SOCMA/ACC Conference

Miscellaneous Organic NESHAP (MON)
Compliance Overview

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Office of Compliance

National Emission Standards for Miscellaneous Organic Chemical Manufacturing

1.0 Initial Compliance Determination

Overview of Initial Compliance

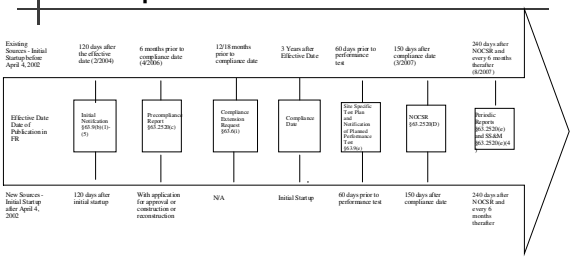
- Determine affected streams and group status
  - Batch Vents (per §63.1257(D)(2)(i) & (ii))
  - Continuous Vents (per §63.115(d))
  - Halogenated Vents (per §63.115(d)(2)(v)
- Conduct design evaluation (small devices or any size hydrogen halide or halogen HAP device) or performance test (large devices)
- Demonstration
  - Worst-case conditions for process vents
  - Representative conditions for wastewater treatment units and vent control devices
  - Establish monitoring parameter levels

(Continued)

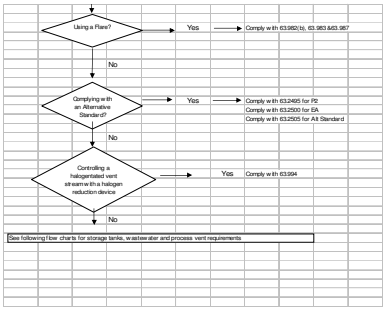
Overview of Initial Compliance

- Typically, calculate uncontrolled emissions from each process vent (batch only)
- Initial inspections for emissions suppression devices (e.g., covers, roofs, closed-vent systems)
- For condensers, may use provisions of 63.1257(d)(3)(i)(B)
- For P2, calculate and demonstrate target annual HAP and VOC factors (35% of baseline level)
- For Emissions Averaging, demonstrate debits and credits under representative operating conditions

Compliance Timeline



Options for Process Vents, Storage Tanks, and Wastewater Vents, and Transfer Racks



Initial Compliance for Flares

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- Flares (§63.987 & §63.11(b))
  - Initial Assessment
    - VE
    - Net Heating Value
    - Actual Exit velocity
    - Presence of operating flame or pilot monitors
- Closed Vent System (§63.983)
  - Install Flow indicator
  - Secure Bypass line
  - Conduct Initial Inspection via Me 21

Halogenated Streams and PM HAP

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- Halogenated Streams ≥ 1000#/yr
  - Performance Test per §63.997 or design evaluation per §63.1257(a)(1)
- PM HAP ≥ 400#/yr
  - For new sources only– performance test using Me 5 of Appendix A of 40 CFR part 60

Initial Compliance with Alternative Standard

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- Meet §63.1258(b)(5)(i) on compliance date
- Install CEM on stack for:
  - TOC
  - HCl
    - FTIR or
    - Alternative with approved monitoring plan per §63.8

(Continued)

Initial Compliance Demonstration for Alternative Standard

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- Meet §63.983 for CVS
- Install, calibrate and operate flow monitor per §63.2460(c)(7), if flow intermittent
- If complying with 95% hydrogen halide and halogen reduction:
  - Install and operate CPMS for scrubber per §63.2450(k)
  - Conduct performance test and set limits per §63.994
  - Submit results of initial compliance determination in NOCSR

Periodic Verification for Control Devices Controlling < 1 tpy

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- Establish operating limits for parameters to measure that verify proper operation
- Submit rationale in Precompliance Report
- Measure and record once per averaging period (daily or block)
- If not measured continuously, request approval in the Precompliance Report

Requirements for Batch Process Vents

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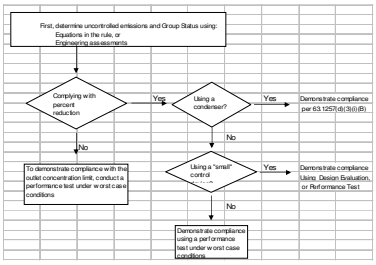

Requirements for Continuous Process Vents

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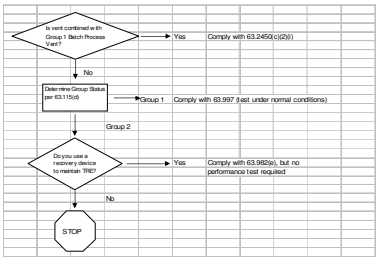

Requirements for Group 1 Storage Tanks and Transfer Racks

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Standard	Initial Compliance Requirements
1. Vapor balancing	▪ Use §63.1253(f), except 95% reduction ▪ Pressure relief setting ≥2.5 psig on the storage tank ▪ Certification from offsite cleaning/reloading facility of compliance with the standard ▪ Records of DOT certification of tank trucks and railcars
2. Percent reduction 0r outlet concentration	▪ Conduct performance test or design evaluation at the reasonably expected maximum filling rate ▪ A test for process vents may be used to demonstrate compliance
3. Flare	▪ Use 40 CFR subpart SS, §63.983(CVS) & §63.987(flare)
4. Floating roof (vapor pressure <76.6 Kpa) (Not for Transfer Racks)	▪ Use design and inspection requirements in 40 CFR part 63, subpart WW
5. Fuel Gas System or Process	▪ Use 40 CFR subpart SS, §63.982(d)

Initial Compliance for Storage Tanks and Transfer Racks

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- If Routed to FGS, no initial determination
- If Routed to Process
  - Initial assessment to demonstrate that regulated material meets one of conditions at §63.984(b)(2)

Initial Requirements for Wastewater Treatment

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- Either a design evaluation or a performance test is required for nonbiological treatment processes and for closed biological treatment processes
- A performance test is required for open biological treatment processes
- Offsite Management and Treatment Certification
  - RCRA Treatment needs no certification
  - Table 9 HAP streams
  - Treat in compliance with HON requirements
- These treatment units are exempt from either performance tests or design evaluation;
  - ➔ RCRA waste management units
  - ➔ Enhanced biological treatment units
  - ➔ Design Steam Stripper

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- **2.0 Design Evaluations, Performance Tests, and Engineering Assessments**

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Engineering Assessments

- Non-standard procedures and methods used to calculate uncontrolled emissions, or to define process vents
- Engineering assessments require preapproval via the precompliance report
- Examples
  - Use of previous test results, bench-scale or pilot-scale test data
  - Use of flow rates or HAP emission rates implied within a permit limit
  - Design information such as material balances, design flow rates, or concentration estimates

Test and Design Evaluation Conditions for Control Devices Used for Batch Process Vents

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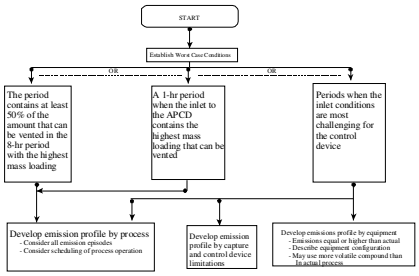

Emission Profile

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- By process
  - Most difficult; must consider all emission episodes that can vent to the control device in any given hour (see example – 53 lbs/hr)
- By equipment
  - Based on the limitations of the equipment; finding the highest emitting equipment, like a dryer, and using the most volatile HAP even though this operation is not currently conducted to conduct a test
- By limitations of the capture and conveyance system
  - Example: testing at the set point limits for bypasses or at the maximum flow based on the fan

Design Evaluation Requirements – Combustion Devices

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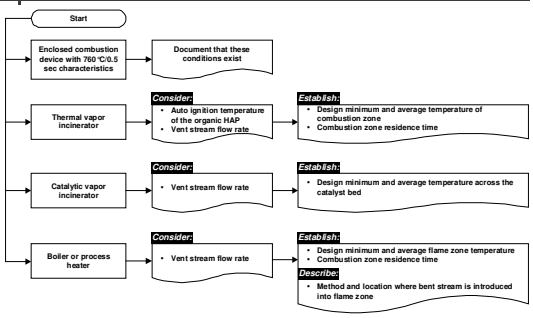

Design Evaluation Requirements – Non-Combustion Devices

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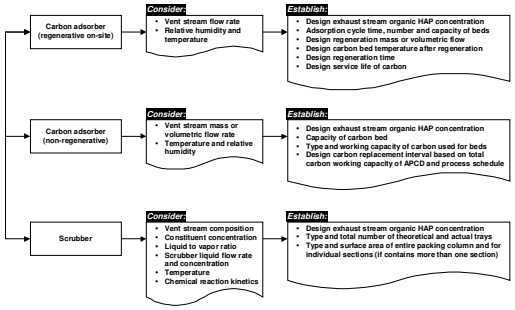

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National Emission Standards for Miscellaneous Organic Chemical Production

3.0 Ongoing Compliance Determination

Overview of Ongoing Compliance Requirements

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- CPMS per subpart SS
- Continuously monitor (15-minute) for all control devices with loads >1 tpy
- Daily (24-hour) or block averaging periods for control devices
- Develop a demonstration strategy for devices <1 tpy; submit in Precompliance report
- Periodic inspections of waste management unit suppression devices and floating roofs
- For waste treatment units: parameter monitoring at frequency specified by permitting authority
- For P2, calculate annual rolling average values of HAP and VOC target annual factors
- For Emissions Averaging, calculate quarterly and annual credits and debits under actual operating conditions

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Establish Operating Limits

- Establish per initial compliance demonstration, or
- Establish for other conditions (submit for approval in Precompliance report)
- May establish separate levels for different emissions episodes
- Correct for supplemental gases

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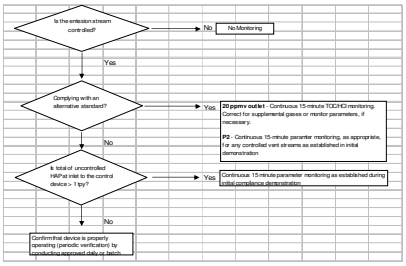
Monitoring for Vent Streams



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Overview of Monitoring Requirements for Control Devices

Control device	Monitoring equipment required	Parameters to be monitored	Frequency
Boiler or process heater <44 megawatts and vent stream is not mixed with the primary fuel	Temperature monitoring device installed in firebox	Combustion temperature	Every 15 minutes
Condenser	Temperature monitoring device installed at condenser exit	Condenser exit (product side) temperature	Every 15 minutes
Carbon adsorber (nonregenerative)	None	Operating time since last replacement	N/A
Carbon adsorber (regenerative)	Stream flow monitoring device, and Carbon bed temperature monitoring device	1. Total regeneration stream mass or volumetric flow during carbon bed regeneration cycle(s) 2. Temperature of carbon bed after regeneration 3. Temperature of carbon bed within 15 minutes of completing any cooling cycle(s) 4. Operating time since end of last regeneration 5. Check for bed poisoning	1. For each regeneration cycle, record the total regeneration stream mass or volumetric flow 2. For each regeneration cycle, record the maximum carbon bed temperature 3. Within 15 minutes of completing any cooling cycle, record the carbon bed temperature 4. Operating time to be based on worst-case conditions 5. Yearly
Flare	Heat sensing device installed at the pilot light	Presence of a flame at the pilot light	Every 15 minutes

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Overview of Monitoring Requirements for Control Devices

Control device	Monitoring equipment required	Parameters to be monitored	Frequency
Scrubber	Liquid flow rate or pressure drop monitoring device. Also a pH monitor if the scrubber is used to control acid emissions	1. Liquid flow rate into or out of the scrubber or the pressure drop across the scrubber 2. pH of effluent scrubber liquid	Every 15 minutes Once a day
Thermal incinerator	Temperature monitoring device installed in firebox or in ductwork immediately downstream of firebox	Firebox temperature	Every 15 minutes
Catalytic incinerator	Temperature monitoring device installed in gas stream immediately before and after catalyst bed	Temperature difference across catalyst bed Or Monitor inlet temperature and activity level of bed	Every 15 minutes Every 15 minutes (Inlet temperature) and every 12 months (bed activity)
Alternative standard	Continuous FID or GC/FID	Concentration	Every 15 minutes
All control devices	1. Flow indicator installed at all bypass lines to the atmosphere and equipped with continuous recorder or 2. Valves sealed closed with carseal or lock-and-key configuration	1. Presence of flow diverted from the control device to the atmosphere or 2. Monthly inspections of sealed valves	Hourly records of whether the flow indicator was operating and whether a diversion was detected at any time during each hour Monthly

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Monitoring for PM HAP

- Install, calibrate, maintain and continuously operate bag leak detection system per 63.1366(b)(xi)
- Establish sensitivity and range, averaging period, alarm set point and alarm delays in Precompliance Report
- Install alarm system

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Monitoring for Waste Management Units

- Leak inspection requirements for vapor suppression equipment as in HON
  - Semi-annual visual inspections
  - Annual visual inspections or inspection using Method 21 for closed-vent systems
  - Leak is detected if reading is >500 ppmv
- Monitoring for treatment units as in HON
  - Monitor TSS, BOD, and biomass concentration for biotreatment units. Permitting authority approves the monitoring frequency
  - Use Precompliance report to request approval to monitor appropriate parameters for nonbiological treatment units

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4.0 Alternative Standard

Alternative Standard

- Option for process vents and storage tanks
- Requires outlet concentration of:
  - 20 ppmv for combustion device
  - 50 ppmv for noncombustion device
- Demonstrate using a CEM
- Correct concentration for supplemental gases
- Minimizes potential number of violations

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Alternative Standard – Ongoing Compliance

1. Equipment stack with CEM for:
   - TOC
   - HCl (halides and halogens)
2. If complying with 95% reduction for hydrogen halides and halogens, monitor site specific operating limits of scrubber
   - if scrubber flow intermittent, monitor flow indicator

National Emissions Standards for Miscellaneous Organic Chemical Manufacturing

- **5.0 Pollution Prevention Option**

Pollution Prevention Alternative

- Allowed for any MCPU for which initial startup occurred before April 4, 2002
- Allows compliance with the standards by demonstrating reductions in HAP usage, per unit of product
- Uses production indexed annual consumption factor (kg HAP/kg product)

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Pollution Prevention Alternative

- Reduce the consumption factor by at least 65% from a 3-year average baseline, beginning no earlier than 1994-1996
- For any reduction in HAPs that are also VOC's, must demonstrate an equivalent reduction in the production indexed VOC consumption factor on a mass basis
- For any reduction in the HAP factor achieved by reducing a non-VOC HAP, the VOC factor cannot increase

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Pollution Prevention Alternative

- Must begin and end with the same products
- Cannot comply by eliminating steps by transferring offsite
- Cannot merge solvent recovery steps from off-site to part of a process, nor merge nondedicated formulation or solvent recovery processes with other processes
- All HAP that are generated in the MCPU that are not part of the average must be controlled per the requirements in Tables 1 through 7

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Initial Compliance Demonstration

1. Initial: P2 Demonstration Summary
   - Submitted with precompliance report
   - Describes method of tracking consumption and production and provides supporting documentation
   - Determines baseline factors and target annual factors

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Continuous Compliance Requirements

- Calculate annual target HAP and VOC factors
- Record annual rolling averages of HAP and VOC annual factors
  - Continuous processes – every 30 days
  - Batch – every 10 batches

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6.0 Emissions Averaging

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Emissions Averaging

- Existing Sources Only
  - Process Vents (batch and continuous)
  - Storage Tanks
  - Transfer Racks
  - Wastewater

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Emissions Averaging

- Batch process vents in an MCPU collectively considered one vent for purposes of EA
- Estimate uncontrolled emissions for batch vents per §63.1257(d)(2)(i) & (ii)
- Use HON Emissions Averaging Procedures

National Emissions Standards for Miscellaneous Organic Chemical Manufacturing

7.0 Reporting Requirements

Overview of Reporting Requirements

- Initial Notification
- Precompliance Report
- P2 Demonstration Summary (if applicable)
- Emissions Averaging Report (if applicable)
- Notification of Compliance Status Report
- Compliance Reports, including Startup/ Shutdown/Malfunction
- Site-Specific Test Plans

Precompliance Report

- Submit 6 months prior to compliance date of the standard
- Precompliance Report is a preapproval mechanism; the Administrator has 90 days to approve or disapprove
- Should contain:
  - Alternative monitoring requests
  - Setting monitoring parameters outside those established during performance test
  - Periodic verification for control devices with less than 1.0 tpy HAP
  - Engineering assessment for calculation of uncontrolled process vent emissions and for defining process vents
  - P2 demonstration summary
  - Parameters to monitor for nonbiological wastewater treatment unit
  - Alternative monitoring for HCl
  - Fabric Filter leak detection device operation for PM HAP
  - Practices used to minimize HAP emissions from streams that contain energetics or organic peroxides and rationale as to why emissions limits cannot be met

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Notification of Compliance Status Report

- Results of applicability determinations, emission calculations, or analyses used to identify and quantify HAP emissions from the affected source
- Results of emission profiles, performance tests, engineering analyses, design evaluations, or calculations used to demonstrate compliance
- Descriptions of monitoring devices, monitoring frequencies, and the values of monitored parameters established during the initial compliance determinations, including data and calculations to support levels established

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Notification of Compliance Status Report

- Listing of all operating scenarios
- Descriptions of worst-case operating and/or testing conditions for control devices
- Identification of emission points subject to overlapping requirements
- Information on equipment leaks per §63.1039(a)(1)-(3)
- Identify storage tanks using vapor balancing alternative
- Records per §63.2535(i)(1)-(3) for PUG and initial primary product of PUG

Compliance Report

- Semiannually per § 63.2520(b)
- Content
  - Summary information
    - Company name and address
    - Certification of accuracy
    - Beginning and ending dates of report
    - If no deviations, statement of no deviations

(Continued)

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Compliance Report - Deviations

- If no CMS is used:
  - Total operating time of affected source during reporting period
  - Number, duration, and cause of deviations
  - Operating log for days during which deviations occurred (except for equipment leaks)

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Compliance Report - Deviations

- When a continuous monitoring system is used:
  - The date and time identifying each period during which the CMS was inoperative except for zero (low level) and high level checks
  - The date and time identifying each period during which the CMS was out of control
  - The date and time of commencement and completion of each deviation that occurs during startups, shutdowns, and malfunctions of the affected source, or other period
  - Summary of the total duration of the deviation during the reporting period, and the total duration as a percentage of the total operating time of the affected source during the reporting period
  - A breakdown of the total duration of the deviations during the reporting period into those due to SS&M, control equipment problems, process problems, other known causes, and other unknown causes
  - A summary of the total duration of the CMS downtime during the reporting period, and the total duration as a percentage of the total operating time of the affected source during the reporting period

(Continued)

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Compliance Report - Deviations

- An identification of each HAP known in the process stream
- A description of the process units
- A description of the CMS
- The date of the latest CMS audit
- Operating logs for the days on which the deviation occurred
- Operating day or block average values of the monitored parameters for each day(s) during which the deviation occurred

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Compliance Report

- Reports of S/S/M during which excess emissions occurred
- New operating scenarios
- Reports of LDAR program
- Results of tank and WW management unit inspections
- CVS bypass and/or car seal breaks
- Records of process units added to PUGs
- Records of primary product redeterminations
- Other applicable records per the referencing subpart
- If there were no out of control periods of the CEM, a statement as such

Compliance Reports – Notification of Process Change

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- Description of the process change
- Revisions to any information submitted in NOCSR or subsequent reports
- Information required for addition of processes or equipment
- The following must be submitted 60 days prior to implementation
  - Change to any information supplied in the precompliance report
  - Change in status of control device from small to large
  - Change in status of any emission point from Group 2 to Group 1

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National Emissions Standards for Miscellaneous Organic Chemical Manufacturing

- **8.0 Recordkeeping Requirements**

Overview of Recordkeeping Requirements

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- Applicability determinations
- Operating scenarios, if applicable
- S/S/M plan, occurrence and duration of malfunctions, and responses to S/S/M events
  - Do not include Group 2 emission points, unless part of emissions average
  - For equipment leaks, SSMP requirement is limited to control devices and is optional for other equipment
- Equipment operation, as applicable:
  - Monitoring parameter measurements, periods of excess emissions or monitor breakdowns, and other requirements in General Provisions or referencing subparts
  - CPMS calibration checks and maintenance
  - Wastewater HAP concentration per POD
  - Record of each time a safety device is opened

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Overview of Recordkeeping Requirements

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- Inspection dates and results
- Pollution prevention HAP and VOC consumption factors
- Numerous LDAR records

Recordkeeping Requirements – Operating Scenarios

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- Description of process and type of equipment used
- Identification of related process vents and emission episodes (those not complying with alternative standard), wastewater PODs, storage tanks, and transfer racks
- Applicable control requirements, on a per vent basis
- Description of control device or treatment used, and description of operating and/or testing conditions

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Recordkeeping Requirements – Operating Scenarios

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- Process Vents, wastewater PODs, transfer racks and storage tanks that are simultaneously routed to the control device or treatment process
- Applicable monitoring
- Calculations and engineering analyses used to demonstrate compliance
- Schedule or log of operating scenarios updated each time a different operating scenario is put into place

(Continued)

Recordkeeping Requirements – Group 1 Batch Process Vents

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- Records as to whether each batch was a standard batch
- Estimate of uncontrolled and controlled emissions for each nonstandard batch

(Continued)

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Group 2 Batch Process Vents and Uncontrolled Hydrogen Halide Vents < 1000#/yr Sum of all Vents

- Record of each day the batch was completed
- Record of whether each batch was a standard batch
- Estimate of uncontrolled and controlled emissions for each batch that is considered a nonstandard batch
- Records of daily 365-rolling summations of emissions, or alternative records that correlate to emissions, reconciled monthly

Recordkeeping Requirements - PUGs

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- Description of the MCPU and other process units in the initial PUG per §63.2535(l)(1)(v)
- Rationale for including each MCPU and other process unit in the initial PUG
- Calculations used to determine primary product for the initial PUG
- Description of process units added to the PUG after the creation date and rationale for including them
- Calculation of each primary product redetermination

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- **9.0 Miscellaneous Compliance**

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Miscellaneous Compliance

- No excused excursions
- Data collected during SS&M included in averages
- Cannot use flares for halogenated vents
- Cannot measure TOC to demonstrate compliance with percent reduction
- Opening safety devices is allowed at any time to avoid unsafe conditions

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Miscellaneous Compliance

- Energetics and organic peroxides that cannot meet the applicable limits for safety reasons must substantiate in the Precompliance Report and provide procedures to be implemented to minimize emissions
- For Process Condensers, may measure receiver temperature in lieu of measuring exhaust gas temperature
- Must perform retest within 180 days of any change in worst case conditions