000 gal	N/A
T-38	337B	Storage Tank	2008	50,000 gal	N/A
T-39	330b(15E) 332c	Storage Tank	1985	15,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-41	330b(15E) 332c	Storage Tank	1984	5,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-42	330b(15E) 332c	Storage Tank	1984	5,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-43	330b(15E) 332c	Storage Tank	1984	15,800 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
T-49	336B	Storage Tank	1985	396 gal	N/A
T-53	335I	Storage Tank	1984	17,800 gal	N/A
T-55	337D	Storage Tank	1984	500 gal	N/A
T-58	337E	Storage Tank	1984	1,280 gal	N/A
T-59	335K	Atm. Flash Storage Tank	1985	320 gal	N/A
T-62	331B	Foam Storage Tank	1983	45,000 gal	N/A
TT-1	330b(15E) 332c	Tank Truck Loading	2012	5,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
TT-2	330b(15E) 332c	Tank Truck Loading	2012	5,000 gal	PTO/Scrubber (B332/C332), or Flare (B330(7c))
Control Devices					
A330	330A	Fugitive Air Packed Bed Scrubber	1983	8,400 acfm	N/A

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
A331 (3c)	331A (8e)	Methomyl Baghouse with Absolute Filter	1983	9,000 acfm	N/A
A332 (5c)	332A (10e)	Larvin Baghouse with Absolute Filter	1983	7,000 acfm	N/A
B330 (7c)	330B (15e)	Back-up Process Flare	1982	17 MMBTU/hr	N/A
B330 (7c(a))	330B (15e-a)	Emergency Flare	1982	0.46 MMBTU/hr (pilot)	N/A
E-50	330B	Emergency Scrubber	1985	29,605 lb/hr	N/A
B332	332C	PTO	2011	14 MMBTU/hr 99.9% efficiency	Scrubber C332
C332	332C	Scrubber	2011	10,500 acfm 99% SO ₂ /HCl efficiency	N/A

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the “West Virginia Air Pollution Control Act” or the “Air Pollution Control Act” mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The “Clean Air Act” means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. “Secretary” means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary’s designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5 µm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10µm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	Pph	Pounds per Hour
DAQ	Division of Air Quality	Ppm	Parts per Million
DEP	Department of Environmental Protection	Ppm_v or ppmv	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	Psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TPY	Tons per Year
M	Thousand	TRS	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	TSP	Total Suspended Particulate
MDHI	Maximum Design Heat Input	USEPA	United States Environmental Protection Agency
MM	Million	UTM	Universal Transverse Mercator
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VEE	Visual Emissions Evaluation
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOC	Volatile Organic Compounds
NA	Not Applicable	VOL	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia air pollution control law W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*

2.4. Term and Renewal

- 2.4.1. This permit supersedes and replaces previously issued Permit R13-0641A and R13-0641. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-0641B, R13-0641A, R13-0641, and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and -10.3.]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.

[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by

improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. [45CSR§13-10.1.]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] *[State Enforceable Only]*
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary

exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded

in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.

[45CSR§4. State Enforceable Only.]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:

Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

If to the US EPA:

Associate Director
Office of Enforcement and Permits Review
(3AP12)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. Operating Fee

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

- 4.1.1. Maximum allowable hourly and annual emissions from the Larvin® Process shall not exceed the limitations set forth in Table 4.1.1.

Table 4.1.1. Emission Limits for Larvin Process

Emission Point	Pollutant	Emission Limit	
		lb/hr	tpy
330A	Total VOC	16.5	13.2
	Total HAPs	16.4	13.1
330B (15e)	CO	2.14	6.56
	NO _x	7.79	11.0
	SO _x	106.6	64.0
	PM ₁₀	2.95	2.26
	Total VOC	5.91	3.86
	Total HAPs	7.44	4.47
331A	PM ₁₀	0.01	0.01
332A	PM ₁₀	0.01	0.01
332C	CO	0.64	2.81
	NO _x	9.24	40.40
	SO _x	1.07	4.69
	PM ₁₀	0.08	0.32
	PM _{2.5}	0.08	0.32
	Total VOC	1.19	5.23
	Total HAPs	0.95	4.17
337A	Total VOC	0.01	0.01
337B	Total VOC	0.01	0.01

Note: PM10 emissions from 330B(15e) and 332C include HCl emissions as acid mist

- 4.1.2. The Larvin® Process shall not exceed 3.4 production units annually, on a 12-month rolling basis.
- 4.1.3. The permittee shall route subject emissions from the Larvin process as specified in the Emissions Unit Table 1.0 of this permit.
- 4.1.4. The back-up process flare [B330(7c)] is limited to 1,200 hours/year, based on a 12-month rolling average.
- 4.1.5. Flare (7c (a)) may be used only as an emergency safety flare and is not expected to be used more than once per fifteen (15) years.
- 4.1.6. The permittee shall operate the fugitive air scrubber [A330] as follows:
- 4.1.6.1. A caustic solution in concentrations necessary to control odor shall be used for the scrubber liquor.
- 4.1.6.2. The Permittee shall maintain a minimum liquor flow rate of 150 gal/min circulation with the

flow valves fully open.

- 4.1.7. The permittee shall operate the back-up process Flare [B330 (7c)] and the emergency Flare [B330 (7c (a))] such that the flare pilot light is active during all times the flare is being used as the control device.
- 4.1.8. The permittee shall operate the PTO/Scrubber [B332/C332] as follows:
 - 4.1.8.1. The pilot light is active during all times the PTO is being used as the control device.
 - 4.1.8.2. The temperature of gases exiting the combustion chamber shall be greater than 1,750°F;
 - 4.1.8.3. The liquor flow rate of the scrubber shall be greater than 250 gpm.
- 4.1.9. The permittee shall conduct an initial compliance test of the PTO/Scrubber[B332/C332] as defined in Section 4.3 of this permit .
- 4.1.10. The annual throughput for storage tanks T-37 and T-38 shall be limited to 7,130,000 gallons each on a 12-month rolling basis.
- 4.1.11. To ensure compliance with the NOX emission limit established in Table 4.1.1, the permittee shall limit the gas flow rate of the process vent gas to 3,000 lb/hr (including combustible and inert gas) on a rolling 24 hour average. This requirement shall be in affect whenever the PTO/Scrubber [B332/C332] becomes operational.
- 4.1.12. For the PTO [B332], the back-up process flare [B330(7c)], and the emergency flare [B330(7c(a))], the permittee is subject to the requirements of 45CSR6 including but not limited to the following:
 - 4.1.12.1. Particulate matter emissions from the Flare B330 (7c (a)) shall not exceed 1,009 lbs/hr. **[45CSR§6-4.1.]**
 - 4.1.12.2. Emission of Visible Particulate Matter --No person shall cause, suffer, allow or permit emission of smoke into the atmosphere from any incinerator which is twenty (20%) percent opacity or greater. **[45CSR§6-4.3.]**
 - 4.1.12.3 . The provisions of Condition 4.1.11 shall not apply to smoke which is less than forty (40%) percent opacity, for a period or periods aggregating no more than eight (8) minutes per start-up. **[45CSR§6-4.4.]**
 - 4.1.12.4. Incinerators, including all associated equipment and grounds, shall be designed, operated and maintained so as to prevent the emission of objectionable odors. **[45CSR§6-4.6]**
- 4.1.13. The permittee shall not release hydrochloric acid (HCl) emissions from the PTO/Scrubber [B332/C332] or the back-up process flare [B330(7c)] in excess of 210 mg/m³. **[45CSR§7-4.2]**
- 4.1.14. For the PTO [B332] and the back-up process flare [B330(7c)], the permittee is subject to the requirements of 45CSR10 including but not limited to the following:
 - 4.1.14.1. No person shall cause, suffer, allow or permit the emission into the open air from any source operation an in-stack sulfur dioxide concentration exceeding 2,000 parts per million by volume from existing source operations, except as provided in 45CSR§10-4.1. **[45CSR§10-4.1]**

- 4.1.15. The Larvin unit is subject to the Leak Detection and Repair (LDAR) monitoring requirements of 40CFR§63.160, Subpart H. **[45CSR§21-37, CO-21-97-4, Condition III.2, CO-27-92-12, Condition III.3.]**
- 4.1.16. If the emissions of any Toxic Air Pollutant are discovered that have not been addressed by the Rule 27 Consent Order, the Permittee shall notify the Director within fifteen (15) days of such discovery. Unless the Director determines these emissions to be insignificant, the Permittee shall submit a Compliance Program for control of this emission within sixty (60) days of the date of such notification. **[CO-27-92-12, Condition III.5]**

- 4.1.17. The permittee is subject to the requirements of 40C.F.R.63 Subpart MMM, (Pesticide Active Ingredient Production MACT) including but not limited to the following:

Note: For following paragraphs, any reference to “this subpart” shall mean 40C.F.R.63 Subpart MMM, any reference to “this part” shall mean 40C.F.R.Part 63.

- 4.1.18. Equipment Leaks:
The permittee shall comply with the provisions pertaining to fugitive volatile organic compound (VOC) emissions within 40 CFR 63, Subpart H as specified in 40CFR§63.1363 of 40 CFR 63, Subpart MMM. **[45CSR34, 40CFR§63.1363 (Fugitive Emissions)]**

- 4.1.19. Process Vents [E480, B330(7c), and B332/C332]:

(a) The Permittee shall control HAP emissions to the levels specified in this section and in §63.1363, as summarized in Table 2 of this subpart.

(b) Process Vents.

(1) The owner or operator of an existing source shall comply with the requirements of paragraphs (b)(2) and (b)(3) of this section. Compliance with paragraphs (b)(2) through (b)(3) of this section shall be demonstrated through the applicable test methods in 40CFR§63.1365 and the monitoring requirements in 40CFR§63.1366.

(2) Organic HAP emissions from existing sources. The owner or operator of an existing affected source must comply with the requirements in either paragraph (b)(2)(i) of this section or with the requirements in paragraphs (b)(2)(ii) through (iv) of this section.

(i) The uncontrolled organic HAP emission rate shall not exceed 0.15 Mg/yr from the sum of all process vents within a process.

(ii) (A) Except as provided in paragraph (b)(2)(ii)(B) of this section, uncontrolled organic HAP emissions from a process vent shall be reduced by 98 percent by weight or greater if the flowweighted average flowrate for the vent as calculated using Equation 1 of this subpart is less than or equal to the flowrate calculated using Equation 2 of this subpart.

$$FR_a = \frac{\sum_{i=1}^n (D_i)(FR_i)}{\sum_{i=1}^n D_i} \quad \text{Equation 1}$$

$$\sum_{i=1}^n D_i$$

$$FR = 0.02 \times (HL) - 1,000 \quad \text{Equation 2}$$

Where:

FR_a = flow-weighted average flowrate for the vent, scfm

D_i = duration of each emission event, min

FR_i = flowrate of each emission event, scfm

n = number of emission events

FR = flowrate, scfm

HL = annual uncontrolled organic HAP emissions, lb/yr, as defined in 40CFR§63.1361

- (B) If the owner or operator can demonstrate that a control device, installed on or before November 10, 1997 on a process vent otherwise subject to the requirements of paragraph (b)(2)(ii)(A) of this section reduces inlet emissions of total organic HAP by greater than or equal to 90 percent by weight but less than 98 percent by weight, then the control device must be operated to reduce inlet emissions of total organic HAP by 90 percent by weight or greater.
- (iii) Excluding process vents that are subject to the requirements in paragraph (b)(2)(ii) of this section, uncontrolled organic HAP emissions from the sum of all process vents within a process shall be reduced by 90 percent or greater by weight.
- (iv) As an alternative to the requirements in paragraphs (b)(2)(ii) and (iii) of this section, uncontrolled organic HAP emissions from any process vent may be reduced in accordance with any of the provisions in paragraphs (b)(2)(iv)(A) through (D) of this section. All remaining process vents within a process must be controlled in accordance with paragraphs (b)(2)(ii) and (iii) of this section.
- (A) To outlet concentrations less than or equal to 20 ppmv; or
- (B) By a flare that meets the requirements of 40CFR§63.11(b); or
- (C) By a control device specified in 40CFR§63.1365(a)(4); or
- (D) In accordance with the alternative standard specified in paragraph (b)(6) of this section.
- (3) HCl and Cl₂ emissions from existing sources. For each process, the owner or operator of an existing source shall comply with the requirements of either paragraph (b)(3)(i) or (ii) of this section.
- (i) The uncontrolled HCl and Cl₂ emissions, including HCl generated from the combustion of halogenated process vent emissions, from the sum of all process vents within a process shall not exceed 6.8 Mg/yr.
- (ii) HCl and Cl₂ emissions, including HCl generated from combustion of halogenated process vent emissions, from the sum of all process vents within a process shall be reduced by 94 percent or greater or to outlet concentrations less than or equal to 20 ppmv.
- (6) Alternative standard. As an alternative to the provisions in paragraphs (b)(2) of this section, the owner or operator may route emissions from a process vent to a combustion control device achieving an outlet TOC concentration, as calibrated on methane or the predominant HAP, of 20 ppmv or less. If the owner or operator is routing emissions to a non-combustion control device or series of control devices, the control device(s) must achieve an outlet TOC concentration, as calibrated on methane or the predominant HAP, of 50 ppmv or less. Any process vents within a process that are not routed to such a control device or series of control devices must be controlled in accordance with the provisions of paragraph (b)(2)(ii), (iii), (iv), or (b)(3)(ii), of this section, as applicable.
- [45CSR34, 40CFR§63.1362(b)]**

4.1.20. Storage Vessels [T24 and T25]:

The Permittee shall control HAP emissions to the levels specified in this section and in §63.1363, as

summarized in Table 2 of this subpart.

(c) Storage Vessels.

- (1) The owner or operator shall either determine the group status of a storage vessel or designate it as a Group 1 storage vessel. If the owner or operator elects to designate the storage vessel as a Group 1 storage vessel, the owner or operator is not required to determine the maximum true vapor pressure of the material stored in the storage vessel.
- (2) Standard for existing sources. Except as specified in paragraphs (c)(4), (5), and (6) of this section, the owner or operator of a Group 1 storage vessel at an existing affected source, as defined in 40CFR§63.1361, shall equip the affected storage vessel with one of the following:
 - (i) A fixed roof and internal floating roof, or
 - (ii) An external floating roof, or
 - (iii) An external floating roof converted to an internal floating roof, or
 - (iv) A closed vent system meeting the conditions of 40CFR§63.1362(j) (paragraph (j) of Condition 4.1.18) and a control device that meets any of the following conditions:
 - (A) Reduces organic HAP emissions by 95 percent by weight or greater; or
 - (B) Reduces organic HAP emissions to outlet concentrations of 20 ppmv or less; or
 - (C) Is a flare that meets the requirements of 40CFR§63.11(b); or
 - (D) Is a control device specified in 40CFR§63.1365(a)(4).
- (3) Standard for new sources. Except as specified in paragraphs (c)(4), (5), and (6) of this Condition, the owner or operator of a Group 1 storage vessel at a new source, as defined in 40CFR§63.1361, shall equip the affected storage vessel in accordance with any one of paragraphs (c)(2)(i) through (iv) of this Condition.
- (4) Alternative standard. As an alternative to the provisions in paragraphs (c)(2) and (3) of this section, the owner or operator of an existing or new affected source may route emissions from storage vessels to a combustion control device achieving an outlet TOC concentration, as calibrated on methane or the predominant HAP, of 20 ppmv or less, and an outlet concentration of hydrogen chloride and chlorine of 20 ppmv or less. If the owner or operator is routing emissions to a non-combustion control device or series of control devices, the control device(s) must achieve an outlet TOC concentration, as calibrated on methane or the predominant HAP, of 50 ppmv or less.
- (5) Planned routine maintenance. The owner or operator is exempt from the specifications in paragraphs (c)(2) through (4) of this section during periods of planned routine maintenance of the control device that do not exceed 240 hr/yr. The owner or operator may submit an application to the Administrator requesting an extension of this time limit to a total of 360 hr/yr. The application must explain why the extension is needed, it must indicate that no material will be added to the storage vessel between the time the 240-hr limit is exceeded and the control device is again operational, and it must be submitted at least 60 days before the 240-hr limit will be exceeded.
- (6) Vapor balancing alternative. As an alternative to the requirements in paragraphs (c)(2) and (3) of this section, the owner or operator of an existing or new affected source may implement vapor balancing in accordance with paragraphs (c)(6)(i) through (vii) of this section.
 - (i) The vapor balancing system must be designed and operated to route organic HAP vapors displaced from loading of the storage tank to the railcar or tank truck from which the storage tank is filled.
 - (ii) Tank trucks and railcars must have a current certification in accordance with the U.S. Department of Transportation pressure test requirements of 49 CFR part 180 for tank trucks and 49 CFR 173.31 for railcars.

- (iii) Hazardous air pollutants must only be unloaded from tank trucks or railcars when vapor collection systems are connected to the storage tank's vapor collection system.
- (iv) No pressure relief device on the storage tank or on the railcar or tank truck shall open during loading or as a result of diurnal temperature changes (breathing losses).
- (v) Pressure relief devices on affected storage tanks must be set to no less than 2.5 psig at all times to prevent breathing losses. The owner or operator shall record the setting as specified in 40CFR§63.1367(b)(8) and comply with the following requirements for each pressure relief valve:
 - (A) The pressure relief valve shall be monitored quarterly using the method described in Sec. 40CFR§63.180(b).
 - (B) An instrument reading of 500 ppmv or greater defines a leak.
 - (C) When a leak is detected, it shall be repaired as soon as practicable, but no later than 5 days after it is detected, and the owner or operator shall comply with the recordkeeping requirements of 40CFR§63.1363(g)(4)(i) through (iv).
- (vi) Railcars or tank trucks that deliver HAP to an affected storage tank must be reloaded or cleaned at a facility that utilizes one of the following control techniques:
 - (A) The railcar or tank truck must be connected to a closed vent system with a control device that reduces inlet emissions of HAP by 90 percent by weight or greater; or
 - (B) A vapor balancing system designed and operated to collect organic HAP vapor displaced from the tank truck or railcar during reloading must be used to route the collected HAP vapor to the storage tank from which the liquid being transferred originated.
- (vii) The owner or operator of the facility where the railcar or tank truck is reloaded or cleaned must comply with the following requirements:
 - (A) Submit to the owner or operator of the affected storage tank and to the Administrator a written certification that the reloading or cleaning facility will meet the requirements of this section. The certifying entity may revoke the written certification by sending a written statement to the owner or operator of the affected storage tank giving at least 90 days notice that the certifying entity is rescinding acceptance of responsibility for compliance with the requirements of this paragraph (c)(6)(vii)(A).
 - (B) If complying with paragraph (c)(6)(vi)(A) of this section, demonstrate continuous compliance in accordance with 40CFR§63.1366, keep records as specified in 40CFR§63.1367, and prepare reports as specified in 40CFR§63.1368.
 - (C) If complying with paragraph (c)(6)(vi)(B) of this section, keep records of:
 - (1) The equipment to be used and the procedures to be followed when reloading the railcar or tank truck and displacing vapors to the storage tank from which the liquid originates, and
 - (2) Each time the vapor balancing system is used to comply with paragraph (c)(6)(vi)(B) of this section.
- (7) Compliance with the provisions of paragraphs (c)(2) and (3) of this section is demonstrated using the monitoring requirements in 40CFR§63.1366. Compliance with the outlet concentrations in paragraph (c)(4) of this section shall be determined by the continuous emission monitoring requirements of 40CFR§63.1366(b)(5).
[45CSR34, 40CFR§63.1362(c)]

4.1.21. Closed-vent Systems:

The Permittee shall control HAP emissions to the levels specified in this section and in §63.1363, as summarized in Table 2 of this subpart.

- (j) Closed-vent systems. The owner or operator of a closed-vent system that contains bypass lines that could divert a vent stream away from a control device used to comply with the requirements in paragraphs (b) through (c) of 40CFR§63.1362 (Condition 4.1.16 and 4.1.17 of this Permit) shall comply with the requirements of Table 3 of this subpart and paragraph (j)(1) or (2) of this section. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, rupture disks and pressure relief valves needed for safety purposes are not subject to this paragraph.
- (1) Install, calibrate, maintain, and operate a flow indicator that determines whether vent stream flow is present at least once every 15 minutes. Records shall be maintained as specified in 40CFR§63.1367(f)(1).
The flow indicator shall be installed at the entrance to any bypass line that could divert the vent stream away from the control device to the atmosphere; or
- (2) Secure the bypass line valve in the closed position with a car seal or lock and key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. Records shall be maintained as specified in 40CFR§63.1367(f)(2).
[45CSR34, 40CFR§63.1362(j)]

- 4.1.22. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.2. Monitoring Requirements

- 4.2.1. For purposes of demonstrating compliance with condition 4.1.6 for the fugitive air scrubber [A330], the permittee shall:
- continuously monitor the liquor flow rate and maintain a minimum circulation flow rate of 150 gpm with valves fully open;
 - Use a low flow alarm to continuously measure the circulation flow rate. The alarm will be set to activate if there is flow below 150 gpm;
 - monitor the caustic solution concentration as necessary to control odors.
- 4.2.2. For purposes of demonstrating compliance with conditions 4.1.4 and 4.1.7 for the back-up process flare [B330 (7c)], the permittee shall :
- provide continuous monitoring of the pilot light flame to ensure that it is active at all times the flare is used as a control device;
 - monitor the vent gas hours that the back-up process flare is used as a control device;
 - monitor opacity as outlined in condition 4.2.8.
- 4.2.3. For purposes of demonstrating compliance with conditions 4.1.5 and 4.1.7 for the emergency flare [B330(7c(a))], the permittee shall:

- a. provide continuous monitoring of the pilot light flame to ensure that it is active at all times the flare is used as a control device;
 - b. monitor the vent gas hours that the back-up process flare is used as a control device;
 - c. monitor opacity as outlined in condition 4.2.8.
- 4.2.4. For purposes of demonstrating compliance with the particulate matter emission limits of condition 4.1.1 for the baghouses (3c [A331] and 5c [A332]), the permittee shall:
- a. material balances around the baghouse;
 - b. monitor the pressure drop across the baghouse monthly.
- 4.2.5. For purposes of demonstrating compliance with condition 4.1.8 for the PTO/Scrubber [B332/C332], the permittee shall:
- a. provide continuous monitoring of the pilot light flame to ensure that it is active at all times the PTO is used as a control device;
 - b. Monitor the temperature of gases existing the combustion chamber every 15 minutes to maintain a minimum temperature of 1,750°F;
 - c. monitor opacity as outlined in condition 4.2.8.
 - d. monitor the liquor flow rate every 15 minutes and maintain a minimum flow rate of 250 gpm.
- 4.2.6. For the purpose of demonstrating compliance with the process vent gas flow rate limitation in condition 4.1.11, the permittee shall provide continuous monitoring of the total flow rate of the vent gas header prior to being routed to the designated control device.
- 4.2.7. For purposes of demonstrating compliance with the throughput limits provided in condition 4.1.10 of this permit, the permittee shall monitor the throughput of material through Tanks T-37 and T-38 on a monthly and annual basis.
- 4.2.8. For purposes of demonstrating compliance with the opacity limits in condition 4.1.12 of this permit, the permittee shall conduct visible emission checks of each emission point subject to an opacity limit once per month during periods of normal unit operation using 40 C.F.R. 60 Appendix A, Method 22. If during these checks, or at any other time, visible emissions are observed at any emission point, compliance shall be determined by conducting tests in accordance with 40 C.F.R. 60 Appendix A, Method 9 within 48 hours. If the Method 9 test results show the opacity to be greater than the limit, then an evaluation to determine the cause of the exceedance shall be conducted within three (3) days, unless the cause of the exceedance is corrected within 24 hours. If no visible emissions are observed after four consecutive months, visible emission checks shall be conducted each calendar quarter. If any visible emissions are observed during the quarterly emission checks, visible emission checks shall return to being performed each calendar month. Records shall be maintained in accordance with Condition 3.4.2 of this permit and shall include all data required by 40 C.F.R. 60 Appendix A, Method 22 or Method 9 test, whichever is appropriate. These records shall include, at a minimum, the date and time of each visible emission check, the visible emissions survey results and, if appropriate, all corrective actions taken. During the time that Flare (7c (a)) is in operation, the permittee shall immediately perform a Method 22 observation. If visible emissions occur, the permittee shall immediately perform a Method 9 test.
- 4.2.9. Control Device Monitoring: [B330 (7c), E480, B332/C332]

- (a) To provide evidence of continued compliance with the standard, the owner or operator of any existing or new affected source shall install, operate, and maintain monitoring devices as specified in this section. During the initial compliance demonstration, maximum or minimum operating parameter levels, or other design and operating characteristics, as appropriate, shall be established for emission sources that will indicate the source is in compliance. Test data, calculations, or information from the evaluation of the control device design, as applicable, shall be used to establish the operating parameter level or characteristic.
- (b) Monitoring for control devices.
- (1) Parameters to monitor. Except as specified in paragraph (b)(1)(i) of this section, for each control device, the owner or operator shall install and operate monitoring devices and operate within the established parameter levels to ensure continued compliance with the standard. Monitoring parameters are specified for control scenarios in paragraphs (b)(1)(ii) of this section, and are summarized in Table 3 of this subpart.
- (i) Periodic verification. For control devices that control vent streams containing total HAP emissions less than 0.91 Mg/yr, before control, monitoring shall consist of a periodic verification that the device is operating properly. This verification shall include, but not be limited to, a daily or more frequent demonstration that the unit is working as designed and may include the daily measurements of the parameters described in paragraphs (b)(1)(ii) of this section. This demonstration shall be included in the pre-compliance plan, to be submitted 6 months prior to the compliance date of the standard.
- (ii) Scrubbers. For affected sources using liquid scrubbers, the owner or operator shall establish a minimum scrubber liquid flow rate or pressure drop as a site-specific operating parameter which must be measured and recorded at least once every 15 minutes during the period in which the scrubber is controlling HAP from an emission stream as required by the standards in Sec. 63.1362. If the scrubber uses a caustic solution to remove acid emissions, the pH of the effluent scrubber liquid shall also be monitored once a day. The minimum scrubber liquid flow rate or pressure drop shall be based on the conditions under which the initial compliance demonstration was conducted.
- (A) The monitoring device used to determine the pressure drop shall be certified by the manufacturer to be accurate to within a gage pressure of 10 percent of the maximum pressure drop measured.
- (B) The monitoring device used for measurement of scrubber liquid flowrate shall be certified by the manufacturer to be accurate to within 10 percent of the design scrubber liquid flowrate.
- (C) The monitoring device shall be calibrated annually.
- (vi) Flares. For each flare, the presence of the pilot flame shall be monitored at least once every 15 minutes during the period in which the flare is controlling HAP from an emission stream subject to the standards in Sec. 63.1362. The monitoring device shall be calibrated annually.
- (vii) Thermal incinerators. For each thermal incinerator, the owner or operator shall monitor the temperature of the gases exiting the combustion chamber as the site-specific operating parameter which must be measured and recorded at least once every 15 minutes during the period in which the combustion device is controlling HAP from an emission stream subject to the standards in §63.1362.
- (A) The temperature monitoring device must be accurate to within ± 0.75 percent of the temperature measured in degrees Celsius or ± 2.5 °C, whichever is greater.
- (B) The monitoring device must be calibrated annually.

- (ix) Process heaters and boilers.
- (A) Except as specified in paragraph (b)(1)(ix)(B) of this section, for each boiler or process heater, the owner or operator shall monitor the temperature of the gases exiting the combustion chamber as the site-specific operating parameter which must be monitored and recorded at least every 15 minutes during the period in which the boiler or process heater is controlling HAP from an emission stream subject to the standards in Sec. 63.1362.
- (1) The temperature monitoring device must be accurate to within 0.75 percent of the temperature measured in degrees Celsius or 2.5 degrees Celsius, whichever is greater.
- (2) The temperature monitoring device must be calibrated annually.
- (B) The owner or operator is exempt from the monitoring requirements specified in paragraph (b)(1)(ix)(A) of this section if either:
- (1) All vent streams are introduced with primary fuel; or
- (2) The design heat input capacity of the boiler or process heater is 44 megawatts or greater.
- [45CSR34, 40CFR§63.1366(a) and (b)]**

4.3. Testing Requirements

- 4.3.1. At such reasonable times as the Secretary may designate, the permittee shall be required to conduct or have conducted stack tests to determine the particulate matter loading, by using 40 CFR Part 60, Appendix A, Method 5 or other equivalent U.S. EPA approved method approved by the Secretary, in exhaust gases. Such tests shall be conducted in such manner as the Secretary may specify and be filed on forms and in a manner acceptable to the Secretary. The Secretary may, at the Secretary's option, witness or conduct such stack tests. Should the Secretary exercise his or her option to conduct such tests, the operator will provide all the necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment such as scaffolding, railings and ladders to comply with generally accepted good safety practices. **[45CSR6-7.1]**
- 4.3.2. The permittee is subject to the initial testing requirements for the PTO/Scrubber [B332/C332]. **[45CSR34, 40CFR§ 63.1365 (Subpart MMM)]**
- 4.3.3. The permittee is subject to the testing requirements for the Group 1 storage tanks that are vented to the PTO/Scrubber [B332/C332]. **[45CSR34, 40CFR§ 63.1365 (Subpart MMM)]**
- 4.3.4. Test methods and initial compliance procedures. [B332/C332]
- (a) General. Except as specified in paragraph (a)(4) of this section, the procedures specified in paragraphs (c), (d), (e), (f), and (g) of this section are required to demonstrate initial compliance with §63.1362(b), (c), (d), (f), and (g), respectively. The provisions in paragraph (a)(1) of this section apply to design evaluations that are used to demonstrate compliance with the standards for process vents and storage vessels. The provisions in paragraph (a)(2) of this section apply to performance tests that are specified in paragraphs (c), (d), and (e) of this section. The provisions in paragraph (a)(3) of this section describe initial compliance procedures for flares. The provisions in paragraph (a)(5) of this section are used to demonstrate initial compliance with the alternative standards specified in §63.1362(b)(6) and (c)(4). The provisions in paragraph (a)(6) of this section

are used to comply with the outlet concentration requirements specified in §63.1362(b)(2)(iv)(A), (b)(3)(ii), (b)(4)(ii)(A), (b)(5)(ii), and (b)(5)(iii).

- (1) Design evaluation. To demonstrate that a control device meets the required control efficiency, a design evaluation must address the composition and HAP concentration of the vent stream entering the control device. A design evaluation also must address other vent stream characteristics and control device operating parameters as specified in any one of paragraphs (a)(1)(i) through (vii) of this section, depending on the type of control device that is used. If the vent stream is not the only inlet to the control device, the efficiency demonstration also must consider all other vapors, gases, and liquids, other than fuels, received by the control device.
 - (i) For an enclosed combustion device used to comply with the provisions of §63.1362(b)(2)(iv), (b)(4)(ii), (c)(2)(iv)(B), or (c)(3) with a minimum residence time of 0.5 seconds and a minimum temperature of 760 °C, the design evaluation must document that these conditions exist.
 - (ii) For a combustion control device that does not satisfy the criteria in paragraph (a)(1)(i) of this section, the design evaluation must document control efficiency and address the following characteristics, depending on the type of control device:
 - (A) For a thermal vapor incinerator, the design evaluation must consider the autoignition temperature of the organic HAP, must consider the vent stream flow rate, and must establish the design minimum and average temperature in the combustion zone and the combustion zone residence time.
 - (vi) For a scrubber, the design evaluation must consider the vent stream composition, constituent concentrations, liquid-to-vapor ratio, scrubbing liquid flow rate and concentration, temperature, and the reaction kinetics of the constituents with the scrubbing liquid. The design evaluation must establish the design exhaust vent stream organic compound concentration level and must include the additional information in paragraphs (a)(1)(vi)(A) and (B) of this section for trays and a packed column scrubber.
 - (A) Type and total number of theoretical and actual trays;
 - (B) Type and total surface area of packing for entire column, and for individual packed sections if column contains more than one packed section.
- (2) Calculation of TOC or total organic HAP concentration. The TOC concentration or total organic HAP concentration is the sum of the concentrations of the individual components. If compliance is being determined based on TOC, the owner or operator shall compute TOC for each run using Equation 6 of this subpart. If compliance is being determined based on total organic HAP, the owner or operator shall compute total organic HAP using Equation 6 of this subpart, except that only organic HAP compounds shall be summed; when determining compliance with the wastewater provisions of §63.1362(d), the organic HAP compounds shall consist of the organic HAP compounds in Table 9 of subpart G of this part.

$$CG_T = \frac{1}{m} \sum_{j=1}^m \left(\sum_{i=1}^n CGS_{i,j} \right) \quad (Eq. 6)$$

Where:

CG_T = total concentration of TOC or organic HAP in vented gas stream, average of samples, dry basis, ppmv

$CGS_{i,j}$ = concentration of sample components in vented gas stream for sample j, dry basis, ppmv

n = number of compounds in the sample

m = number of samples in the sample run.

- (3) Initial compliance using flares. When a flare is used to comply with the standards, the owner or operator shall comply with the provisions in §63.11(b) of Subpart A of this part.
 - (i) The initial compliance determination shall consist of a visible emissions determination using Method 22 of 40 CFR part 60, appendix A, as described in §63.11(b)(4) of subpart A of this part, and a determination of net heating value of gas being combusted and exit velocity to comply with the requirements of §63.11(b)(6) through (8) of subpart A of this part. The net heating value and exit velocity shall be based on the results of performance testing under the conditions described in paragraphs (b)(10) and (11) of this section.
 - (ii) An owner or operator is not required to conduct a performance test to determine percent emission reduction or outlet organic HAP or TOC concentration when a flare is used.
- b) Test methods and conditions. When testing is conducted to measure emissions from an affected source, the test methods specified in paragraphs (b)(1) through (9) of this section shall be used. Compliance tests shall be performed under conditions specified in paragraphs (b)(10) and (11) of this section:
 - (1) Method 1 or 1A of appendix A of 40 CFR part 60 shall be used for sample and velocity traverses.
 - (2) Method 2, 2A, 2C, or 2D of appendix A of 40 CFR part 60 shall be used for velocity and volumetric flow rates.
 - (3) Method 3 of appendix A of 40 CFR part 60 shall be used for gas analysis.
 - (4) Method 4 of appendix A of 40 CFR part 60 shall be used for stack gas moisture.
 - (5) Concentration measurements shall be adjusted to negate the dilution effects of introducing nonaffected gaseous streams into the vent streams prior to control or measurement. The following methods are specified for concentration measurements of organic compounds:
 - (i) Method 18 of appendix A of 40 CFR part 60 may be used to determine HAP concentration in any control device efficiency determination.
 - (ii) Method 25 of appendix A of 40 CFR part 60 may be used to determine total gaseous nonmethane organic concentration for control efficiency determinations in combustion devices.
 - (iii) Method 25A of appendix A of 40 CFR part 60 may be used to determine the HAP or TOC concentration for control device efficiency determinations under the conditions specified in Method 25 of appendix A of 40 CFR part 60 for direct measurement of an effluent with a flame ionization detector, or in demonstrating compliance with the 20 ppmv TOC outlet standard. If Method 25A of appendix A of 40 CFR part 60 is used to determine the concentration of TOC for the 20 ppmv standard, the instrument shall be calibrated on methane or the predominant HAP. If calibrating on the predominant HAP, the use of Method 25A of appendix A of 40 CFR part 60 shall comply with paragraphs (b)(5)(i)(A) through (C) of this section:
 - (A) The organic HAP used as the calibration gas for Method 25A, 40 CFR part 60, appendix A, shall be the single organic HAP representing the largest percent by volume.
 - (B) The use of Method 25A, 40 CFR part 60, appendix A, is acceptable if the response from the high level calibration gas is at least 20 times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale.
 - (C) The span value of the analyzer must be less than 100 ppmv.
 - (6) The methods in either paragraph (b)(6)(i) or (ii) of this section shall be used to determine the concentration, in mg/dscm, of total HCl and chlorine. Concentration measurements shall be

- adjusted to negate the dilution effects of introducing nonaffected gaseous streams into the vent streams prior to control or measurement.
- (i) Method 26 or 26A of 40 CFR part 60, appendix A.
 - (ii) Any other method if the method or data have been validated according to the applicable procedures of Method 301 of appendix A of this part.
- (7) Method 5 of appendix A of 40 CFR part 60 shall be used to determine the concentration of particulate matter in exhaust gas streams from bag dumps and product dryers.
- (8) Wastewater analysis shall be conducted in accordance with §63.144(b)(5)(i) through (iii) or as specified in paragraph (b)(8)(i) or (ii) of this section.
- (i) As an alternative to the methods specified in §63.144(b)(5)(i), an owner or operator may conduct wastewater analyses using Method 1666 or 1671 of 40 CFR part 136, appendix A, and comply with the sampling protocol requirements specified in §63.144(b)(5)(ii). The validation requirements specified in §63.144(b)(5)(iii) do not apply if an owner or operator uses Method 1666 or 1671 of 40 CFR part 136, appendix A.
 - (ii) As an alternative to the methods specified in §63.144(b)(5)(i), an owner or operator may use procedures specified in Method 8260 or 8270 in “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” EPA Publication No. SW-846, Third Edition, September 1986, as amended by Update I, November 15, 1992. An owner or operator also may use any more recent, updated version of Method 8260 or 8270 approved by EPA. For the purpose of using Method 8260 or 8270 to comply with this subpart, the owner or operator must maintain a formal quality assurance program consistent with either Section 8 of Method 8260 or Method 8270. This program must include the elements related to measuring the concentrations of volatile compounds that are specified in paragraphs (b)(8)(ii)(A) through (C) of this section.
 - (A) Documentation of site-specific procedures to minimize the loss of compounds due to volatilization, biodegradation, reaction, or sorption during the sample collection, storage, and preparation steps.
 - (B) Documentation of specific quality assurance procedures followed during sampling, sample preparation, sample introduction, and analysis.
 - (C) Measurement of the average accuracy and precision of the specific procedures, including field duplicates and field spiking of the material source before or during sampling with compounds having similar chemical characteristics to the target analytes.
- (9) Method 22 of appendix A of 40 CFR part 60 shall be used to determine visible emissions from flares.
- (10) Testing conditions for continuous processes. Testing of process vents on equipment operating as part of a continuous process shall consist of three one-hour runs. Gas stream volumetric flow rates shall be measured every 15 minutes during each 1-hour run. Organic HAP concentration shall be determined from samples collected in an integrated sample over the duration of each one-hour test run, or from grab samples collected simultaneously with the flow rate measurements (every 15 minutes). If an integrated sample is collected for laboratory analysis, the sampling rate shall be adjusted proportionally to reflect variations in flow rate. For continuous gas streams, the emission rate used to determine compliance shall be the average emission rate of the three test runs.
- (11) Testing conditions for batch processes. Testing of emissions on equipment where the flow of gaseous emissions is intermittent (batch operations) shall be conducted at absolute peak-case conditions or hypothetical peak-case conditions, as specified in paragraphs (b)(11)(i) and (ii) of this section, respectively. Gas stream volumetric flow rates shall be measured at 15-minute intervals. Organic HAP, TOC, or HCl and chlorine concentration shall be determined from samples collected in an integrated sample over the duration of the test, or from grab samples collected simultaneously with the flow rate measurements (every 15 minutes). If an integrated

sample is collected for laboratory analysis, the sampling rate shall be adjusted proportionally to reflect variations in flow rate. In all cases, a site-specific test plan shall be submitted to the Administrator for approval prior to testing in accordance with §63.7(c). The test plan shall include the emissions profile described in paragraph (b)(11)(iii) of this section. The term “HAP mass loading” as used in paragraphs (b)(11)(i) through (iii) of this section refers to the class of HAP, either organic or HCl and chlorine, that the control device is intended to control.

- (i) Absolute peak-case. If the most challenging conditions for the control device occur under maximum HAP load, the absolute peak-case conditions shall be characterized by the criteria presented in paragraph (b)(11)(i)(A) or (B) of this section. Otherwise, absolute peak-case conditions are defined by the conditions in paragraph (b)(11)(i)(C) of this section.
 - (A) The period in which the inlet to the control device will contain at least 50 percent of the maximum HAP mass load that may be vented to the control device over any 8-hour period. An emission profile as described in paragraph (b)(11)(iii)(A) of this section shall be used to identify the 8-hour period that includes the maximum projected HAP load.
 - (B) A 1-hour period of time in which the inlet to the control device will contain the highest hourly HAP mass loading rate that may be vented to the control device. An emission profile as described in paragraph (b)(11)(iii)(A) of this section shall be used to identify the 1-hour period of maximum HAP loading.
 - (C) The period of time when a condition other than the maximum HAP load is most challenging for the control device. These conditions include, but are not limited to the following:
 - (1) Periods when the streams contain the highest combined VOC and HAP hourly load, as described by the emission profiles in paragraph (b)(11)(iii) of this section; or
 - (2) Periods when the streams contain HAP constituents that approach the limits of solubility for scrubbing media; or
 - (3) Periods when the streams contain HAP constituents that approach the limits of adsorptivity for carbon adsorption systems.
- (ii) Hypothetical peak-case. Hypothetical peak-case conditions are simulated test conditions that, at a minimum, contain the highest total average hourly HAP load of emissions that would be predicted to be vented to the control device from the emissions profile described in either paragraph (b)(11)(iii)(B) or (C) of this section.
- (iii) Emissions profile. The owner or operator may choose to perform tests only during those periods of the peak-case episode(s) that the owner or operator selects to control as part of achieving the required emission reduction. Except as specified in paragraph (b)(11)(iii)(D) of this section, the owner or operator shall develop an emission profile for the vent to the control device that describes the characteristics of the vent stream at the inlet to the control device under either absolute or hypothetical peak-case conditions. The emissions profile shall be developed based on the applicable procedures described in paragraphs (b)(11)(iii)(A) through (C) of this section, as required by paragraphs (b)(11)(i) and (ii) of this section.
 - (A) Emissions profile by process. The emissions profile must consider all emission episodes that could contribute to the vent stack for a period of time that is sufficient to include all processes venting to the stack and shall consider production scheduling. The profile shall describe the HAP load to the device that equals the highest sum of emissions from the episodes that can vent to the control device during the period of absolute peak-case conditions specified in paragraph (b)(11)(i)(A), (B), or (C) as appropriate. Emissions per episode shall be calculated using the procedures specified in paragraph (c)(2) of this section. When complying with paragraph (b)(11)(i)(B) of this section, emissions per episode shall be divided

- by the duration of the episode if the duration of the episode is longer than 1 hour.
- (B) Emission profile by equipment. The emission profile must consist of emissions that meet or exceed the highest hourly HAP load that would be expected under actual processing conditions. The profile shall describe equipment configurations used to generate the emission events, volatility of materials processed in the equipment, and the rationale used to identify and characterize the emission events. The emissions may be based on using a compound more volatile than compounds actually used in the process(es), and the emissions may be generated from all equipment in the process(es) or only selected equipment.
- (C) Emission profile by capture and control device limitation. The emission profile shall consider the capture and control system limitations and the highest hourly emissions that can be routed to the control device, based on maximum flow rate and concentrations possible because of limitations on conveyance and control equipment (e.g., fans, LEL alarms and safety bypasses).
- (D) Exemptions. The owner or operator is not required to develop an emission profile under the circumstances described in paragraph (b)(11)(iii)(D)(1) or (2) of this section.
- (1) If all process vents for a process are controlled using a control device or series of control devices that reduce HAP emissions by 98 percent or more, no other emission streams are vented to the control device when it is used to control emissions from the subject process, and the performance test is conducted over the entire batch cycle.
- (2) If a control device is used to comply with the outlet concentration limit for process vent emission streams from a single process (but not necessarily all of the process vents from that process), no other emission streams are vented to the control device while it is used to control emissions from the subject process, and the performance test is conducted over the entire batch cycle.
- (iv) Test duration. Three runs, at a minimum of 1 hour each, are required for performance testing. When complying with a percent reduction standard, each test run may be a maximum of either 24 hours or the duration of the longest batch controlled by the control device, whichever is shorter, and each run must include the same absolute or hypothetical peak-case conditions, as defined in paragraph (b)(11)(i) or (ii) of this section. When complying with an outlet concentration limit, each run must include the same absolute or hypothetical peak-case conditions, as defined in paragraph (b)(11)(i) or (ii) of this section, and the duration of each run may not exceed the duration of the applicable peak-case condition.
- c) Initial compliance with process vent provisions. The owner or operator of an affected source shall demonstrate compliance with the process vent standards in §63.1362(b) using the procedures described in paragraphs (c)(1) through (3) of this section.
- (1) Compliance with the process vent standards in §63.1362(b) shall be demonstrated in accordance with the provisions specified in paragraphs (c)(1)(i) through (viii) of this section.
- (i) Initial compliance with the emission limit cutoffs in §63.1362(b)(2)(i) and (b)(4)(i) is demonstrated when the uncontrolled organic HAP emissions from the sum of all process vents within a process are less than or equal to 0.15 Mg/yr. Uncontrolled HAP emissions shall be determined using the procedures described in paragraph (c)(2) of this section.
- (ii) Initial compliance with the emission limit cutoffs in §63.1362(b)(3)(i) and (b)(5)(i) is demonstrated when the uncontrolled HCl and Cl₂ emissions from the sum of all process vents within a process are less than or equal to 6.8 Mg/yr. Initial compliance with the emission limit cutoffs in §63.1362(b)(5)(ii) and (iii) is demonstrated when the uncontrolled HCl and Cl₂ emissions are greater than or equal to 6.8 Mg/yr or greater than

- or equal to 191 Mg/yr, respectively. Uncontrolled emissions shall be determined using the procedures described in paragraph (c)(2) of this section.
- (iii) Initial compliance with the organic HAP percent reduction requirements specified in §63.1362(b)(2)(ii), (iii), and (b)(4)(ii) is demonstrated by determining controlled HAP emissions using the procedures described in paragraph (c)(3) of this section, determining uncontrolled HAP emissions using the procedures described in paragraph (c)(2) of this section, and calculating the applicable percent reduction. As an alternative, if the conditions specified in paragraph (b)(11)(iii)(D)(I) of this section are met, initial compliance may be demonstrated by showing the control device reduces emissions by 98 percent by weight or greater using the procedures specified in paragraph (c)(3) of this section.
 - (iv) Initial compliance with the HCl and Cl₂ percent reduction requirements specified in §63.1362(b)(3)(ii), (b)(5)(ii), and (b)(5)(iii) is demonstrated by determining controlled emissions of HCl and Cl₂ using the procedures described in paragraph (c)(3) of this section, determining uncontrolled emissions of HCl and Cl₂ using the procedures described in paragraph (c)(2) of this section, and calculating the applicable percent reduction.
 - (v) Initial compliance with the outlet concentration limits in §63.1362(b)(2)(iv)(A), (b)(3)(ii), (b)(4)(ii)(A), (b)(5)(ii) and (iii) is demonstrated when the outlet TOC or total organic HAP concentration is 20 ppmv or less and the outlet HCl and chlorine concentration is 20 ppmv or less. The owner or operator shall demonstrate compliance by fulfilling the requirements in paragraph (a)(6) of this section. If an owner or operator elects to develop an emissions profile by process as described in paragraph (b)(11)(iii)(A) of this section, uncontrolled emissions shall be determined using the procedures in paragraph (c)(2) of this section.
 - (vi) Initial compliance with the alternative standard in §63.1362(b)(6) is demonstrated by fulfilling the requirements in paragraph (a)(5) of this section.
 - (vii) Initial compliance when using a flare is demonstrated by fulfilling the requirements in paragraph (a)(3) of this section.
 - (viii) No initial compliance demonstration is required for control devices specified in §63.1362(l).
- (2) Uncontrolled emissions. The owner or operator referred to from paragraphs (c)(1)(i) through (v) of this section shall calculate uncontrolled emissions according to the procedures described in paragraph (c)(2)(i) or (ii) of this section, as appropriate.
- (i) Emission estimation procedures. The owner or operator shall determine uncontrolled HAP emissions using emission measurements and/or calculations for each batch emission episode according to the engineering evaluation methodology in paragraphs (c)(2)(i)(A) through (H) of this section.
 - (A) Individual HAP partial pressures in multicomponent systems shall be determined in accordance with the methods specified in paragraphs (c)(2)(i)(A)(I) through (3) of this section. Chemical property data may be obtained from standard references.
 - (1) If the components are miscible in one another, use Raoult's law to calculate the partial pressures;
 - (2) If the solution is a dilute aqueous mixture, use Henry's law constants to calculate partial pressures;
 - (3) If Raoult's law or Henry's law are not appropriate or available, use any of the methods specified in paragraphs (c)(2)(i)(A)(3)(i) through (iii) of this section.
 - (i) Use experimentally obtained activity coefficients;
 - (ii) Use models such as the group-contribution models to predict activity coefficients;

(iii) Assume the components of the system behave independently and use the summation of all vapor pressures from the HAP as the total HAP partial pressure;

(B) Charging or filling. Emissions from vapor displacement due to transfer of material to a vessel shall be calculated using Equation 9 of this subpart:

$$E = \frac{(V)}{(R)(T)} \times \sum_{i=1}^n (P_i)(MW_i) \quad (Eq. 9)$$

Where:

E = mass of HAP emitted

P_i = partial pressure of the individual HAP

V = volume of gas displaced from the vessel

R = ideal gas law constant

T = temperature of the vessel vapor space; absolute

MW_i = molecular weight of the individual HAP

(C) Purging. Emissions from purging shall be calculated using Equation 10 of this subpart, except that for purge flow rates greater than 100 scfm, the mole fraction of HAP will be assumed to be 25 percent of the saturated value.

$$E = \sum_{i=1}^n P_i MW_i \times \left(\frac{(V)(t)}{(R)(T)} \right) \times \frac{P_T}{P_T - \sum_{j=1}^m (P_j)} \quad (Eq. 10)$$

Where:

E = mass of HAP emitted

V = purge flow rate at the temperature and pressure of the vessel vapor space

R = ideal gas law constant

T = temperature of the vessel vapor space; absolute

P_i = partial pressure of the individual HAP

P_j = partial pressure of individual condensable compounds (including HAP)

P_T = pressure of the vessel vapor space

MW_i = molecular weight of the individual HAP

t = time of purge

n = number of HAP compounds in the emission stream

m = number of condensable compounds (including HAP) in the emission stream.

(D) Heating. Emissions caused by heating the contents of a vessel to a temperature less than the boiling point shall be calculated using the procedures in either paragraph (c)(2)(i)(D)(1), (2), or (4) of this section, as appropriate. If the contents of a vessel are heated to the boiling point, emissions while boiling are assumed to be zero if the owner or operator is complying with the provisions in paragraph (d)(2)(i)(C)(3) of this section.

(1) If the final temperature to which the vessel contents are heated is lower than 50 K below the boiling point of the HAP in the vessel, then emissions shall be calculated using Equations 11 through 14 of this subpart.

(i) The mass of HAP emitted per episode shall be calculated using Equation 11 of this subpart:

$$E = \frac{\sum_{i=1}^n (P_i)_{T1} + \sum_{i=1}^n (P_i)_{T2}}{2} \times \frac{Pa_1 - Pa_2}{Pa_1} \times \Delta\eta \times MW_{HAP} \quad (Eq. 11)$$

Where:

E = mass of HAP vapor displaced from the vessel being heated

(P_i)_{Tn} = partial pressure of each HAP in the vessel headspace at initial (n = 1) and final (n = 2) temperatures

Pa₁ = initial noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart

Pa₂ = final noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart

ΔH = number of moles of noncondensable gas displaced, as calculated using Equation 12 of this subpart

MW_{HAP} = The average molecular weight of HAP present in the vessel, as calculated using Equation 14 of this subpart:

n = number of HAP compounds in the displaced vapor

- (ii) The moles of noncondensable gas displaced shall be calculated using Equation 12 of this subpart:

$$\Delta\eta = \frac{V}{R} \left[\left(\frac{Pa_1}{T_1} \right) - \left(\frac{Pa_2}{T_2} \right) \right] \quad (Eq. 12)$$

Where:

ΔH = number of moles of noncondensable gas displaced

V = volume of free space in the vessel

R = ideal gas law constant

Pa₁ = initial noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart

Pa₂ = final noncondensable gas pressure in the vessel, as calculated using Equation 13 of this subpart

T₁ = initial temperature of vessel contents, absolute

T₂ = final temperature of vessel contents, absolute

- (iii) The initial and final pressure of the noncondensable gas in the vessel shall be calculated according to Equation 13 of this subpart:

$$Pa_n = Pa_{atm} - \sum_{j=1}^m (P_j)_{Tn} \quad (Eq. 13)$$

Where:

Pa_n = partial pressure of noncondensable gas in the vessel headspace at initial (n = 1) and final (n = 2) temperatures

P_{atm} = atmospheric pressure

(P_j)_{Tn} = partial pressure of each condensable volatile organic compound (including HAP) in the vessel headspace at the initial temperature (n = 1) and final (n = 2) temperature

- (iv) The average molecular weight of HAP in the displaced gas shall be calculated using Equation 14 of this subpart:

$$MW_{HAP} = \frac{\sum_{i=1}^n ((P_i)_{T_1} + (P_i)_{T_2}) MW_i}{\sum_{i=1}^n ((P_i)_{T_1} + (P_i)_{T_2})} \quad (\text{Eq. 14})$$

Where:

MW_{HAP} = average molecular weight of HAP in the displaced gas

$(P_i)_{T_n}$ = partial pressure of each HAP in the vessel headspace at the initial (T_1) and final (T_2) temperatures

MW_i = molecular weight of each HAP

n = number of HAP compounds in the emission stream

- (2) If the vessel contents are heated to a temperature greater than 50 K below the boiling point, then emissions from the heating of a vessel shall be calculated as the sum of the emissions calculated in accordance with paragraphs (c)(2)(i)(D)(1)(i) and (ii) of this section.
- (i) For the interval from the initial temperature to the temperature 50 K below the boiling point, emissions shall be calculated using Equation 11 of this subpart, where T_2 is the temperature 50 K below the boiling point.
- (ii) For the interval from the temperature 50 K below the boiling point to the final temperature, emissions shall be calculated as the summation of emissions for each 5 K increment, where the emission for each increment shall be calculated using Equation 11 of this subpart. If the final temperature of the heatup is lower than 5 K below the boiling point, the final temperature for the last increment shall be the final temperature of the heatup, even if the last increment is less than 5 K. If the final temperature of the heatup is higher than 5 K below the boiling point, the final temperature for the last increment shall be the temperature 5 K below the boiling point, even if the last increment is less than 5 K.
- (3) While boiling, the vessel must be operated with a properly operated process condenser. An initial demonstration that a process condenser is properly operated is required for vessels that operate process condensers without secondary condensers that are air pollution control devices. The owner or operator must either measure the condenser exhaust gas temperature and show it is less than the boiling point of the substance(s) in the vessel, or perform a material balance around the vessel and condenser to show that at least 99 percent of the material vaporized while boiling is condensed. Uncontrolled emissions are assumed to be zero under these conditions. The initial demonstration shall be conducted for all appropriate operating scenarios and documented in the Notification of Compliance Status report as specified in §63.1368(f).
- (4)(i) As an alternative to the procedures described in paragraphs (c)(2)(i)(D)(1) and (2) of this section, emissions caused by heating a vessel to any temperature less than the boiling point may be calculated using Equation 15 of this subpart.

$$E = MW_{HAP} \times \left(N_{avg} \times \ln \left(\frac{P_T - \sum_{i=1}^m (P_{i,1})}{P_T - \sum_{i=1}^m (P_{i,2})} \right) - (n_{HAP,2} - n_{HAP,1}) \right) \quad (\text{Eq. 15})$$

Where:

E = mass of HAP vapor displaced from the vessel being heated
 N_{avg} = average gas space molar volume during the heating process, as calculated using Equation 16 of this subpart
 P_T = total pressure in the vessel
 $P_{i,1}$ = partial pressure of the individual HAP compounds at T_1
 $P_{i,2}$ = partial pressure of the individual HAP compounds at T_2
 MW_{HAP} = average molecular weight of the HAP compounds, as calculated using Equation 14 of this subpart
 $n_{HAP,1}$ = number of moles of total HAP in the vessel headspace at T_1
 $n_{HAP,2}$ = number of moles of total HAP in the vessel headspace at T_2
 m = number of HAP compounds in the emission stream.

(ii) The average gas space molar volume during the heating process is calculated using Equation 16 of this subpart.

$$N_{avg} = \frac{VP_T}{2R} \left(\frac{1}{T_1} + \frac{1}{T_2} \right) \quad (\text{Eq. 16})$$

Where:

N_{avg} = average gas space molar volume during the heating process
 V = volume of free space in vessel
 P_T = total pressure in the vessel
 R = ideal gas law constant
 T_1 = initial temperature of the vessel contents, absolute
 T_2 = final temperature of the vessel contents, absolute

(iii) The difference in the number of moles of total HAP in the vessel headspace between the initial and final temperatures is calculated using Equation 17 of this subpart.

$$(n_{HAP,2} - n_{HAP,1}) = \frac{V}{(R)(T_2)} \sum_{i=1}^n P_{i,2} - \frac{V}{(R)(T_1)} \sum_{i=1}^n P_{i,1} \quad (\text{Eq. 17})$$

Where:

$n_{HAP,2}$ = number of moles of total HAP in the vessel headspace at T_2
 $n_{HAP,1}$ = number of moles of total HAP in the vessel headspace at T_1
 V = volume of free space in vessel
 R = ideal gas law constant
 T_1 = initial temperature of the vessel contents, absolute
 T_2 = final temperature of the vessel contents, absolute
 $P_{i,1}$ = partial pressure of the individual HAP compounds at T_1
 $P_{i,2}$ = partial pressure of the individual HAP compounds at T_2
 n = number of HAP compounds in the emission stream.

(E) Depressurization. Emissions from depressurization shall be calculated using the procedures in paragraphs (c)(2)(i)(E)(1) through (5) of this section. Alternatively, the owner or operator may elect to calculate emissions from depressurization using the procedures in paragraph (c)(2)(i)(E)(6) of this section.

(1) The moles of HAP vapor initially in the vessel are calculated using Equation 18 of this subpart:

$$n_{HAP} = \frac{V}{RT} \times \sum_{i=1}^n (P_i) \quad (\text{Eq. 18})$$

Where:

n_{HAP} =moles of HAP vapor in the vessel
 P_i =partial pressure of each HAP in the vessel vapor space
 V =free volume in the vessel being depressurized
 R =ideal gas law constant
 T =absolute temperature in vessel
 n =number of HAP compounds in the emission stream

- (2) The initial and final moles of noncondensable gas present in the vessel are calculated using Equations 19 and 20 of this subpart:

$$n_1 = \frac{VP_{nc1}}{RT} \quad (\text{Eq. 19}) \quad n_2 = \frac{VP_{nc2}}{RT} \quad (\text{Eq. 20})$$

Where:

n_1 =initial number of moles of noncondensable gas in the vessel
 n_2 =final number of moles of noncondensable gas in the vessel
 V =free volume in the vessel being depressurized
 P_{nc1} =initial partial pressure of the noncondensable gas, as calculated using Equation 21 of this subpart
 P_{nc2} =final partial pressure of the noncondensable gas, as calculated using Equation 22 of this subpart

R =ideal gas law constant

T =temperature, absolute

- (3) The initial and final partial pressures of the noncondensable gas in the vessel are determined using Equations 21 and 22 of this subpart.

$$P_{nc1} = P_1 - \sum_{j=1}^m (P_j^*) (x_j) \quad (\text{Eq. 21})$$

$$P_{nc2} = P_2 - \sum_{j=1}^m (P_j^*) (x_j) \quad (\text{Eq. 22})$$

Where:

P_{nc1} = initial partial pressure of the noncondensable gas
 P_{nc2} = final partial pressure of the noncondensable gas
 P_1 = initial vessel pressure
 P_2 = final vessel pressure
 P_j^* = vapor pressure of each condensable compound (including HAP) in the emission stream
 x_j = mole fraction of each condensable compound (including HAP) in the liquid phase
 m = number of condensable compounds (including HAP) in the emission stream.

- (4) The moles of HAP emitted during the depressurization are calculated by taking an approximation of the average ratio of moles of HAP to moles of noncondensable and multiplying by the total moles of noncondensables released during the depressurization, using Equation 23 of this subpart:

$$n_{HAP,e} = \frac{\left(\frac{n_{HAP,1}}{n_1} + \frac{n_{HAP,2}}{n_2} \right)}{2} [n_1 - n_2] \quad (Eq. 23)$$

Where:

$n_{HAP,e}$ = moles of HAP emitted

$n_{HAP,1}$ = moles of HAP vapor in vessel at the initial pressure, as calculated using Equation 18 of this subpart

$n_{HAP,2}$ = moles of HAP vapor in vessel at the final pressure, as calculated using Equation 18 of this subpart

n_1 = initial number of moles of noncondensable gas in the vessel, as calculated using Equation 19 of this subpart

n_2 = final number of moles of noncondensable gas in the vessel, as calculated using Equation 19 of this subpart.

- (5) Use Equation 24 of this subpart to calculate the mass of HAP emitted:

$$E = n_{HAP,e} * MW_{HAP} \quad (Eq. 24)$$

Where:

E = mass of HAP emitted

$n_{HAP,e}$ = moles of HAP emitted, as calculated using Equation 23 of this subpart

MW_{HAP} = average molecular weight of the HAP as calculated using Equation 14 of this subpart

- (6) As an alternative to the procedures in paragraphs (c)(2)(i)(E)(1) through (5) of this section, emissions from depressurization may be calculated using Equation 25 of this subpart:

$$E = \frac{V}{(R)(T)} \times \ln \left(\frac{P_1 - \sum_{j=1}^m (P_j)}{P_2 - \sum_{j=1}^m (P_j)} \right) \times \sum_{i=1}^n (P_i) (MW_i) \quad (Eq. 25)$$

Where:

V = free volume in vessel being depressurized

R = ideal gas law constant

T = temperature of the vessel, absolute

P_1 = initial pressure in the vessel

P_2 = final pressure in the vessel

P_i = partial pressure of the individual HAP compounds

P_j = partial pressure of individual condensable VOC compounds (including HAP)

MW_i = molecular weight of the individual HAP compounds

n = number of HAP compounds in the emission stream

m = number of condensable VOC compounds (including HAP) in the emission stream

- (F) Vacuum systems. Calculate emissions from vacuum systems using Equation 26 of this subpart:

$$E = \frac{(MW_{HAP})(La)(t)}{MW_{nc}} \left(\frac{\sum_{i=1}^n P_i}{P_T - \sum_{j=1}^m P_j} \right) \quad (Eq. 26)$$

Where:

E = mass of HAP emitted

P_T = absolute pressure of receiving vessel or ejector outlet conditions, if there is no receiver

P_i = partial pressure of individual HAP at the receiver temperature or the ejector outlet conditions

P_j = partial pressure of individual condensable compounds (including HAP) at the receiver temperature or the ejector outlet conditions

La = total air leak rate in the system, mass/time

MW_{nc} = molecular weight of noncondensable gas

t = time of vacuum operation

MW_{HAP} = average molecular weight of HAP in the emission stream, as calculated using Equation 14 of this subpart, with HAP partial pressures calculated at the temperature of the receiver or ejector outlet, as appropriate

n = number of HAP components in the emission stream

m = number of condensable compounds (including HAP) in the emission stream.

- (G) Gas evolution. Emissions from gas evolution shall be calculated using Equation 10 of this subpart with V calculated using Equation 27 of this subpart:

$$V = \frac{(W_g)(R)(T)}{(P_T)(MW_g)} \quad (Eq. 27)$$

Where:

V = volumetric flow rate of gas evolution

W_g = mass flow rate of gas evolution

R = ideal gas law constant

T = temperature at the exit, absolute

P_T = vessel pressure

MW_g = molecular weight of the evolved gas

- (H) Air drying. Use Equation 28 of this subpart to calculate emissions from air drying:

$$E = B \times \left(\frac{PS_1}{100 - PS_1} - \frac{PS_2}{100 - PS_2} \right) \quad (Eq. 28)$$

Where:

E = mass of HAP emitted

B = mass of dry solids

PS₁ = HAP in material entering dryer, weight percent

PS₂ = HAP in material exiting dryer, weight percent.

- (ii) Engineering assessments. The owner or operator shall conduct an engineering assessment to determine uncontrolled HAP emissions for each emission episode that is not due to vapor displacement, purging, heating, depressurization, vacuum systems, gas evolution, or air drying. For a given emission episode caused by any of these seven types of activities, the owner or operator also may request approval to determine uncontrolled HAP emissions based on an engineering assessment. Except as specified in paragraph (c)(2)(ii)(A) of this section,

all data, assumptions, and procedures used in the engineering assessment shall be documented in the Precompliance plan in accordance with §63.1367(b). An engineering assessment includes, but is not limited to, the information and procedures described in paragraphs (c)(2)(ii)(A) through (D) of this section.

- (A) Test results, provided the tests are representative of current operating practices at the process unit. For process vents without variable emission stream characteristics, an engineering assessment based on the results of a previous test may be submitted in the Notification of Compliance Status report instead of the Precompliance plan. Results from a previous test of process vents with variable emission stream characteristics will be acceptable in place of values estimated using the procedures specified in paragraph (c)(2)(i) of this section if the test data show a greater than 20 percent discrepancy between the test value and the estimated value, and the results of the engineering assessment shall be included in the Notification of Compliance Status report. For other process vents with variable emission stream characteristics, engineering assessments based on the results of a previous test must be submitted in the Precompliance plan. For engineering assessments based on new tests, the owner or operator must comply with the test notification requirements in §63.1368(m), and the results of the engineering assessment may be submitted in the Notification of Compliance Status report rather than the Precompliance plan.
 - (B) Bench-scale or pilot-scale test data representative of the process under representative operating conditions.
 - (C) Maximum flow rate, HAP emission rate, concentration, or other relevant parameter specified or implied within a permit limit applicable to the process vent.
 - (D) Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples of analytical methods include, but are not limited to:
 - (1) Use of material balances based on process stoichiometry to estimate maximum organic HAP concentrations;
 - (2) Estimation of maximum flow rate based on physical equipment design such as pump or blower capacities; and
 - (3) Estimation of HAP concentrations based on saturation conditions.
- (3) Controlled emissions. Except for condensers, the owner or operator shall determine controlled emissions using the procedures in either paragraph (c)(3)(i) or (ii) of this section, as applicable. For condensers, controlled emissions shall be calculated using the emission estimation equations described in paragraph (c)(3)(iii) of this section. The owner or operator is not required to calculate controlled emissions from devices described in paragraph (a)(4) of this section or from flares for which compliance is demonstrated in accordance with paragraph (a)(3) of this section. If the owner or operator is complying with an outlet concentration standard and the control device uses supplemental gases, the outlet concentrations shall be corrected in accordance with the procedures described in paragraph (a)(7) of this section.
- (i) Small control devices, except condensers. Controlled emissions for each process vent that is controlled using a small control device, except for a condenser, shall be determined by using the design evaluation described in paragraph (c)(3)(i)(A) of this section, or by conducting a performance test in accordance with paragraph (c)(3)(ii) of this section.
 - (A) Design evaluation. The design evaluation shall include documentation demonstrating that the control device being used achieves the required control efficiency under absolute or hypothetical peak-case conditions, as determined from the emission profile described in paragraph (b)(11)(iii) of this section. The control efficiency determined from this design

evaluation shall be applied to uncontrolled emissions to estimate controlled emissions. The documentation must be conducted in accordance with the provisions in paragraph (a)(1) of this section. The design evaluation shall also include the value(s) and basis for the parameter(s) monitored under §63.1366.

- (B) Whenever a small control device becomes a large control device, the owner or operator must comply with the provisions in paragraph (c)(3)(ii) of this section and submit the test report in the next Periodic report.
- (ii) Large control devices, except condensers. Controlled emissions for each process vent that is controlled using a large control device, except for a condenser, shall be determined by applying the control efficiency of the large control device to the estimated uncontrolled emissions. The control efficiency shall be determined by conducting a performance test on the control device as described in paragraphs (c)(3)(ii)(A) through (C) of this section, or by using the results of a previous performance test as described in paragraph (c)(3)(ii)(D) of this section. If the control device is intended to control only HCl and chlorine, the owner or operator may assume the control efficiency of organic HAP is 0 percent. If the control device is intended to control only organic HAP, the owner or operator may assume the control efficiency for HCl and chlorine is 0 percent.
- (A) Performance test measurements shall be conducted at both the inlet and outlet of the control device for TOC, total organic HAP, and total HCl and chlorine, as applicable, using the test methods and procedures described in paragraph (b) of this section. Concentrations shall be calculated from the data obtained through emission testing according to the procedures in paragraph (a)(2) of this section.
- (B) Performance testing shall be conducted under absolute or hypothetical peak-case conditions, as defined in paragraphs (b)(11)(i) and (ii) of this section.
- (C) The owner or operator may elect to conduct more than one performance test on the control device for the purpose of establishing more than one operating condition at which the control device achieves the required control efficiency.
- (D) The owner or operator is not required to conduct a performance test for any control device for which a previous performance test was conducted, provided the test was conducted using the same procedures specified in paragraphs (b)(1) through (11) of this section over conditions typical of the absolute or hypothetical peak-case, as defined in paragraphs (b)(11)(i) and (ii) of this section. The results of the previous performance test shall be used to demonstrate compliance.
- (iii) Condensers. The owner or operator using a condenser as a control device shall determine controlled emissions for each batch emission episode according to the engineering methodology in paragraphs (c)(3)(iii)(A) through (G) of this section. The owner or operator must establish the maximum outlet gas temperature and calculate the controlled emissions using this temperature in the applicable equation. Individual HAP partial pressures shall be calculated as specified in paragraph (c)(2)(i) of this section.
- (A) Emissions from vapor displacement due to transfer of material to a vessel shall be calculated using Equation 9 of this subpart with T set equal to the temperature of the receiver and the HAP partial pressures determined at the temperature of the receiver.
- (B) Emissions from purging shall be calculated using Equation 10 of this subpart with T set equal to the temperature of the receiver and the HAP partial pressures determined at the temperature of the receiver.
- (C) Emissions from heating shall be calculated using Equation 29 of this subpart. In Equation 29 of this subpart, Δn is equal to the number of moles of noncondensable displaced from the

vessel, as calculated using Equation 12 of this subpart. In Equation 29 of this subpart, the HAP average molecular weight shall be calculated using Equation 14 with the HAP partial pressures determined at the temperature of the receiver.

$$E = \Delta\eta \times \frac{\sum_{i=1}^n P_i}{P_r - \sum_{j=1}^m P_j} \times MW_{HAP} \quad (\text{Eq. 29})$$

Where:

E=mass of HAP emitted

$\Delta\eta$ =moles of noncondensable gas displaced

P_r =pressure in the receiver

P_i =partial pressure of the individual HAP at the receiver temperature

P_j =partial pressure of the individual condensable VOC (including HAP) at the receiver temperature

n=number of HAP compounds in the emission stream

MW_{HAP} =the average molecular weight of HAP in vapor exiting the receiver, as calculated using Equation 14 of this subpart

m=number of condensable VOC (including HAP) in the emission stream

(D) (1) Emissions from depressurization shall be calculated using Equation 30 of this subpart.

$$E = (V_{nc1} - V_{nc2}) \times \frac{\sum_{i=1}^n (P_i)}{P_r - \sum_{j=1}^m (P_j)} \times \frac{P_r}{RT} \times MW_{HAP} \quad (\text{Eq. 30})$$

Where:

E=mass of HAP vapor emitted

V_{nc1} =initial volume of noncondensable in the vessel, corrected to the final pressure, as calculated using Equation 31 of this subpart

V_{nc2} =final volume of noncondensable in the vessel, as calculated using Equation 32 of this subpart

P_i =partial pressure of each individual HAP at the receiver temperature

P_j =partial pressure of each condensable VOC (including HAP) at the receiver temperature

P_r =receiver pressure

T=temperature of the receiver, absolute

R=ideal gas law constant

MW_{HAP} =the average molecular weight of HAP calculated using Equation 14 of this subpart with partial pressures determined at the receiver temperature

n=number of HAP compounds in the emission stream

m=number of condensable VOC (including HAP) in the emission stream

(2) The initial and final volumes of noncondensable gas present in the vessel, adjusted to the pressure of the receiver, are calculated using Equations 31 and 32 of this subpart.

$$V_{nc1} = \frac{VP_{nc1}}{P_r} \quad (\text{Eq. 31}) \quad V_{nc2} = \frac{VP_{nc2}}{P_r} \quad (\text{Eq. 32})$$

Where:

V_{nc1} =initial volume of noncondensable gas in the vessel

V_{nc2} =final volume of noncondensable gas in the vessel

V =free volume in the vessel being depressurized

P_{nc1} =initial partial pressure of the noncondensable gas, as calculated using Equation 33 of this subpart

P_{nc2} =final partial pressure of the noncondensable gas, as calculated using Equation 34 of this subpart

P_T =pressure of the receiver

- (3) Initial and final partial pressures of the noncondensable gas in the vessel are determined using Equations 33 and 34 of this subpart.

$$P_{nc1} = P_1 - \sum_{j=1}^m P_j \quad (\text{Eq. 33}) \quad P_{nc2} = P_2 - \sum_{j=1}^m P_j \quad (\text{Eq. 34})$$

Where:

P_{nc1} =initial partial pressure of the noncondensable gas in the vessel

P_{nc2} =final partial pressure of the noncondensable gas in the vessel

P_1 =initial vessel pressure

P_2 =final vessel pressure

P_j =partial pressure of each condensable VOC (including HAP) in the vessel

m =number of condensable VOC (including HAP) in the emission stream

- (E) Emissions from vacuum systems shall be calculated using Equation 26 of this subpart.
- (F) Emissions from gas evolution shall be calculated using Equation 8 with V calculated using Equation 27 of this subpart, T set equal to the receiver temperature, and the HAP partial pressures determined at the receiver temperature. The term for time, t , in Equation 10 of this subpart is not needed for the purposes of this calculation.
- (G) Emissions from air drying shall be calculated using Equation 9 of this subpart with V equal to the air flow rate and P_i determined at the receiver temperature.
- (d) Initial compliance with storage vessel provisions. The owner or operator of an existing or new affected source shall demonstrate initial compliance with the storage vessel standards in §63.1362(c)(2) through (4) by fulfilling the requirements in either paragraph (d)(1), (2), (3), (4), (5), or (6) of this section, as applicable. The owner or operator shall demonstrate initial compliance with the planned routine maintenance provision in §63.1362(c)(5) by fulfilling the requirements in paragraph (d)(7) of this section.
- (1) Percent reduction requirement for control devices. If the owner or operator equips a Group 1 storage vessel with a closed vent system and control device, the owner or operator shall demonstrate initial compliance with the percent reduction requirement of §63.1362(c)(2)(iv)(A) or (c)(3) either by calculating the efficiency of the control device using performance test data as specified in paragraph (d)(1)(i) of this section, or by preparing a design evaluation as specified in paragraph (d)(1)(ii) of this section.
- (i) Performance test option. If the owner or operator elects to demonstrate initial compliance based on performance test data, the efficiency of the control device shall be calculated as specified in paragraphs (d)(1)(i)(A) through (D) of this section.
- (A) At the reasonably expected maximum filling rate, Equations 35 and 36 of this subpart shall be used to calculate the mass rate of total organic HAP or TOC at the inlet and outlet of the control device.

$$E_i = K_2 \left(\sum_{j=1}^n C_{ij} M_{ij} \right) Q_i \quad (\text{Eq. 35})$$

$$E_o = K_2 \left(\sum_{j=1}^n C_{oj} M_{oj} \right) Q_o \quad (\text{Eq. 36})$$

Where:

C_{ij} , C_{oj} = concentration of sample component j of the gas stream at the inlet and outlet of the control device, respectively, dry basis, ppmv

E_i , E_o = mass rate of total organic HAP or TOC at the inlet and outlet of the control device, respectively, dry basis, kg/hr

M_{ij} , M_{oj} = molecular weight of sample component j of the gas stream at the inlet and outlet of the control device, respectively, g/gmole

Q_i , Q_o = flow rate of gas stream at the inlet and outlet of the control device, respectively, dscmm

K_2 = constant, $2.494 \times 10^{-6}(\text{parts per million})^{-1}(\text{gram-mole per standard cubic meter})$ (kilogram/gram) (minute/hour), where standard temperature is 20 °C.

- (B) The percent reduction in total organic HAP or TOC shall be calculated using Equation 37 of this subpart:

$$R = \frac{E_i - E_o}{E_i} (100) \quad (\text{Eq. 37})$$

Where:

R = control efficiency of control device, percent

E_i = mass rate of total organic HAP or TOC at the inlet to the control device as calculated under paragraph (d)(1)(i)(A) of this section, kilograms organic HAP per hour

E_o = mass rate of total organic HAP or TOC at the outlet of the control device, as calculated under paragraph (d)(1)(i)(A) of this section, kilograms organic HAP per hour.

- (C) A performance test is not required to be conducted if the control device used to comply with §63.1362(c) (storage tank provisions) is also used to comply with §63.1362(b) (process vent provisions), provided compliance with §63.1362(b) is demonstrated in accordance with paragraph (c) of this section and the demonstrated percent reduction is equal to or greater than 95 percent.
- (D) A performance test is not required for any control device for which a previous test was conducted, provided the test was conducted using the same procedures specified in paragraph (b) of this section.
- (ii) Design evaluation option. If the owner or operator elects to demonstrate initial compliance by conducting a design evaluation, the owner or operator shall prepare documentation in accordance with the design evaluation provisions in paragraph (a)(1) of this section, as applicable. The design evaluation shall demonstrate that the control device being used achieves the required control efficiency when the storage vessel is filled at the reasonably expected maximum filling rate.
- (2) Outlet concentration requirement for control devices. If the owner or operator equips a Group 1 storage vessel with a closed vent system and control device, the owner or operator shall demonstrate initial compliance with the outlet concentration requirements of §63.1362(c)(2)(iv)(B) or (c)(3) by fulfilling the requirements of paragraph (a)(6) of this section.

- (3) Floating roof. If the owner or operator equips a Group 1 storage vessel with a floating roof to comply with the provisions in §63.1362(c)(2) or (c)(3), the owner or operator shall demonstrate initial compliance by complying with the procedures described in paragraphs (d)(3)(i) and (ii) of this section.
 - (i) Comply with §63.119(b), (c), or (d) of subpart G of this part, as applicable, with the differences specified in §63.1362(d)(2)(i) through (iii).
 - (ii) Comply with the procedures described in §63.120(a), (b), or (c), as applicable, with the differences specified in paragraphs (d)(3)(ii)(A) through (C) of this section.
 - (A) When the term “storage vessel” is used in §63.120, the definition of the term “storage vessel” in §63.1361 shall apply for the purposes of this subpart.
 - (B) When the phrase “the compliance date specified in §63.100 of subpart F of this part” is referred to in §63.120, the phrase “the compliance date specified in §63.1364” shall apply for the purposes of this subpart.
 - (C) When the phrase “the maximum true vapor pressure of the total organic HAP in the stored liquid falls below the values defining Group 1 storage vessels specified in Table 5 or Table 6 of this subpart” is referred to in §63.120(b)(1)(iv), the phrase “the maximum true vapor pressure of the total organic HAP in the stored liquid falls below the values defining Group 1 storage vessels specified in §63.1361” shall apply for the purposes of this subpart.
- (4) Flares. If the owner or operator controls the emissions from a Group 1 storage vessel with a flare, initial compliance is demonstrated by fulfilling the requirements in paragraph (a)(3) of this section.
- (5) Exemptions from initial compliance. No initial compliance demonstration is required for control devices specified in paragraph (a)(4) of this section.
- (6) Initial compliance with alternative standard. If the owner or operator equips a Group 1 storage vessel with a closed-vent system and control device, the owner or operator shall demonstrate initial compliance with the alternative standard in §63.1362(c)(4) by fulfilling the requirements of paragraph (a)(5) of this section.
- (7) Planned routine maintenance. The owner or operator shall demonstrate initial compliance with the planned routine maintenance provisions of §63.1362(c)(5) by including the anticipated periods of planned routine maintenance for the first reporting period in the Notification of Compliance Status report as specified in §63.1368(f).
[45CSR34, 40CFR§63.1365 (Subpart MMM)]

4.4. Recordkeeping Requirements

- 4.4.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
 - a. The date, place as defined in this permit, and time of sampling or measurements;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analyses;
 - d. The analytical techniques or methods used;

- e. The results of the analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.
- 4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
- 4.4.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:
- a. The equipment involved.
 - b. Steps taken to minimize emissions during the event.
 - c. The duration of the event.
 - d. The estimated increase in emissions during the event.
- For each such case associated with an equipment malfunction, the additional information shall also be recorded:
- e. The cause of the malfunction.
 - f. Steps taken to correct the malfunction.
 - g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
- 4.4.4. For the purpose of demonstrating compliance with condition 4.1.2, the permittee shall maintain daily, monthly, and annual Larvin production records on a 12-month rolling basis.
- 4.4.5. For the purpose of demonstrating compliance with condition 4.2.1, the permittee shall maintain the following records for the fugitive air scrubber [A330]:
- a. The date, time, and duration if the low flow alarm monitoring device signals a flow less than 150 gpm; and
 - b. caustic solution concentration.
- 4.4.6. For the purpose of demonstrating compliance with conditions 4.2.2 and 4.2.3, the permittee shall maintain the following records for the back-up process flare [B330(7c)] and for the emergency flare [B330(7c(a))]:
- a. periods of operation during which the flare pilot flame is absent during the operation of the Larvin Process;
 - b. natural gas usage for the back-up process flare; and
 - c. vent gas hours that the back-up flare is used as a control device.
- 4.4.7. For the purpose of demonstrating compliance with condition 4.2.4, the permittee shall maintain

the following records for the baghouses (3c[A331] and 5c[A332]):

- a. material balances around the baghouses; and
- b. monthly press drop records across the baghouses.

4.4.8. For the purpose of demonstrating compliance with condition 4.2.5, the permittee shall maintain the following records for the PTO/Scrubber [B332/C332]:

- a. Records shall be kept of all periods of operation during with the PTO pilot flame is absent during the operation of the Larvin Process;
- b. Records shall be kept of natural gas usage for the PTO [B332];
- c. Records shall be maintained of the exit gas temperature; and
- d. Records shall be maintained of the liquor flow rate.

4.4.9. For the purpose of demonstrating compliance with condition 4.2.6, the permittee shall maintain continuous monitoring records of the process vent gas flow rate prior to being routed to the control device.

4.4.10. For the purpose of demonstrating compliance with the throughput condition 4.2.7, the permittee shall maintain monthly and annual throughput records for tanks T-37 and T-38.

4.4.11. The permittee shall maintain records of all monitoring data required by Section 4.1.12 of this permit documenting the date and time of each visible emission check, the emission point or equipment / source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6-10 mph NE wind) during the visual emission check(s). An example form is supplied as Appendix A. Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9. For an emission unit out of service during the normal monthly evaluation, the record of observation may note "out of service" (O/S) or equivalent.

4.4.12. To demonstrate compliance with the LDAR requirements in condition 4.1.15, the permittee shall maintain LDAR monitoring records in accordance with 40CFR§63.160, Subpart H.

4.4.13. Equipment Leaks: [Fugitive Emissions]
(g) Recordkeeping requirements.

(1) An owner or operator of more than one group of processes subject to the provisions of this section may comply with the recordkeeping requirements for the groups of processes in one recordkeeping system if the system identifies with each record the program being implemented (e.g., quarterly monitoring) for each type of equipment. All records and information required by this section shall be maintained in a manner that can be readily accessed at the plant site. This could include physically locating the records at the plant site or accessing the records from a central location by computer at the plant site.

(2) General recordkeeping. Except as provided in 40CFR§63.1363(g)(5), the following information pertaining to all equipment subject to the requirements in this section shall be recorded:

- (i) (A) A list of identification numbers for equipment (except instrumentation systems)

subject to the requirements of this section. Connectors, except those subject to 40CFR§63.1363(f), need not be individually identified if all connectors in a designated area or length of pipe subject to the provisions of this section are identified as a group, and the number of subject connectors is indicated. The list for each type of equipment shall be completed no later than the completion of the initial survey required for that component. The list of identification numbers shall be updated, if needed, to incorporate equipment changes within 15 calendar days of the completion of each monitoring survey for the type of equipment component monitored.

- (B) A schedule for monitoring connectors subject to the provisions of 40CFR§63.174(a) of subpart H of this part and valves subject to the provisions of 40CFR§63.1363(e)(4).
 - © Physical tagging of the equipment is not required to indicate that it is in organic HAP service. Equipment subject to the provisions of this section may be identified on a plant site plan, in log entries, or by other appropriate methods.
- (ii) (A) A list of identification numbers for equipment that the owner or operator elects to equip with a closed-vent system and control device, under the provisions of 40CFR§63.1363(c)(7) or 40CFR§63.164(h) or 40CFR§63.165(c) of subpart H of this part.
 - (B) A list of identification numbers for compressors that the owner or operator elects to designate as operating with an instrument reading of less than 500 parts per million above background, under the provisions of 40CFR§63.164(i) of subpart H of this part.
 - (iii) (A) A list of identification numbers for pressure relief devices subject to the provisions in 40CFR§63.165(a) of subpart H of this part.
 - (B) A list of identification numbers for pressure relief devices equipped with rupture disks, under the provisions of 40CFR§63.165(d) of subpart H of this part.
 - (iv) Identification of instrumentation systems subject to the provisions of this section. Individual components in an instrumentation system need not be identified.
 - (v) The following information shall be recorded for each dual mechanical seal system:
 - (A) Design criteria required by 40CFR§63.1363(c)(5)(vi)(A) and 40CFR§63.164(e)(2) of subpart H of this part, and an explanation of the design criteria; and
 - (B) Any changes to these criteria and the reasons for the changes.
 - (vi) A list of equipment designated as unsafe-to-monitor or difficult-to-monitor under 40CFR§63.1363(f) and a copy of the plan for monitoring this equipment.
 - (vii) A list of connectors removed from and added to the process, as described in 40CFR§63.174(i)(1) of subpart H of this part, and documentation of the integrity of the weld for any removed connectors, as required in 40CFR§63.174(j) of subpart H of this part. This is not required unless the net credits for removed connectors is expected to be used.
 - (viii) For batch processes that the owner or operator elects to monitor as provided under 40CFR§63.178© of subpart H of this part, a list of equipment added to batch product processes since the last monitoring period required in

40CFR§63.178©(3)(ii) and (iii) of subpart H of this part. This list must be completed for each type of equipment within 15 calendar days of the completion of the each monitoring survey for the type of equipment monitored.

- (3) Records of visual inspections. For visual inspections of equipment subject to the provisions of 40CFR§63.1363©(2)(iii) and ©(5)(iv), the owner or operator shall document that the inspection was conducted and the date of the inspection. The owner or operator shall maintain records as specified in paragraph (g)(4) of this section for leaking equipment identified in this inspection, except as provided in paragraph (g)(5) of this section. These records shall be retained for 5 years.
- (4) Monitoring records. When each leak is detected as specified in 40CFR§63.1363© and (e) and 40CFR§63.164, 63.169, 63.172, and 63.174 of subpart H of this part, the owner or operator shall record the information specified in paragraphs (g)(4)(i) through (ix) of this section. All records shall be retained for 5 years, in accordance with the requirements of 40CFR§63.10(b)(1) of subpart A of this part.
- (i) The instrument and the equipment identification number and the operator name, initials, or identification number.
 - (ii) The date the leak was detected and the date of first attempt to repair the leak.
 - (iii) The date of successful repair of the leak.
 - (iv) If postrepair monitoring is required, maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A, after it is successfully repaired or determined to be nonrepairable.
 - (v) ``Repair delayed'' and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - (A) The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup/shutdown/malfunction plan, required by 40CFR§63.1367(a), for the source or may be part of a separate document that is maintained at the plant site. Reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - (B) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked onsite before depletion and the reason for depletion.
 - (vi) If repairs were delayed, dates of process shutdowns that occur while the equipment is unrepaired.
 - (vii)(A) If the alternative in 40CFR§63.174(c)(1)(ii) of subpart H of this part is not in use for the monitoring period, identification, either by list, location (area or grouping), or tagging of connectors disturbed since the last monitoring period required in 40CFR§63.174(b) of subpart H of this part, as described in 40CFR§63.174(c)(1) of subpart H of this part.
 - (B) The date and results of follow-up monitoring as required in 40CFR§63.174(c) of subpart H of this part.
If identification of disturbed connectors is made by location, then all connectors within the designated location shall be monitored.
 - (viii) The date and results of the monitoring required in 40CFR§63.178(c)(3)(i) of subpart H of this part for equipment added to a batch process since the last monitoring period required in 40CFR§63.178(c)(3)(ii) and (iii) of subpart H of this part. If no leaking equipment is found in this monitoring, the owner or operator shall record that the inspection was performed. Records of the actual monitoring results are not required.

- (ix) Copies of the periodic reports as specified in 40CFR§63.1363(h)(3), if records are not maintained on a computerized data base capable of generating summary reports from the records.
- (5) Records of pressure tests. The owner or operator who elects to pressure test a process equipment train and supply lines between storage and processing areas to demonstrate compliance with this section is exempt from the requirements of paragraphs (g)(2), (3), (4), and (6) of this section. Instead, the owner or operator shall maintain records of the following information:
 - (i) The identification of each product, or product code, produced during the calendar year. It is not necessary to identify individual items of equipment in the process equipment train.
 - (ii) Records demonstrating the proportion of the time during the calendar year the equipment is in use in the process that is subject to the provisions of this subpart. Examples of suitable documentation are records of time in use for individual pieces of equipment or average time in use for the process unit. These records are not required if the owner or operator does not adjust monitoring frequency by the time in use, as provided in 40CFR§63.178(c)(3)(iii) of subpart H of this part.
 - (iii) Physical tagging of the equipment to identify that it is in organic HAP service and subject to the provisions of this section is not required. Equipment in a process subject to the provisions of this section may be identified on a plant site plan, in log entries, or by other appropriate methods.
 - (iv) The dates of each pressure test required in 40CFR§63.178(b) of subpart H of this part, the test pressure, and the pressure drop observed during the test.
 - (v) Records of any visible, audible, or olfactory evidence of fluid loss.
 - (vi) When a process equipment train does not pass two consecutive pressure tests, the following information shall be recorded in a log and kept for 2 years:
 - (A) The date of each pressure test and the date of each leak repair attempt.
 - (B) Repair methods applied in each attempt to repair the leak.
 - (C) The reason for the delay of repair.
 - (D) The expected date for delivery of the replacement equipment and the actual date of delivery of the replacement equipment.
 - (E) The date of successful repair.
- (6) Records of compressor and pressure relief valve compliance tests. The dates and results of each compliance test required for compressors subject to the provisions in 40CFR§63.164(i) of subpart H of this part and the dates and results of the monitoring following a pressure release for each pressure relief device subject to the provisions in 40CFR§63.165(a) and (b) of subpart H of this part. The results shall include:
 - (i) The background level measured during each compliance test.
 - (ii) The maximum instrument reading measured at each piece of equipment during each compliance test.
- (7) Records for closed-vent systems. The owner or operator shall maintain records of the information specified in 40CFR§63.1363(g)(7)(i) through (iii) for closed-vent systems and control devices subject to the provisions of 40CFR§63.1363(b)(3)(ii). The records specified in 40CFR§63.1363(g)(7)(i) shall be retained for the life of the equipment. The records specified in 40CFR§63.1363(g)(7)(ii) and (iii) shall be retained for 5 years.
 - (i) The design specifications and performance demonstrations specified in 40CFR§63.1363(g)(7)(i)(A) through (D).
 - (A) Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams.

- (B) The dates and descriptions of any changes in the design specifications.
 - (C) The flare design (i.e., steam assisted, air assisted, or nonassisted) and the results of the compliance demonstration required by 40CFR63.11(b) of subpart A of this part.
 - (D) A description of the parameter or parameters monitored, as required in 40CFR§63.1363(b)(3)(ii), 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.
- (ii) Records of operation of closed-vent systems and control devices.
- (A) Dates and durations when the closed-vent systems and control devices required in 40CFR§63.1363(c) and 40CFR§63.164 through 63.166 of subpart H of this part are not operated as designed as indicated by the monitored parameters, including periods when a flare pilot light system does not have a flame.
 - (B) Dates and durations during which the monitoring system or monitoring device is inoperative.
 - (C) Dates and durations of startups and shutdowns of control devices required in 40CFR§63.1363(c) and 40CFR§63.164 through 63.166 of subpart H of this part.
- (iii) Records of inspections of closed-vent systems subject to the provisions of 40CFR§63.172 of subpart H of this part.
- (A) For each inspection conducted in accordance with the provisions of 40CFR§63.172(f)(1) or (2) of subpart H of this part during which no leaks were detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.
 - (B) For each inspection conducted in accordance with the provisions of 40CFR§63.172(f)(1) or (f)(2) of subpart H of this part during which leaks were detected, the information specified in 40CFR§63.1363(g)(4) shall be recorded.
- (8) Records for components in heavy liquid service. Information, data, and analysis used to determine that a piece of equipment or process is in heavy liquid service shall be recorded. Such a determination shall include an analysis or demonstration that the process fluids do not meet the criteria of "in light liquid or gas/vapor service." Examples of information that could document this include, but are not limited to, "records of chemicals purchased for the process, analyses of process stream composition, engineering calculations, or process knowledge.
- (9) Records of exempt components. Identification, either by list, location (area or group), or other method of equipment in organic HAP service less than 300 hr/yr subject to the provisions of this section.
- (10) Records of alternative means of compliance determination. Owners and operators choosing to comply with the requirements of 40CFR§63.179 of subpart H of this part shall maintain the following records:
- (i) Identification of the process(es) and the organic HAP they handle.
 - (ii) A schematic of the process, enclosure, and closed-vent system.
 - (iii) A description of the system used to create a negative pressure in the enclosure to ensure that all emissions are routed to the control device.
- [45CSR34, 40CFR§63.1363(g) (Subpart MMM)]**
- 4.4.14. (a) Requirements of subpart A of this part. The owner or operator of an affected source shall comply with the recordkeeping requirements in subpart A of this part as specified in Subpart MMM, Table 1 and in 40CFR§63.1367(a)(1) through (5).

- (1) Data retention. Each owner or operator of an affected source shall keep copies of all

records and reports required by this subpart for at least 5 years, as specified in 40CFR§63.10(b)(1) of subpart A of this part.

(3) Startup, shutdown, and malfunction plan. The owner or operator of an affected source shall develop and implement a written startup, shutdown, and malfunction plan as specified in 40CFR§63.6(e)(3) of subpart A of this part. This plan shall describe, in detail, procedures for operating and maintaining the affected source during periods of startup, shutdown, and malfunction and a program for corrective action for a malfunctioning process, air pollution control, and monitoring equipment used to comply with this subpart. The owner or operator of an affected source shall keep the current and superseded versions of this plan onsite, as specified in 40CFR§63.6(e)(3)(v) of subpart A of this part. The owner or operator shall keep the startup, shutdown, and malfunction records specified in 40CFR§63.1367(a)(3)(i) through (iii). Reports related to the plan shall be submitted as specified in 40CFR§63.1368(i).

(i) The owner or operator shall record the occurrence and duration of each malfunction of the process operations or of air pollution control equipment used to comply with this subpart, as specified in 40CFR§63.6(e)(3)(iii).

(ii) The owner or operator shall record the occurrence and duration of each malfunction of continuous monitoring systems used to comply with this subpart.

(iii) For each startup, shutdown, or malfunction, the owner or operator shall record all information necessary to demonstrate that the procedures specified in the affected source's startup, shutdown, and malfunction plan were followed, as specified in 40CFR§63.6(e)(3)(iii) of subpart A of this part; alternatively, the owner or operator shall record any actions taken that are not consistent with the plan, as specified in 40CFR§63.6(e)(3)(iv) of subpart A of this part.

(4) Recordkeeping requirements for sources with continuous monitoring systems. The owner or operator of an affected source who installs a continuous monitoring system to comply with the alternative standards in §63.1362(b)(6) or (c)(4) shall maintain records specified in §63.10(c)(1) through (14) of subpart A of this part.

(b) Records of equipment operation. The owner or operator must keep the records specified in 40CFR§63.1367(b)(1), (6), (7), and (10) up-to-date and readily accessible.

(1) Each measurement of a control device operating parameter monitored in accordance with 40CFR§63.1366 and each measurement of a treatment process parameter monitored in accordance with the provisions of 40CFR63.1362(d).

(6) The owner or operator of an affected source that complies with the standards for process vents, storage tanks, and wastewater systems shall maintain up-to-date, readily accessible records of the information specified in 40CFR§63.1367(b)(6)(i) through (vii) to document that HAP emissions or HAP loadings (for wastewater) are below the limits specified in 40CFR§63.1362:

(i) Except as specified in 40CFR§63.1367(b)(6)(ix), the initial calculations of uncontrolled and controlled emissions of gaseous organic HAP and HCl per batch for each process.

(ii) The wastewater concentrations and flow rates per POD and process.

(iii) The number of batches per year for each batch process.

(iv) The operating hours per year for continuous processes.

(v) The number of batches and the number of operating hours for processes that contain both batch and continuous operations.

- (vi) The number of tank turnovers per year, if used in an emissions average or for determining applicability of a new PAI process unit.
 - (vii) A description of absolute or hypothetical peak-case operating conditions as determined using the procedures in 40CFR§63.1365(b)(11).
 - (viii) Periods of planned routine maintenance as described in 40CFR§63.1362(c)(5).
 - (ix) As an alternative to the records in 40CFR§63.1367(b)(6)(i), a record of the determination that the conditions in 40CFR63.1365(b)(11)(iii)(D)(1) or (2) are met.
- (7) Daily schedule or log of each operating scenario updated daily or, at a minimum, each time a different operating scenario is put into operation.
- (10) All maintenance performed on the air pollution control equipment.
- (c) Records of equipment leak detection and repair. The owner or operator of an affected source subject to the equipment leak standards in 40CFR§63.1363 shall implement the recordkeeping requirements specified in 40CFR§63.1363(g). All records shall be retained for a period of 5 years, in accordance with the requirements of 40CFR§63.10(b)(1) of subpart A of this part.
- (f) Records of inspections. The owner or operator shall keep records specified in 40CFR§63.1367(f)(1) through (6).
- (1) Records identifying all parts of the vapor collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as unsafe to inspect in accordance with 40CFR§63.1366(h)(6), an explanation of why the equipment is unsafe-to-inspect, and the plan for inspecting the equipment.
 - (2) Records identifying all parts of the vapor collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as difficult-to-inspect in accordance with 40CFR§63.1366(h)(7), an explanation of why the equipment is difficult-to-inspect, and the plan for inspecting the equipment.
 - (3) For each vapor collection system or closed-vent system that contains bypass lines that could divert a vent stream away from the control device and to the atmosphere, the owner or operator shall keep a record of the information specified in either 40CFR§63.1367(f)(3)(i) or (ii) of this section.
 - (i) Hourly records of whether the flow indicator specified under 40CFR§63.1362(j)(1) was operating and whether a diversion was detected at any time during the hour, as well as records of the times and durations of all periods when the vent stream is diverted from the control device or the flow indicator is not operating.
 - (ii) Where a seal mechanism is used to comply with 40CFR§63.1362(j)(2), hourly records of flow are not required. In such cases, the owner or operator shall record that the monthly visual inspection of the seals or closure mechanisms has been done and shall record the occurrence of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and key type lock has been checked out, and records of any car-seal that has broken.
 - (4) For each inspection conducted in accordance with 40CFR§63.1366(h)(2) and (3) during which a leak is detected, a record of the information specified in 40CFR§63.1367(f)(4)(i) through (ix).
 - (i) Identification of the leaking equipment.
 - (ii) The instrument identification numbers and operator name or initials, if the leak was detected using the procedures described in 40CFR§63.1366(h)(3); or a record of that the leak was detected by sensory observations.
 - (iii) The date the leak was detected and the date of the first attempt to repair the leak.

- (iv) Maximum instrument reading measured by the method specified in 40CFR§63.1366(h)(4) after the leak is successfully repaired or determined to be nonrepairable.
 - (v) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - (vi) The name, initials, or other form of identification of the owner or operator (or designee) whose decision it was that repair could not be effected without a shutdown.
 - (vii) The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.
 - (viii) Dates of shutdowns that occur while the equipment is unrepaired.
 - (ix) The date of successful repair of the leak.
- (5) For each inspection conducted in accordance with 40CFR§63.1366(h)(3) 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.
- (6) For each visual inspection conducted in accordance with 40CFR§63.1366(h)(2)(i)(B) or (iii)(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.
- (g) Records of primary use. For a PAI process unit that is used to produce a given material for use as a PAI as well as for other purposes, the owner or operator shall keep records of the total production and the production for use as a PAI on a semiannual or more frequent basis if the use as a PAI is not the primary use.
- [45CSR34, 40CFR§63.1367 (Subpart MMM)]**

4.5. Reporting Requirements

- 4.5.1. Any violation(s) of the allowable visible emission requirement for any emission source discovered during observation using 40CFR Part 60, Appendix A, Method 9 must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
- 4.5.2. Reports of excess emissions. -- Except as provided in condition 4.5.3, the owner or operator of any facility containing sources subject to 45CSR§21-5 shall, for each occurrence of excess emissions expected to last more than 7 days, within 1 business day of becoming aware of such occurrence, supply the Director by letter with the following information:
- a. The name and location of the facility;
 - b. The subject sources that caused the excess emissions;
 - c. The time and date of first observation of the excess emissions; and
 - d. The cause and expected duration of the excess emissions.
 - e. For sources subject to numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and

- f. The proposed corrective actions and schedule to correct the conditions causing the excess emissions.

[CO-R21-97-4 (Condition III.3) and 45CSR§21-5.2]

- 4.5.3. Variance. -- If the provisions of this regulation cannot be satisfied due to repairs made as the result of routine maintenance or in response to the unavoidable malfunction of equipment, the Director may permit the owner or operator of a source subject to this regulation to continue to operate said source for periods not to exceed 10 days upon specific application to the Director. Such application shall be made prior to the making of repairs and, in the case of equipment malfunction, within 24 hours of the equipment malfunction. Where repairs will take in excess of 10 days to complete, additional time periods may be granted by the Director. In cases of major equipment failure, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director. During such time periods, the owner or operator shall take all reasonable and practicable steps to minimize VOC emissions.
[CO-R21-97-4 (Condition III.3) and 45CSR§21-9.3]

- 4.5.4. Equipment Leaks: [fugitive emissions]

(h) Reporting Requirements.

- (1) Each owner or operator of a source subject to this section shall submit the reports listed in 40CFR§63.1363(h)(1)(i) and (ii).

- (i) A Notification of Compliance Status report described in 40CFR§63.1363(h)(2), and
(ii) Periodic reports described in 40CFR§63.1363(h)(3).

- (2) Notification of compliance status report. Each owner or operator of a source subject to this section shall submit the information specified in 40CFR§63.1363(h)(2)(i) through (iii) in the Notification of Compliance Status report described in 40CFR§63.1368(f). §63.9(j) of subpart A of this part shall not apply to the Notification of Compliance Status report.

- (i) The notification shall provide the information listed in 40CFR§63.1363(h)(2)(i)(A) through (C) for each group of processes subject to the requirements of 40CFR§63.1363(b) through (g).

- (A) Identification of the group of processes.
(B) Approximate number of each equipment type (e.g., valves, pumps) in organic HAP service, excluding equipment in vacuum service.
(C) Method of compliance with the standard (for example, "monthly leak detection and repair" or "equipped with dual mechanical seals").

- (ii) The notification shall provide the information listed in 40CFR§63.1363(h)(2)(ii)(A) and (B) for each process subject to the requirements of 40CFR§63.1363(b)(3)(iv) of this section and 40CFR§63.178(b) of subpart H of this part.

- (A) Products or product codes subject to the provisions of this section, and
(B) Planned schedule for pressure testing when equipment is configured for production of products subject to the provisions of this section.

- (iii) The notification shall provide the information listed in 40CFR§63.1363(h)(2)(iii)(A) and (B) for each process subject to the requirements in 40CFR§63.179 of subpart H of this part.

- (A) Process identification.
(B) A description of the system used to create a negative pressure in the enclosure and

the control device used to comply with the requirements of 40CFR§63.1363(b)(3)(ii).

- (3) Periodic reports. The owner or operator of a source subject to this section shall submit Periodic reports.
- (i) A report containing the information in 40CFR§63.1363(h)(3)(ii), (iii), and (iv) shall be submitted semiannually. The first Periodic report shall be submitted no later than 240 days after the date the Notification of Compliance Status report is due and shall cover the 6-month period beginning on the date the Notification of Compliance Status report is due. Each subsequent Periodic report shall cover the 6-month period following the preceding period.
- (ii) For equipment complying with the provisions of 40CFR§63.1363(b) through (g), the Periodic report shall contain the summary information listed in 40CFR§63.1363(h)(3)(ii)(A) through (L) for each monitoring period during the 6-month period.
- (A) The number of valves for which leaks were detected as described in 40CFR§63.1363(e)(2), the percent leakers, and the total number of valves monitored;
- (B) The number of valves for which leaks were not repaired as required in 40CFR§63.1363(e)(7), identifying the number of those that are determined nonrepairable;
- (C) The number of pumps and agitators for which leaks were detected as described in 40CFR§63.1363(c)(2), the percent leakers, and the total number of pumps and agitators monitored;
- (D) The number of pumps and agitators for which leaks were not repaired as required in 40CFR§63.1363(c)(3);
- (E) The number of compressors for which leaks were detected as described in 40CFR§63.164(f) of subpart H of this part;
- (F) The number of compressors for which leaks were not repaired as required in 40CFR§63.164(g) of subpart H of this part;
- (G) The number of connectors for which leaks were detected as described in 40CFR§63.174(a) of subpart H of this part, the percent of connectors leaking, and the total number of connectors monitored;
- (H) The number of connectors for which leaks were not repaired as required in 40CFR§63.174(d) of subpart H of this part, identifying the number of those that are determined nonrepairable;
- (I) The facts that explain any delay of repairs and, where appropriate, why a process shutdown was technically infeasible.
- (J) The results of all monitoring to show compliance with 40CFR§63.164(i), 63.165(a), and 63.172(f) of subpart H of this part conducted within the semiannual reporting period.
- (K) If applicable, the initiation of a monthly monitoring program under either 40CFR§63.1363(c)(4)(ii) or 40CFR§63.1363(e)(4)(i)(A).
- (L) If applicable, notification of a change in connector monitoring alternatives as described in 40CFR§63.174(c)(1) of subpart H of this part.
- (iii) For owners or operators electing to meet the requirements of 40CFR§63.178(b) of subpart H of this part, the Periodic report shall include the information listed in 40CFR§63.1363(h)(3)(iii) (A) through (E) for each process.
- (A) Product process equipment train identification;
- (B) The number of pressure tests conducted;
- (C) The number of pressure tests where the equipment train failed either the retest or two consecutive pressure tests;

- (D) The facts that explain any delay of repairs; and
- (E) The results of all monitoring to determine compliance with 40CFR§63.172(f) of subpart H of this part.

(iv) Any change in the information submitted under 40CFR§63.1363(h)(2) shall be provided in the next Periodic report.

[45CSR34, 40CFR§63.1363(h) (Subpart MMM)]

4.5.5. (a) The owner or operator of an affected source shall comply with the reporting requirements of 40CFR§63.1368(b) through (l). The owner or operator shall also comply with applicable paragraphs of 40CFR§63.9 and 63.10 of subpart A of this part, as specified in Subpart MMM, Table 1.

(g) Periodic reports. The owner or operator shall prepare Periodic reports in accordance with 40CFR§63.1368(g)(1) and (2) and submit them to the Administrator.

(1) Submittal schedule. Except as provided in 40CFR§63.1368(g)(1)(i) and (ii), the owner or operator shall submit Periodic reports semiannually. The first report shall be submitted no later than 240 days after the date the Notification of Compliance Status report is due and shall cover the 6-month period beginning on the date the Notification of Compliance Status report is due. Each subsequent Periodic report shall cover the 6-month period following the preceding period and shall be submitted no later than 60 days after the end of the applicable period.

(i) The Administrator may determine on a case-by-case basis that more frequent reporting is necessary to accurately assess the compliance status of the affected source.

(ii) Quarterly reports shall be submitted when the monitoring data are used to comply with the alternative standards in 40CFR§63.1362(b)(6) or (c)(4) and the source experiences excess emissions. Once an affected source reports excess emissions, the affected source shall follow a quarterly reporting format until a request to reduce reporting frequency is approved. If an owner or operator submits a request to reduce the frequency of reporting, the provisions in 40CFR§63.10(e)(3) (ii) and (iii) of subpart A of this part shall apply, except that the term "excess emissions and continuous monitoring system performance report and/or summary report" shall mean "Periodic report" for the purposes of this section.

(2) Content of periodic report. The owner or operator shall include the information in 40CFR§63.1368(g)(2)(i) through (xii), as applicable.

(i) Each Periodic report must include the information in 40CFR §63.10(e)(3)(vi)(A) through (M) of subpart A of this part, as applicable.

(ii) If the total duration of excess emissions, parameter exceedances, or excursions for the reporting period is 1 percent or greater of the total operating time for the reporting period, or the total continuous monitoring system downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the Periodic report must include the information in 40CFR§63.1368(g)(2)(ii)(A) through (D).

(A) Monitoring data, including 15-minute monitoring values as well as daily average values of monitored parameters, for all operating days when the average values were outside the ranges established in the Notification of Compliance Status report or operating permit.

(B) Duration of excursions, as defined in 40CFR§63.1366(b)(7).

- (C) Operating logs and operating scenarios for all operating days when the values are outside the levels established in the Notification of Compliance Status report or operating permit.
 - (iii) For each vapor collection system or closed vent system with a bypass line subject to 40CFR§63.1362(j)(1), records required under 40CFR§63.1366(f) of all periods when the vent stream is diverted from the control device through a bypass line. For each vapor collection system or closed vent system with a bypass line subject to 40CFR§63.1362(j)(2), records required under 40CFR§63.1366(f) of all periods in which the seal mechanism is broken, the bypass valve position has changed, or the key to unlock the bypass line valve was checked out.
 - (iv) The information in 40CFR§63.1368(g)(2)(iv)(A) through (D) shall be stated in the Periodic report, when applicable.
 - (A) No excess emissions.
 - (B) No exceedances of a parameter.
 - (C) No excursions.
 - (D) No continuous monitoring system has been inoperative, out of control, repaired, or adjusted.
 - (v) For each storage vessel subject to control requirements:
 - (A) Actual periods of planned routine maintenance during the reporting period in which the control device does not meet the specifications of 40CFR§63.1362(c)(5); and
 - (B) Anticipated periods of planned routine maintenance for the next reporting period.
 - (vi) For each PAI process unit that does not meet the definition of primary use, the percentage of the production in the reporting period produced for use as a PAI.
 - (viii) Updates to the corrective action plan.
 - (ix) Records of process units added to each process unit group, if applicable.
 - (x) Records of redetermination of the primary product for a process unit group.
 - (xi) For each inspection conducted in accordance with 40CFR§63.1366(h)(2) or (3) during which a leak is detected, the records specify in 40CFR§63.1367(h)(4) must be included in the next Periodic report.
 - (xii) If the owner or operator elects to comply with the provisions of 40CFR§63.1362(c) by installing a floating roof, the owner or operator shall submit the information specified in 40CFR§63.122(d) through (f) as applicable. References to 40CFR§63.152 in 40CFR§63.122 shall not apply for the purposes of this subpart.
- (h) Notification of process change.
- (1) Except as specified in 40CFR§63.1368(h)(2), whenever a process change is made, or any of the information submitted in the Notification of Compliance Status report changes, the owner or operator shall submit the information specified in 40CFR§63.1368(h)(1)(i) through (iv) with the next Periodic report required under 40CFR§63.1368(g). For the purposes of this section, a process change means the startup of a new process, as defined in 40CFR§63.1361.

- (i) A brief description of the process change;
 - (ii) A description of any modifications to standard procedures or quality assurance procedures;
 - (iii) Revisions to any of the information reported in the original Notification of Compliance Status report under 40CFR§63.1368(f); and
 - (iv) Information required by the Notification of Compliance Status report under 40CFR§63.1368(f) for changes involving the addition of processes or equipment.
- (2) The owner or operator must submit a report 60 days before the scheduled implementation date of either of the following:
- (i) Any change in the activity covered by the Precompliance report.
 - (ii) A change in the status of a control device from small to large.
- (i) Reports of startup, shutdown, and malfunction. For the purposes of this subpart, the startup, shutdown, and malfunction reports shall be submitted on the same schedule as the Periodic reports required under paragraph (g) of this section instead of the schedule specified in 40CFR§63.10(d)(5)(i) of subpart A of this part. These reports shall include the information specified in 40CFR§63.1367(a)(3)(i) through (iii) and shall contain the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy. Reports are only required if a startup, shutdown, or malfunction occurred during the reporting period. Any time an owner or operator takes an action that is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall submit an immediate startup, shutdown, and malfunction report as specified in 40CFR§63.10(d)(5)(ii) of subpart A of this part.
- (j) Reports of equipment leaks. The owner or operator of an affected source subject to the standards in 40CFR§63.1363, shall implement the reporting requirements specified in 40CFR§63.1363(h). Copies of all reports shall be retained as records for a period of 5 years, in accordance with the requirements of 40CFR§63.10(b)(1) of subpart A of this part.
- (l) Reports of heat exchange systems. The owner or operator of an affected source subject to the requirements for heat exchange systems in 40CFR§63.1362(f) shall submit information about any delay of repairs as specified in 40CFR§63.104(f)(2) of subpart F of this part, except that when the phrase "periodic reports required by 40CFR§63.152(c) of subpart G of this part" is referred to in 40CFR§63.104(f)(2) of subpart F of this part, the periodic reports required in 40CFR§63.1368(g) shall apply for the purposes of this subpart.
- m) Notification of performance test and test Plan. The owner or operator of an affected source shall notify the Administrator of the planned date of a performance test at least 60 days before the test in accordance with §63.7(b) of subpart A of this part. The owner or operator also must submit the test Plan required by §63.7(c) of subpart A of this part and the emission profile required by §63.1365(b)(11)(iii) with the notification of the performance test.
- [45CSR34, 40CFR§63.1368 (Subpart MMM)]**

APPENDIX A

**Weekly/Monthly/Quarterly Opacity Record
Bayer Crop Science; Institute Facility
Plant ID No. 039-00007; Permit No. R13-0641A**

Date of Observation: _____

Date Entered by: _____

Reviewed by: _____

Date Reviewed: _____

Describe the General Weather Conditions:

Stack ID / Vent ID / Emission Point ID	
Stack / Vent / Emission Point Description	
Time of Observation	
Visible Emissions? Yes / No	
Consecutive Months of Visible Emissions	
Comments	

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹ _____
(please use blue ink) Responsible Official or Authorized Representative Date

Name & Title _____
(please print or type) Name Title

Telephone No. _____ Fax No. _____

¹ This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.