

US EPA ARCHIVE DOCUMENT



# **Inspection Manual: Federal Equipment Leak Regulations for the Chemical Manufacturing Industry**

## **Volume III: Petroleum Refining Industry Regulations**



**EPA Office of Compliance  
Chemical, Commercial  
Services, and Municipal  
Division**



## ABSTRACT

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The purpose of this manual is to enhance an inspector's ability to conduct more complete and effective inspections at facilities in the chemical industry that are subject to Federal equipment leak regulations. Equipment leak standards are designed to reduce or eliminate emissions of volatile organic compounds (VOCs), volatile hazardous air pollutants (VHAPs), and organic HAPs from the miles of piping and numerous components found in chemical manufacturing processes.

This document is divided into three volumes. The first volume is a manual for inspectors; the second and third volumes describe regulations that apply to the chemical manufacturing and the petroleum refining industries, respectively.

Volume I has five chapters dedicated to helping an inspector:

- C Chapter 1 states the goals, background, approaches to rule enforcement, and organization of the document.
- C Chapter 2 addresses applicability determinations: ensuring the correct rules are being complied with at a facility, determining whether all appropriate components have been identified, and ensuring the components are properly classified by service.
- C Chapter 3 discusses reporting and recordkeeping requirements for NSPS, NESHAP, HON, and RCRA (recordkeeping only), and strategies for reviewing reports and records.
- C Chapter 4 covers on-site inspections: walk-throughs and inspections with the inspector monitoring for leaks. It addresses pre-inspection activities, timing and scope, interviews, leak monitoring evaluations, inspections of the process area and records, and post-inspection reviews and reports.
- C Chapter 5 discusses recommended inspection techniques and procedures.

Volume II tackles the equipment leak regulations applicable to the chemical manufacturing industry.

- C The first three appendices of Volume II summarize the regulations of 40 CFR Part 60 Subpart VV, Part 61 Subparts J and V, Part 63 Subparts H and I, Part 264 Subpart BB, and Part 265 Subpart BB; detail the differences among the regulations; and give the requirements grouped by component.
- C Appendix D describes the regulated equipment.
- C Appendix E contains the "Method 21" approach to leak detection.
- C Appendix F lists chemical manufacturing processes that are subject to HON.
- C Appendix G lists organic HAPs that are subject to HON.
- C Appendix H lists manufacturing processes and associated organic HAP emissions that are subject to HON.

Volume III contains the equipment leak regulations applicable to the petroleum refining industry.

- C The three appendices of Volume III summarize the regulations of 40 CFR Part 60 Subparts DDD, GGG, KKK, and QQQ, and Part 63 Subpart CC; detail the differences among the regulations; and give the requirements grouped by component.

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## APPENDIX A

### EQUIPMENT LEAK REGULATIONS: SIDE-BY-SIDE COMPARISONS

#### 40 CFR Part 60, Subparts DDD, GGG, KKK, QQQ

#### 40 CFR Part 63, Subpart CC

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SUMMARY OF REGULATIONS

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
APPLICABILITY	<p>Each group of fugitive emission equipment within a process unit in the polymer manufacturing industry that commences construction, reconstruction, or modification after September 30, 1987.</p> <p>The facilities covered are polypropylene, polyethylene, and polystyrene.</p>	<p>Each compressor and the group of all equipment within a process unit in a petroleum refinery that commences construction, reconstruction, or modification after January 4, 1983.</p>	<p>Each compressor and the group of all equipment within a process unit in an onshore natural gas processing plant that commences construction, reconstruction, or modification after January 20, 1984.</p>	<p>Individual drain systems, individual oil-water separators, and aggregate facilities located within a petroleum refinery wastewater system that commences construction, reconstruction, or modification after May 4, 1987.</p> <p>"Aggregate facility" is an individual drain system together with ancillary downstream sewer lines and oil-water separators, down to and including the secondary oil-water separator.</p>	<p>This subpart applies to all equipment leaks from petroleum refining process units that are located at a major source and that emit or have equipment containing or contacting one or more of the HAP listed in Table 1 of this subpart.</p> <p>This subpart does not apply to equipment intended to operate in organic HAP service for less than 300 hours during the calendar year.</p>	
EXEMPTIONS	<p>This subpart does not apply to VOC emissions from equipment leaks from poly(ethylene terephthalate) manufacturing processes</p> <p>Any affected facility with design capacity to produce less than 1,000 Mg per year.</p>	<p>None specified.</p>	<p>Any compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system or liquified natural gas unit that is not located at the onshore processing plant site.</p>	<p>None specified.</p>	<p>Research and development facilities.</p> <p>Equipment that does not contain any of the HAP listed in Table 1 of this subpart.</p> <p>Units processing natural gas liquids.</p> <p>Units used specifically for recycling discarded oil.</p> <p>Shale oil extraction units.</p> <p>Ethylene processes.</p> <p>Process units and emission points subject to subparts F, G, H, and I of 40 CFR Part 63.</p>	
DEFINITIONS						
"In gas/vapor service"	<p>The piece of equipment contains process fluid that is in gaseous state at operating conditions.</p>			<p>Not applicable.</p>	<p>A piece of equipment in organic hazardous air pollutant (HAP) service contains a gas or vapor at operating conditions.</p>	

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
"In heavy liquid service"	The piece of equipment is not in gas/vapor service or in light liquid service.		The piece of equipment is not in gas/vapor service or in light liquid service or the weight percent evaporated is 10 percent or less at 150EC.	Not applicable.	A piece of equipment is not in gas/vapor service or in light liquid service.	
"In light liquid service"	The piece of equipment contains a liquid that meets the following conditions:  1. The vapor pressure of one or more of the components is greater than 0.3 kPa at 20°C;  2. The total concentration of pure components having a vapor pressure greater than 0.3 kPa at 20°C is equal to or greater than 20 percent by weight; and  3. The fluid is a liquid at operating conditions.  4. The percent evaporated is greater than 10 percent at 150EC.			Not applicable.	A piece of equipment contains a liquid that meets the following conditions:  1. The vapor pressure of one or more of the organic compounds is greater than 0.3 kPa at 20°C;  2. The total concentration of the pure organic compounds having a vapor pressure greater than 0.3 kPa at 20°C is equal to or greater than 20 percent by weight of the total process stream;  3. The fluid is a liquid at operating conditions; and  4. The percent evaporated is greater than 10 percent at 150°C.	
"In VOC service"	The piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight.			Not applicable.	Not applicable.	
"In organic hazardous air pollutant or in organic (HAP) service"	Not applicable.	Not applicable.	Not applicable.	Not applicable.	A piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight total organic HAP.	
"In wet gas service"	Not applicable.	Not applicable.	A piece of equipment contains or contacts the field gas before the extraction step in the process.	Not applicable.	Not applicable.	
"Gas tight"	Not applicable.	Not applicable.	Not applicable.	Operated with no detectable emissions.	Not applicable.	

SUMMARY OF REGULATIONS

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
DEFINITIONS (concluded)						
"No detectable organic emissions"	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	
Equipment ("Equipment Leaks" for 40 CFR Part 63, subpart CC)	Each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by Subpart VV.	Each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service. For the purposes of recordkeeping and reporting, compressors are considered equipment.	Each pump, pressure relief device, open-ended valve or line, valve, compressor and flange or other connector that is in VOC service or in wet gas service and any device or system required by this subpart.	Not applicable.	HAP emissions from a pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, or instrumentation system in organic HAP service. Vents from wastewater system drains, tank mixers, and sample valves on storage tanks are not equipment leaks.	
Process Unit	Equipment assembled to perform any of the physical and chemical operations in the production of polypropylene, polyethylene, polystyrene, (general purpose, crystal, or expandable), or poly(ethylene terephthalate) or one of their copolymers. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.	Components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.	Equipment assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.	Not applicable.	Equipment assembled and connected by pipes or ducts to process raw and/or intermediate materials and to manufacture an intended product. A process unit includes any associated storage vessels. For the purposes of this subpart, a process unit includes, but is not limited to, chemical manufacturing process units and petroleum refining process units.	
Repaired	Equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: an instrument reading of 10,000 ppm or greater, indications of liquids dripping, or indication by sensor that a seal or barrier fluid has failed.			Not applicable.	Equipment is adjusted, or otherwise altered, to eliminate a leak as defined in the applicable sections of this subpart.	
First Attempt at Repair	To take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.			Not applicable.	To take action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.	
EQUIPMENT IDENTIFICATION (see also Recordkeeping Requirements)	Not specified.				Marked in manner such that it can be readily distinguished from equipment not subject to this subpart (does not require physical tagging except for leaking equipment).	

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
COMPLIANCE DEMONSTRATIONS	Required for all equipment within 180 days of initial startup.				Existing Sources: in compliance by August 18, 1998  Existing Sources electing to comply with subpart H, 40 CFR Part 63: Phase I - August 18, 1998; Phase II - August 18, 1999; Phase III - June 18, 2001  New Sources that commence construction or reconstruction after July 14, 1994: in compliance upon initial startup or August 18, 1998, whichever is later.	
METHOD OF COMPLIANCE DETERMINATION	Review of records and reports, review of performance test results, and inspections.				Review of records and reports, review of performance test results, and inspections.	
REQUIREMENTS WHEN MORE THAN ONE STANDARD APPLIES	Not specified.	Facilities subject to subpart VV or subpart KKK of 40 CFR Part 60 are excluded from this subpart.	Facilities covered by subpart VV or subpart GGG of 40 CFR Part 60 are excluded from this subpart.	Not specified.	Equipment subject to this subpart that are also subject to 40 CFR Part 60 or 40 CFR Part 61 will be required to comply only with the provisions of this subpart.	

Specific Component Summaries	REGULATION																							
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)																		
VALVES, GAS/VAPOR OR LIGHT LIQUID SERVICE																								
Standards	Monitor monthly.  After two consecutive months of no leaks, a valve may be monitored quarterly.  If leak detected, monitor valve monthly until leak is not detected for two consecutive months.  "No detectable emissions" valves: less than 500 ppm above background.  "Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.  "Difficult-to-monitor" valves: written plan to monitor at least once per year. No more than 3.0 percent of valves in affected facility can be designated as difficult-to-monitor.			Not applicable.	Monitor monthly.  After two consecutive months of no leaks, a valve may be monitored quarterly. Provisions made to allow use of qualified previously generated monitoring data to use less frequent monitoring.  If leak detected, monitor valve monthly until leak is not detected for two consecutive months.  "No detectable emissions" valves: less than 500 ppm above background.  "Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.  "Difficult-to-monitor" valves: written plan to monitor at least once per year. No more than 3 percent of valves in affected facility can be designated as difficult-to-monitor.	In Phases I and II, monitor each valve quarterly.  In Phase III, monitoring frequency based on percent valves found leaking and whether connectors are being monitored according to §63.649 [with CM = connector monitoring; w/o CM = no connector monitoring]: <table><tr><th colspan="2">Percent Leaking</th><th>Monitoring</th></tr><tr><th>with CM</th><th>w/o CM</th><th>Frequency</th></tr><tr><td>≥ 4</td><td>≤ 5</td><td>Monthly or implement a quality implementation plan (QIP)</td></tr><tr><td>&lt; 4</td><td>&lt; 5</td><td>Quarterly</td></tr><tr><td>&lt; 3</td><td>&lt; 4</td><td>Quarterly or once every 2 quarters</td></tr><tr><td>&lt; 2</td><td>&lt; 3</td><td>Quarterly or once every 4 quarters</td></tr></table> (If ≥2% leaking valves at a plant site with less than 250 valves in organic HAP service: monitor quarterly.)  "Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.  "Difficult-to-monitor" valves: written plan to monitor at least once per year. No more than 3.0 percent of valves in new facility can be designated as difficult-to-monitor.	Percent Leaking		Monitoring	with CM	w/o CM	Frequency	≥ 4	≤ 5	Monthly or implement a quality implementation plan (QIP)	< 4	< 5	Quarterly	< 3	< 4	Quarterly or once every 2 quarters	< 2	< 3	Quarterly or once every 4 quarters
Percent Leaking		Monitoring																						
with CM	w/o CM	Frequency																						
≥ 4	≤ 5	Monthly or implement a quality implementation plan (QIP)																						
< 4	< 5	Quarterly																						
< 3	< 4	Quarterly or once every 2 quarters																						
< 2	< 3	Quarterly or once every 4 quarters																						



SUMMARY OF REGULATIONS

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
VALVES, GAS/VAPOR OR LIGHT LIQUID SERVICE (continued)						
Standards (concluded)						Calculation of percent leaking may be done on process unit or source-wide basis. Calculation procedures remains the same until a permit change is made. Decision on how to calculate required within the first monitoring period after August 18, 1998.  Phase III: Any valve designated as having no detectable emissions may comply with §60.482-7(f) instead.
Leak Definition	10,000 ppm			Not applicable.	10,000	Phase I: 10,000 ppm Phase II: 1,000 ppm Phase III: 1,000 ppm
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.			Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.  When repaired, monitor at least once within first 3 months after repair.
First Attempt at Repair	Best practices include, but are not limited to:  - tightening of bonnet bolts - replacement of bonnet bolts - tightening of packing gland nuts - injection of lubricant into lubricated packing			Not applicable.	Best practices include, but are not limited to:  - tightening of bonnet bolts - replacement of bonnet bolts - tightening of packing gland nuts - injection of lubricant into lubricated packing	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
VALVES, GAS/VAPOR AND LIGHT LIQUID SERVICE (concluded)						
Exemptions	Equipment in vacuum service.	Equipment in vacuum service.  Valves in gas/vapor or light liquid service within a process unit located on the Alaskan North slope.	Equipment in vacuum service.  Valves in gas/vapor or light liquid service within a process unit located on the Alaskan North slope are exempt from the routine monitoring requirements of §60.482-7(a).  Valves in gas/vapor or light liquid service located at a nonfractionating plant that does not have a design capacity to process 283,000 standard cubic meters per day or more of field gas are exempt from the routine monitoring requirements of §60.482-7(a).	Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
VALVES, HEAVY LIQUID SERVICE						
Standards	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.			Not applicable.	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.	
Leak Definition	10,000 ppm			Not applicable.	10,000 ppm	
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.			Not applicable.	Repair as soon as practicable, no later than 15 calendar after detection. First attempt within 5 calendar days of detection.  For valves in heavy liquid service that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.	
First Attempt at Repair	Best practices include, but are not limited to: <ul style="list-style-type: none"><li>- tightening of bonnet bolts</li><li>- replacement of bonnet bolts</li><li>- tightening of packing gland nuts</li><li>- injection of lubricant into lubricated packing</li></ul>			Not applicable.	Best practices include, but are not limited to: <ul style="list-style-type: none"><li>- tightening of bonnet bolts</li><li>- replacement of bonnet bolts</li><li>- tightening of packing gland nuts</li><li>- injection of lubricant into lubricated packing</li></ul>	
Exemptions	Equipment in vacuum service.			Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
ALTERNATIVE STANDARDS FOR VALVES						
Allowable Percentage of Valves Leaking						
Standard	Notify Administrator of election to comply with alternative standard.  Conduct performance test initially, annually, and at other times as requested by the Administrator.  Performance tests shall: <ul style="list-style-type: none"><li>- Monitor all valves in gas/vapor and in light liquid service within one week.</li><li>- Calculate percent leaking.</li><li>- Equal to or less than 2.0 percent leaking.</li></ul>		Not applicable.	Notify Administrator of election to comply with alternative standard.  Conduct performance test initially, annually, and at other times as requested by the Administrator.  Performance tests shall: <ul style="list-style-type: none"><li>- Monitor all valves in gas/vapor and in light liquid service within one week.</li><li>- Calculate percent leaking.</li><li>- Equal to or less than 2.0 percent leaking.</li></ul> Calculation of percent leaking may be done on a process unit or source-wide basis. Once decided, all subsequent calculations made on same basis unless permit change.	Not applicable.	
Leak Definition	10,000 ppm		Not applicable.	10,000 ppm	Not applicable.	
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.		Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
First Attempt at Repair	Best practices include, but are not limited to: <ul style="list-style-type: none"><li>- tightening of bonnet bolts</li><li>- replacement of bonnet bolts</li><li>- tightening of packing gland nuts</li><li>- injection of lubricant into lubricated packing</li></ul>			Not applicable.	Best practices include, but are not limited to: <ul style="list-style-type: none"><li>- tightening of bonnet bolts</li><li>- replacement of bonnet bolts</li><li>- tightening of packing gland nuts</li><li>- injection of lubricant into lubricated packing</li></ul>	Not applicable.
Skip Period Leak Detection and Repair						
Standard	Notify Administrator of election to comply with alternative standard.  Conduct performance test initially, annually, and at other times as requested by the Administrator.  Comply initially with monthly LDAR, then: <ul style="list-style-type: none"><li>1. After 2 consecutive quarters with equal to or less than 2 percent leakers, monitor semiannually; or</li><li>2. After 5 consecutive quarters with equal to or less than 2 percent leakers, monitor annually.</li></ul> Revert to monthly monitoring if percent leakers exceed 2 percent.			Not applicable.	Notify Administrator of election to comply with alternative standard.  Conduct performance test initially, annually, and at other times as requested by the Administrator.  Comply initially with monthly LDAR, then either: <ul style="list-style-type: none"><li>1. After 2 consecutive quarters with equal to or less than 2 percent leakers, monitor semiannually.</li><li>2. After 5 consecutive quarters with equal to or less than 2 percent leakers, monitor annually.</li></ul> Revert to monthly monitoring if percent leakers exceed 2 percent.	Not applicable.

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PUMPS, LIGHT LIQUID SERVICE						
Standards	Pumps: Monitor monthly and conduct weekly visual inspections.  "Dual Mechanical Seal" Pumps: specific operating and design requirements.  "No Detectable Emissions" Pumps: less than 500 ppm above background and specified design requirements.			Not applicable.	Pumps: Monitor monthly and conduct weekly visual inspections.  "Dual Mechanical Seal" Pumps: specific operating and design requirements.  "No Detectable Emissions" Pumps: less than 500 ppm above background and specified design requirements.	Pumps: Monitor monthly and conduct weekly visual inspections. If located at unmanned plant site, visual inspections required at least monthly.  "Dual Mechanical Seal" Pumps: specific operating and design requirements.  "No Detectable Emissions" Pumps: less than 500 ppm above background and specified design requirements.  <u>Phase III:</u> If less than 10 percent of the light liquid pumps or less than 3 light liquid pumps are leaking, monitor monthly. If less than 3 percent of the light liquid pumps or less than 1 light liquid pump are leaking, monitor quarterly. If the greater of either 10 percent of pumps in a process unit (or source-wide) or 3 pumps in a process unit (or source-wide) leak, then implement technology review and improvement QIP. (This does not apply to process unit if more than 90% of the pumps in the unit are either dual mechanical seal or designed with no externally activated shaft penetrating the housing.)  Phase I: this phase is not applicable.  Phase II: begins upon facility startup.  Phase III: begins no later than one year after initial startup.

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PUMPS, LIGHT LIQUID SERVICE (continued)						
Leak Definition	10,000 ppm  Indications of liquids dripping from pump seal except that indications of liquid dripping from bleed ports in existing pumps are not considered to be a leak.	10,000 ppm  Indications of liquids dripping from pump seal.		Not applicable.	10,000 ppm  Indications of liquids dripping from pump seal.	Phase I: 10,000 ppm  Phase II: 5,000 ppm  Phase III: 2,000 ppm  Indications of liquids dripping from pump seal.
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.			Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	
First Attempt at Repair	None specified.			Not applicable.	None specified.	Best practices include, but are not limited to:  tightening of packing gland nuts  ensuring that the seal flush is operating at design pressure and temperature

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PUMPS, LIGHT LIQUID SERVICE (concluded)						
Exemptions	Equipment in vacuum service.  Any pump equipped with a compliant closed-vent system and control device.	Equipment in vacuum service.  Any pump equipped with a compliant closed-vent system and control device.  Pumps in light liquid service within a process unit located on the Alaskan North slope.	Equipment in vacuum service.  Any pump equipped with a compliant closed-vent system and control device.  Pumps in light liquid service within a process unit located on the Alaskan North slope and those located at a non-fractionating plant that does not have the design capacity to process 283,000 standard cubic meters per day or more of field gas are exempt from the routine monitoring requirements of §60.482-2(a)(1).	Not applicable.	Equipment in vacuum service.  Any pump equipped with a compliant closed-vent system that transports leakage back to the process or to a compliant control device.  Equipment operated less than 300 hours per year.	



Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PUMPS, HEAVY LIQUID SERVICE						
Standards	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.			Not applicable.	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.	
Leak Definition	10,000 ppm			Not applicable.	10,000 ppm	
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.			Not applicable.	Repair as soon as practicable, no later than 15 calendar after detection. First attempt within 5 calendar days of detection.  For pumps in heavy liquid service that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.	
First Attempt at Repair	Best practices include, but are not limited to: <ul style="list-style-type: none"><li>- tightening of bonnet bolts</li><li>- replacement of bonnet bolts</li><li>- tightening of packing gland nuts</li><li>- injection of lubricant into lubricated packing</li></ul>			Not applicable.	Best practices include, but are not limited to: <ul style="list-style-type: none"><li>- tightening of bonnet bolts</li><li>- replacement of bonnet bolts</li><li>- tightening of packing gland nuts</li><li>- injection of lubricant into lubricated packing</li></ul>	
Exemptions	Equipment in vacuum service.			Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.  Reciprocating pumps in heavy liquid service.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PRESSURE RELIEF DEVICES, GAS/VAPOR SERVICE						
Standards	No detectable emissions (less than 500 ppm above background).  After each release, return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device.	Option 1: Monitor quarterly and after each release monitor within 5 days. At nonfractionating plants where monitoring is done by non-plant personnel, monitoring after each release must be done when non-plant personnel are next on-site but within 30 days.  Option 2: No detectable emissions (less than 500 ppm above background).  After each release, return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device.	Not applicable.	No detectable emissions (less than 500 ppm above background).  After each release, return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device.	<u>No Rupture Disk</u>  No detectable emissions (less than 500 ppm above background)  After each release, return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relied device.  <u>With Rupture Disk</u>  After each release, replace rupture disk within 5 calendar days.	
Leak Definition	"No detectable emissions" - less than 500 ppm above background.	Option 1: 10,000 ppmv  Option 2: "No detectable emissions" - less than 500 ppm above background.	Not applicable.	"No detectable emissions" - less than 500 ppm above background.		

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PRESSURE RELIEF DEVICES, GAS/VAPOR SERVICE (concluded)						
Repair	Return to condition of "no detectable emissions" as soon as practicable but no later than 5 calendar days after pressure release.	Option 1: First attempt to repair within 5 days. Completed repair within 15 days.  Option 2: Return to condition of "no detectable emissions" as soon as practicable but no later than 5 calendar days after pressure release.	Not applicable.	Return to condition of "no detectable emissions" as soon as practicable but no later than 5 calendar days after pressure release.	Not applicable.	
Exemptions	Pressure relief devices equipped with closed-vent system and control device.  Equipment in vacuum service.	Pressure relief devices equipped with closed-vent system and control device.  Equipment in vacuum service.  PRDs in gas/vapor service within a process unit located on the Alaskan North slope and those located at a non-fractionating plant that does not have the design capacity to process 283,000 standard cubic meters per day or more of field gas are exempt from the routine monitoring requirements of §60.632(b)(1).	Not applicable.	Pressure relief devices equipped with compliant closed-vent system and control device.  Equipment in vacuum service.  Equipment operated less than 300 hours per year.		

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PRESSURE RELIEF DEVICES, LIGHT LIQUID OR HEAVY LIQUID SERVICE						
Standards	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.		Not applicable.		Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.	
Leak Definition	10,000 ppm		Not applicable.		10,000 ppm	Monitoring: 500 ppm
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.		Not applicable.		Repair as soon as practicable, no later than 15 calendar after detection.  First attempt within 5 calendar days of detection.	Repair as soon as practicable, no later than 15 calendar after detection.  First attempt within 5 calendar days of detection.  For pressure relief devices in liquid service that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.
Exemptions	Equipment in vacuum service.		Not applicable.		Equipment in vacuum service.  Equipment operated less than 300 hours per year.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
COMPRESSORS						
Standards	Equip with seal system that includes a barrier fluid system and that prevents leakage to atmosphere.  Seal system shall meet certain design and operation requirements.  Install sensor to detect failure of seal system, barrier fluid system, or both.  Check sensor daily or equip with audible alarm.   Establish criteria that indicates failure of seal system, barrier fluid system, or both.			Not applicable.	Equip with seal system that includes a barrier fluid system and that prevents leakage to atmosphere.  Seal system shall meet certain design and operation requirements.  Install sensor to detect failure of seal system, barrier fluid system, or both.  Check sensor daily or equip with audible alarm [Subpart H does not require for compressors located at unmanned plant site].  Establish criteria that indicates failure of seal system, barrier fluid system, or both.	
Leak Definition	Sensor indicates failure of seal system, barrier fluid system, or both based on established criteria.			Not applicable.	Sensor indicates failure of seal system, barrier fluid system, or both based on established criteria.	
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.			Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
COMPRESSORS (concluded)						
Exemptions	Equipment in vacuum service.  Compressors equipped with compliant closed-vent system and control device.  Compressors designed to operate with an instrument reading less than 500 ppm above background.  Reciprocating compressors that meet certain criteria.	Equipment in vacuum service.  Compressors equipped with compliant closed-vent system and control device.  Compressors designed to operate with an instrument reading less than 500 ppm above background.  Reciprocating compressors that meet certain criteria.  Reciprocating compressors that are in hydrogen service.	Equipment in vacuum service.  Compressors equipped with compliant closed-vent system and control device.  Compressors designed to operate with an instrument reading less than 500 ppm above background.  Reciprocating compressors that meet certain criteria.  Reciprocating compressors that are in wet gas service.	Not applicable.	Equipment in vacuum service.  Compressors equipped with compliant closed-vent system and control device.  Compressors designed to operate with an instrument reading less than 500 ppm above background.  Equipment operated less than 300 hours per year.  Reciprocating compressors are exempt from the seal requirements if recasting the distance piece or compressor replacement is required.  Compressors in hydrogen service.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
SAMPLING CONNECTION SYSTEMS						
Standards	Equipped with closed-purge, closed-loop, or closed-vent system that returns the purged process fluid to the process line, collects and recycles the purged process fluid to a process, or is designed and operated to capture and transport all the purged process fluid to a compliant control device.	Not applicable.	Not applicable.	Equipped with closed-purge, closed-loop, or closed-vent system that returns the purged process fluid to the process line or collects and recycles the purged process fluid to a process or is designed and operated to capture and transport all the purged process fluid to a compliant control device.	Equipped with closed-purge system, closed-loop, or closed-vent system that either returns the fluid to the process, recycles the purged fluid, or sends it to a compliant control device.  Gases displaced during filling of samples are not required to be collected or captured.	
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Equipment in vacuum service.  In-situ sampling systems and sampling systems without purges.	Not applicable.	Not applicable.	Equipment in vacuum service.  In-situ sampling systems and sampling systems without purges.  Equipment operated less than 300 hours per year.		

SUMMARY OF REGULATIONS

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
OPEN-ENDED VALVES OR LINES						
Standards	Equip with cap, blind flange, plug, or second valve to seal open end at all time except when operations require flow through open end.  <u>Second Valve</u>  Close valve on process fluid end prior to closing second valve  <u>Double Block and Bleed System</u>  May remain open during operations that require venting the line between the block valves, but comply with basic standard at all other times.			Not applicable.	Equip with cap, blind flange, plug, or second valve to seal open end at all time except when operations require flow through open end.  <u>Second Valve</u>  Close valve on process fluid end prior to closing second valve  <u>Double Block and Bleed System</u>  May remain open during operations that require venting the line between the block valves, but comply with basic standard at all other times.	
Leak Definition	Not applicable.			Not applicable.	Not applicable.	
Repair	Not applicable.			Not applicable.	Not applicable.	
Exemptions	Equipment in vacuum service.			Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	Equipment in vacuum service.  Open-ended valves and lines in an emergency shutdown system that are designed to open automatically in the event of a process upset.  Equipment operated less than 300 hours per year.



Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
FLANGES AND OTHER CONNECTORS (ALL SERVICES)						
Standards	Monitor within 5 days if evidence of a potential leak is found by visual, auditory, olfactory, or other detection methods.			Not applicable.	Monitor within 5 days if evidence of a potential leak is found by visual, auditory, olfactory, or other detection methods.	Monitor within 5 days if evidence of a potential leak is found by visual, auditory, olfactory, or other detection methods.  Alternatively, connectors in gas/vapor and light liquid service may comply with an alternative program (see Connectors, gas/vapor or light liquid service).
Leak Definition	10,000 ppm			Not applicable.	10,000 ppm	
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.			Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	
Exemptions	Equipment in vacuum service.			Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	

Specific Component Summaries	REGULATION																							
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)																		
CONNECTORS, GAS/VAPOR OR LIGHT LIQUID SERVICE																								
Standards	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>NOTE: The following applies only to units opting to comply with §63.649.</p> <p>Option 1: Random 200 Connector Alternative</p> <p>Initial monitoring of 200 randomly selected connectors within first 12 months</p> <p>Monitor each repaired leak within 3 months</p> <p>Subsequent monitoring required based on percent leaking connectors:</p> <table><thead><tr><th><u>Percent Leaking</u></th><th><u>Frequency</u></th></tr></thead><tbody><tr><td>≥ 2.0</td><td>semiannual</td></tr><tr><td>&lt; 2</td><td>annual</td></tr><tr><td>&lt; 1</td><td>every 2 years</td></tr><tr><td>&lt;0.5</td><td>every 4 years</td></tr></tbody></table> <p>Identify by area or length of pipe; physical tagging and individual component identification is not required.</p> <p>Option 2: Connector Inspection Alternative</p> <p>For all connectors &gt;2 inches in diameter, monitor if in gas/vapor service and inspect if in light liquid service within 12 months after compliance date. Excludes inaccessible and unsafe-to-monitor connectors.</p> <p>Monitor/inspect each repaired leak within 3 months</p> <p>Subsequent monitoring required based on percent leaking connectors:</p> <table><thead><tr><th><u>Percent Leaking</u></th><th><u>Frequency</u></th></tr></thead><tbody><tr><td>≥ 2.0</td><td>annual</td></tr><tr><td>&lt; 2</td><td>every 2 years</td></tr><tr><td>&lt; 1</td><td>every 4 years</td></tr></tbody></table>		<u>Percent Leaking</u>	<u>Frequency</u>	≥ 2.0	semiannual	< 2	annual	< 1	every 2 years	<0.5	every 4 years	<u>Percent Leaking</u>	<u>Frequency</u>	≥ 2.0	annual	< 2	every 2 years	< 1	every 4 years
<u>Percent Leaking</u>	<u>Frequency</u>																							
≥ 2.0	semiannual																							
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Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
CONNECTORS, GAS/VAPOR OR LIGHT LIQUID SERVICE (concluded)						
Standards (concluded)					Option 2 concluded:  Equation to calculate percent leaking provided.  Cannot combine gas/vapor and light liquid to calculate percent leaking.  Identify by area or length of pipe; physical tagging and individual component identification is not required.	
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Option 1: 1,000 ppm  Option 2: gas/vapor service - 1,000 ppm  light liquid service - 3 drips per minute	
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.  Delay of repair allowed under certain circumstances	
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
INSTRUMENTATION SYSTEMS						
Standards	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.	
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	10,000 ppm	
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Repair as soon as practicable, no later than 15 calendar after detection.  For instrumentation systems that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.	
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
CLOSED VENT SYSTEMS AND CONTROL DEVICES						
Standards	<p>Control devices and closed-vent systems to be operated at all time that emissions may be vented to them.</p> <p><u>Control Devices</u></p> <p>Vapor recovery systems: 95 percent or greater recovery</p> <p>Combustion devices: 95 percent or greater reduction or minimum residence time of 0.75 seconds and minimum temperature of 816°C.</p> <p>Flares: Comply with §60.18</p> <p><u>Closed-Vent Systems (CVS)</u></p> <p>Hard pipe construction: Initial inspection (Method 21) and then annual visual inspections.</p> <p>Ductwork construction: Initial and annual inspections using Method 21.</p> <p>Does not apply if CVS is in vacuum service.</p>		<p>Control devices and closed-vent systems to be operated at all time that emissions may be vented to them.</p> <p><u>Control Devices</u></p> <p>Vapor recovery systems: 95 percent or greater recovery</p> <p>Combustion devices: 95 percent or greater reduction or minimum residence time of 0.75 seconds and minimum temperature of 816°C.</p> <p>Flares: Comply with §60.18</p> <p><u>Closed-Vent Systems (CVS)</u></p> <p>No detectable emissions (less than 500 ppm above background).</p> <p>Monitor initially and semiannually thereafter.</p>		<p>Control devices and closed-vent systems to be operated at all time that emissions may be vented to them.</p> <p><u>Control Devices</u></p> <p>Vapor recovery systems: 95 percent or greater recovery</p> <p>Combustion devices: 95 percent or greater reduction or minimum residence time of, for existing sources complying with subpart VV, 0.75 seconds and minimum temperature of 815°C or for new sources and existing sources complying with subpart H, 0.50 seconds and minimum temperature of 760°C.</p> <p>Flares: Comply with §63.11(b).</p> <p><u>Closed-Vent Systems (CVS)</u></p> <p>Hard pipe construction: Initial inspection (Method 21) and then annual visual inspections.</p> <p>Ductwork construction: Initial and annual inspections using Method 21.</p> <p>Does not apply if CVS is in vacuum service.</p>	

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
CLOSED VENT SYSTEMS AND CONTROL DEVICES (concluded)						
Monitoring	Control Devices: Monitor to ensure operated and maintained in conformance with their designs.  Closed-Vent Systems: If contains by-pass lines, (1) vent stream flow meters or (2) car-seal or lock-and-key type of configuration with monthly visual inspection required.  "Unsafe-to-monitor" parts: inspect as frequently as practicable, but no more frequently than annually.  "Difficult-to-monitor" parts: inspect at least once every 5 years.			Control Devices: Monitor to ensure operated and maintained in conformance with their designs.	Control Devices: Monitor to ensure operated and maintained in conformance with their designs.  Closed-Vent Systems: If contains by-pass lines, (1) vent stream flow meters or (2) car-seal or lock-and-key type of configuration with monthly visual inspection required.  "Unsafe-to-monitor" parts: inspect as frequently as practicable, but no more frequently than annually.  "Difficult-to-monitor" parts: inspect at least once every 5 years.	
Leak Definition	500 ppm			500 ppm	500 ppm	
Repair	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.  Delay of repair allowed under certain circumstances. Repair required no later than by end of next process unit shutdown.			Repairs soon as practicable, but no later than 30 calendar days after detection.  Delay of repair allowed under certain circumstances. Repair required no later than by end of next refinery or process unit shutdown.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.  Delay of repair allowed under certain circumstances. Repair required no later than by end of next process unit shutdown.	
Exemptions	Equipment in vacuum service.			Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.  Equipment needed for safety purposes are not subject to these monitoring requirements.

Delay of Repair	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
General	Allowed if repair is technically infeasible without a process unit shutdown.  Repair to occur before end of next process unit shutdown.  Allowed for equipment isolated from the process and that does not remain in VOC service.			(see "Closed-vent Systems and Control Devices")	Allowed if repair is technically infeasible without a process unit shutdown.  Repair to occur before end of next process unit shutdown.  Allowed for equipment isolated from the process and that does not remain in organic HAP service.	
Valves	Allowed if:  emissions of purged material resulting from immediate repair greater than the fugitive emissions likely to result from the delay in the repair and  purged material is collected and destroyed or recovered in compliant control device when procedures are effected.  Delay beyond a process unit shutdown allowed if valve assemblies have been depleted, valve assembly supplies had been sufficiently stocked before supplies were depleted.  Not allowed unless next process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.			(see "Closed-vent Systems and Control Devices")	Allowed if:  emissions of purged material resulting from immediate repair greater than the fugitive emissions likely to result from the delay in the repair and  purged material is collected and destroyed or recovered in compliant control device when procedures are effected.  Delay beyond a process unit shutdown allowed if valve assemblies have been depleted, valve assembly supplies had been sufficiently stocked before supplies were depleted.  Not allowed unless next process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.	Allowed if:  emissions of purged material resulting from immediate repair greater than the fugitive emissions likely to result from the delay in the repair and  purged material is collected and destroyed or recovered in compliant control device when procedures are effected.  Delay beyond a process unit shutdown allowed if valve assemblies have been depleted, valve assembly supplies had been sufficiently stocked before supplies were depleted.  Not allowed beyond the second process unit shutdown unless the third process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.
Pumps	Allowed if:  Repair requires use of DMS seal system that includes barrier fluid and  Repair completed as soon as practicable, but not later than 6 months after leak detected.			(see "Closed-vent Systems and Control Devices")	Allowed if:  Repair requires use of DMS seal system that includes barrier fluid and  Repair completed as soon as practicable, but not later than 6 months after leak detected.	Allowed if:  Repair requires replacing existing seal design with a new system that provides better performance, DMS, meets requirements of §63.163(f), or compliant closed-vent system and control device.  Repair completed as soon as practicable, but not later than 6 months after leak detected.

Equivalence of (or Alternative) Means of Emission Limitation: General	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Equipment, Design, and Operational Requirements	Owner/operator collect and verify test data to demonstrate equivalence.  Administrator compares test data.  Administrator may condition approval.		Applicant collect and verify test data, covering 12 months, to demonstrate equivalence or better.  Administrator makes finding.  Administrator may condition approval.  Applicant commits to alternative means.	Any person collect and verify test data to demonstrate equivalence.  Administrator makes finding.  Administrator may condition approval.	Owner/operator collect and verify test data for alternative means of emission limitation.  Administrator compares test data.  Administrator may condition approval.	
Work Practices	Owner/operator collect and verify test data to demonstrate equivalence  Owner/operator demonstrates emission reduction achieved by required work practice  Owner/operator demonstrates emission reduction achieved by equivalent means of emission limitation  Owner/operator commits to alternative work practices  Administrator compares demonstrated emission reductions  Administrator may condition approval		Applicant collect and verify test data, covering 12 months, to demonstrate equivalence or better.  Administrator makes finding.  Administrator may condition approval.  Applicant commits to alternative means.	Any person collect and verify test data to demonstrate equivalence.  Administrator makes finding.  Administrator may condition approval.	Owner/operator collect and verify test data to demonstrate equivalence.  Owner/operator demonstrates emission reduction achieved by required work practice.  Owner/operator demonstrates emission reduction achieved by equivalent means of emission limitation.  Owner/operator commits to alternative work practices.  Administrator compares demonstrated emission reductions.  Administrator may condition approval.	Owner/operator collect and verify test data for alternative means of emission limitation.  Owner/operator demonstrates emission reduction achieved by required work practice (for minimum of 12 months).  Owner/operator demonstrates emission reduction achieved by alternative means of emission limitation.  Owner/operator commits to alternative work practices.  Administrator compares demonstrated emission reductions.  Administrator may condition approval.
Unique Approach	Owner/operator may offer unique approach to demonstrate equivalency		Not specified.	Not specified.	Owner/operator may offer unique approach to demonstrate equivalency.	
Manufacturers of Equipment	May apply for determination of equivalency for equipment, design, and operational requirements.					



Alternative Means of Emission Limitations: Enclosed-Vented Process Units	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Process units enclosed such that all emissions from equipment leaks are vented through a closed-vent system to a control device are exempt from the requirements of §§63.163 through 63.171 and §§63.173 and 63.174.</p> <p>Enclosure is to be maintained under negative pressure at all times the process unit is in operation.</p>

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Applicability	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p><u>Valves</u></p> <p>Optional in phase III to owners\operators with <math>\geq 4\%</math> leakers if not also complying with §63.649 or with <math>\geq 5\%</math> leakers if also complying with §63.649.</p> <p>Decision required within first year of phase III.</p> <p>If rolling average of percent leakers is <math>&lt; 4\%</math> (<math>&lt; 5\%</math>) for 2 consecutive quarters: (1) comply with QIP, (2) comply with §63.168, or (3) comply with both QIP and §63.168.</p> <p>If comply with §63.168 only, can not use QIP again if leak rate goes above 4 (5) percent; monthly monitoring is required.</p> <p><u>Pumps</u></p> <p>Required in phase III if 6 month rolling average is the greater of either <math>&gt; 10\%</math> or 3 pumps leaking.</p> <p>Once <math>&lt; 10\%</math> or <math>&lt; 3</math> pumps leaking is achieved, comply with §63.163.</p> <p>If leak rate again exceeds the greater of either <math>&gt; 10\%</math> or 3 pumps leaking, can use QIP again.</p>

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Valves, Demonstration of Further Progress	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Collect data and maintain records as follows:</p> <ul style="list-style-type: none"><li>• maximum instrument reading observed in each monitoring observation before repair, the response factor for each stream, the instrument model number, and the date of observation</li><li>• classification of valve "gas or light liquid service"</li><li>• repair method used and instrument readings after repair (monitoring required at least once within the first 3 months after the repair is completed)(ID tag on a leaking valve may be removed after the valve successfully passes this monitoring period)</li></ul> <p>Continue to collect data on the valves for as long as the process unit is in QIP</p> <p>Demonstrate progress in reducing the percent leaking valves each quarter by at least:</p> <ul style="list-style-type: none"><li>• 10 percent (meaning that each quarter there is at least a 10 percent reduction in the percent leaking valves from the preceding monitoring period) [calculation to be made by formula specified in §63.175(d)(4)(i)], or</li><li>• alternative quarterly percent reduction [calculated according to the equation in §63.175(d)(4)(iii)(A)] and to less than 4 (5) percent within 2 years.</li></ul> <p>The provisions for failure to meet the 10 percent reduction for 2 consecutive rolling averages are:</p> <ul style="list-style-type: none"><li>• a choice of monthly monitoring, or</li><li>• implementation of a QIP for technology review as specified in §63.175(e).</li></ul>

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Valves, Technology Review and Improvement	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Data collection for the valves as long as in QIP:</p> <ul style="list-style-type: none"><li>- Valve type and manufacturer, valve design, materials of construction, packing material, and year installed.</li><li>- Service characteristics of the stream (e.g., operating pressure, temperature, line diameter, corrosivity).</li><li>- Gas/vapor or light liquid service.</li><li>- if a leak is detected, the maximum instrument reading observed before a repair, response factor for stream if adjusted, instrument model number, and date of observation.</li><li>- Repair methods used and the instrument readings after the repair.</li></ul> <p>Inspect all valves removed due to leaks to determine cause of failure and recommend design and other changes to reduce leak potential.</p> <p>Analyze data to determine the services, operating and maintenance procedures, and valve designs or technologies that have poorer than average emission performance and those that have better than average emission performance. The first analysis shall be completed no later than 18 months after the start of Phase III, shall use a minimum of 6 months of data, shall be done yearly for as long as the process unit is in the QIP program.</p>

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Valves, Technology Review and Improvement (concluded)	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Trial evaluation program is required for plants that have not demonstrated superior performing valve designs and technologies:</p> <p>1. The number of valves in the trial program shall be the lesser of 1 percent or 20 valves for programs involving single process units and the lesser of 1 percent or 50 valves for programs involving groups of process units.</p> <p>2. The program shall specify and include design documentation of:</p> <ul style="list-style-type: none"><li>- superior performing valve designs or technologies</li><li>- the stages of evaluating these valve designs or technologies</li><li>- the frequency of monitoring or inspection</li><li>- range of operating conditions component will be evaluated under</li><li>- conclusions regarding the emission performance and appropriate operating conditions and services</li></ul> <p>The performance trials shall be conducted for a 6-month period beginning no later than 18 months after the beginning of the QIP.</p> <p>Conclusions will be drawn no later than 24 months after the beginning of the QIP.</p> <p>Any plant site with fewer than 400 valves and owned by a company with fewer than 100 total employees is exempt from the trial evaluations of valves. These exempted plants shall begin the program at the start of the fourth year of Phase III.</p> <p>If superior emission performance technology can not be identified, replacement valve shall be one with lowest emission performance technologies identified for the specific application.</p>

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Pumps, Technology Review and Improvement	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Data collection:</p> <ul style="list-style-type: none"><li>- Pumps: type and manufacturer, seal type and manufacturer, pump design, materials of construction, barrier fluid or packing material, and year installed.</li><li>- Service characteristics of the stream: discharge pressure, temperature, flow rate, corrosivity, annual operating hours.</li><li>- Maximum instrument readings observed before repair, response factor for the stream, instrument number, and date of observation.</li><li>- If a leak is detected, repair methods used and the instrument readings after the repair.</li></ul> <p>Inspect all pumps or pump seals that exhibit frequent seal failure and were removed due to leaks. Inspection shall determine probable cause and recommendation for design changes or changes in specifications to reduce leak potential.</p> <p>Analyze data to determine the services, operating and maintenance procedures, and pumps and pump seal designs or technologies that have poorer than average emission performance and those that have better than average emission performance. The first analysis shall be completed no later than 18 months after the start of the program, shall use a minimum of 6 months of data, shall be done yearly for as long as the process unit is in the QIP program.</p>

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Pumps, Technology Review and Improvement (concluded)	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Trial evaluation program is required for plants that have not demonstrated superior technologies:</p> <p>1. The number of pump seal technologies or pumps in the trial program shall be the lesser of 1 percent or 2 pumps for programs involving single process units and the lesser of 1 percent or 5 pumps for plant sites or groups of process units. The minimum number of pumps or pump seal technologies in the program shall be 1; and</p> <p>2. The program shall specify and include design documentation of:</p> <ul style="list-style-type: none"><li>- superior performing pump seal designs or technologies</li><li>- the stages of evaluating these pump designs or pump seal technologies</li><li>- the frequency of monitoring or inspection</li><li>- range of operating conditions component will be evaluated under</li><li>- conclusions regarding the emission performance and appropriate operating conditions and services</li></ul> <p>The performance trials shall be conducted for a 6-month period beginning no later than 18 months after the beginning of the QIP.</p> <p>Conclusions will be drawn no later than 24 months after the beginning of the QIP.</p> <p>Beginning at the start of the third year of the QIP for plants with 400 or more valves or 100 or more employees and at the start of the fourth year for others, the owner/operator shall replace the pumps and pump seals that are not superior technology. Pumps or pump seals shall be replaced at the rate of 20 percent per year and shall continue to be replaced until all are superior technology.</p>

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Monitoring Method and Technique	Method 21 of 40 CFR Part 60, Appendix A  Test each piece of equipment unless demonstration is made that equipment is not in VOC service			Method 21 of 40 CFR Part 60, Appendix A	Method 21 of 40 CFR Part 60, Appendix A  Test each piece of equipment unless demonstration is made that equipment is not in organic HAP service.	Method 21 of 40 CFR Part 60, Appendix A  Instrument to meet performance criteria of Method 21 except:  response factor criteria is for the average composition of the process fluid, not each individual VOC in stream  for process streams that contain inerts that are not organic HAP or VOC, average stream response factor is calculated on an inert-free basis  If no instrument available that meet all Method 21 criteria, then instrument readings may be adjusted as specified.  Monitor all equipment while it is "in service"
Calibration	before use each day of use  procedures specified in Method 21  calibration gases used:  zero air (less than 10 ppm hydrocarbon in air)  mixture of methane or n-hexane and air at about, but less than, 10,000 ppm methane or n-hexane					before use each day of use  procedures specified in Method 21  calibration gases used:  zero air (less than 10 ppm of hydrocarbon in air)  Phase I: mixture of methane in air at concentration of about, but less than, 10,000 ppm  Phase II: mixture of methane in air at concentration of about, but less than:  10,000 ppm for agitators 5,000 ppm for pumps 500 ppm all other equipment



Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Calibration (concluded)						<p>Phase III: mixture of methane in air at concentration of about, but less than:</p> <p>10,000 ppm for agitators</p> <p>2,000 ppm for pumps in food/ medical service</p> <p>5,000 ppm for pumps in polymerizing monomer service</p> <p>1,000 ppm for all other pumps</p> <p>500 ppm for all other equipment</p> <p>Phases II and III Exception: under certain conditions may calibrate up to 2,000 ppm higher than the leak definition</p>
"No detectable emissions" monitoring	<p>Background level determined by Method 21</p> <p>Traverse probe as close to the potential leak interface as possible as described in Method 21</p> <p>Calculate arithmetic difference between the maximum concentration indicated by the instrument and the background level compared to 500 ppm to determine compliance</p>					

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Not "in service" demonstration	Equipment must be demonstrated not to be in VOC service (i.e., VOC content never greater than 10% by weight).  For demonstration:  Use procedures that conform to ASTM E-260, E-168, E-169 to determine percent VOC in process fluid that is contained or contacts a piece of equipment.  Engineering judgement may be used to estimate the VOC content if piece of equipment had not been shown previously to be in VOC service.  Administrator will require use of ASTM Method D-2267b in event of disagreement to determine VOC content.  Compounds determined by EPA to have negligible photochemical reactivity can be excluded in determining VOC content of a process fluid.		Equipment must be demonstrated that the percent VOC content can be reasonable expected never to exceed 10.0 percent by weight.  For demonstration:  Use procedures that conform to ASTM Methods E169, E168, or E-260 (incorporated by reference).	Not applicable.	Equipment is presumed to be in organic HAP service unless demonstrated that the organic HAP content can never reasonably expected to exceed 5 percent by weight.  For demonstration:  Use Method 18 of 40 CFR Part 60, appendix A to determine percent organic HAP.  Engineering judgment may be used to determine percent organic HAP does not exceed 5 percent.  Owner/operator may instead determine organic HAP content does not exceed 5 percent by weight.	
"In wet gas service"	Not applicable.	Not applicable.	Equipment to be in wet gas service, it must be determined that it contains or contacts the field gas before the extraction step in the process.	Not applicable.	Not applicable.	Not applicable.

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Not "in hydrogen service"	Not applicable.	Equipment must be demonstrated to be not in hydrogen service; that is, the percent hydrogen content can be reasonably expected always to exceed 50 percent by volume.  For demonstration:  Use procedures that conform to the general method described in ASTM E-260, E-168, or E-169.  Engineering judgement may be used instead provided it demonstrates that the content clearly exceeds 50 percent by volume.  In case of disagreement, the ASTM procedure results will prevail.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Samples	Representative of process fluid that is contained in or contacts the equipment or the gas being combusted in flare.			Not applicable.	Representative of process fluid that is contained in or contacts the equipment.	
Vapor pressures	Standard reference texts  or  ASTM D-2879			Not applicable.	Not specified.	Not specified.

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Flare Compliance	Visible emissions: Method 22  Presence of flame: thermocouple or equivalent  Exit velocity: Method 2, 2A, 2C, or 2D  Component concentration: Method 18 and ASTM D 2504-67  Net Heat of Combustion: Published values or ASTM D 2382-76, if published values not available or cannot be calculated					

SUMMARY OF REGULATIONS

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Consolidated Recordkeeping	An owner or operator of more than one affected facility subject to this subpart may use one recordkeeping system if the system identifies each record by facility.			Not specified.	An owner or operator of more than one process unit subject to this subpart may use one recordkeeping system if the system identifies each record by process unit.	An owner or operator of more than one process unit subject to this subpart may use one recordkeeping system if the system identifies each record by process unit and the program being implemented for each type of equipment.
When leak detected ...	<p>Tagging Requirements:</p> <p>a weather-proof and readily visible identification, marked with the equipment id number, attached to the leaking equipment</p> <p>id may be removed after it has been repaired, except for valves</p> <p>for valves, id may be removed after 2 months of monitoring with no leaks detected</p> <p>Log Requirements:</p> <p>instrument and operator id number and equipment id number</p> <p>date leak detected</p> <p>dates of each attempt to repair leak</p> <p>repair methods applied in each attempt to repair</p> <p>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq</math> 10,000 ppm</p> <p>"repair delayed" and reason for delay if leak is not repaired within 15 calendar days after detection</p>			<p>Tagging Requirements:</p> <p>None required.</p> <p>Log Requirements:</p> <p>location</p> <p>date</p> <p>corrective action taken</p> <p>If delay:</p> <p>expected date of successful repair</p> <p>reason for delay</p> <p>owner/operator signature</p> <p>date of successful repair of leak</p> <p>Retain for 2 years</p>	<p>Tagging Requirements:</p> <p>a weather-proof and readily visible identification, marked with the equipment id number, attached to the leaking equipment</p> <p>id may be removed after it has been repaired, except for valves</p> <p>for valves, id may be removed after 2 months of monitoring with no leaks detected</p> <p>Log Requirements:</p> <p>instrument and operator id number and equipment id number</p>	<p>Tagging Requirements:</p> <p>a weather-proof and readily visible identification, marked with the equipment id number, attached to the leaking equipment</p> <p>id may be removed after it has been repaired, except for valves and connectors</p> <p>for valves and connectors, id may be removed after it has been monitored as specified and no leak has been detected during the follow-up monitoring</p> <p>Log Requirements:</p> <p>instrument and equipment id number, and operator name, initials, and id number</p>

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
When leak detected ... (concluded)	signature of owner/operator whose decision it was that repair could not be effected without a process shutdown  expected date of successful repair if leak is not repaired with the 15 days  dates of process unit shutdown that occurred while the equipment is unrepaired  date of successful repair of the leak  Retain for 2 years in readily accessible location.				date leak detected  dates of each attempt to repair leak  repair methods applied in each attempt to repair  "above 10,000" if maximum instrument reading after each repair attempt is $\geq$ 10,000 ppm  "repair delayed" and reason for delay if leak is not repaired within 15 calendar days after detection  signature of owner/operator whose decision it was that repair could not be effected without a process shutdown  expected date of successful repair if leak is not repaired with the 15 days  dates of process unit shutdown that occurred while the equipment is unrepaired  date of successful repair of the leak  Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.	date leak detected  dates of first attempt to repair leak    maximum instrument reading after successful repair or determined to be nonreparable  "repair delayed" and reason for delay if leak is not repaired within 15 calendar days after detection  for connectors: id of connectors disturbed since last monitoring period, and dates and results of follow-up monitoring  copies of periodic reports (if database not capable of generating such)  dates of process unit shutdown that occurred while the equipment is unrepaired  date of successful repair of the leak  Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Closed vent systems and control devices	<p>detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>dates and descriptions of any changes in design specifications</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>explanation of selection of parameter(s)</p> <p>periods when not operated according to design</p> <p>dates of startups and shutdowns of control devices and closed-vent systems</p> <p>Keep these records in a readily accessible location.</p>			<p>For life of facility:</p> <p>detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>dates and descriptions of any changes in design specifications</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>documentation that control device will achieve required control efficiency during maximum loading conditions</p> <p>explanation of selection of parameter(s)</p> <p>For 2 years:</p> <p>periods when not operated according to design</p> <p>dates of startups and shutdowns of control devices and closed-vent systems</p> <p>Incinerators: temperatures and exceedances</p> <p>Carbon adsorbers: outlet VOC concentrations and exceedances</p>	<p>detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>dates and descriptions of any changes in design specifications</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>explanation of selection of parameter(s)</p> <p>periods when not operated according to design</p> <p>dates of startups and shutdowns of control devices and closed-vent systems</p> <p>Keep these records in a readily accessible location.</p>	<p>Design Specifications and Performance Demonstration:</p> <ul style="list-style-type: none"><li>- detailed schematics, design specifications, and piping and instrumentation diagrams</li><li>- dates and descriptions of any changes in design specifications</li><li>- description of parameter(s) to be monitored to ensure proper operation and maintenance</li><li>- flare design and compliance demonstration results</li><li>- explanation of selection of parameter(s)</li></ul> <p>The design specification and performance demonstration records are to be kept for the life of the equipment.</p> <p>Records of Operation:</p> <ul style="list-style-type: none"><li>- records of operation of closed-vent systems and control devices</li><li>- dates and duration when closed-vent systems, and control devices not operated according to design</li><li>- dates and duration when monitoring systems/devices are nonoperative</li><li>- dates of startups and shutdowns</li><li>- records of closed-vent inspections</li></ul> <p>Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.</p>

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Closed vent systems and control devices (concluded)				For no detectable emissions:  dates of each measurement background level maximum instrument reading		
Visual Inspections	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	documentation that inspection was conducted  dates of inspection  Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.
All equipment ...	list of id numbers of subject equipment  list of id numbers of equipment designated for no detectable emissions and signed by owner/operator  list of id numbers for pressure relief devices in gas/vapor service  for each compliance test for components designated for no detectable emissions:  dates conducted background level measured maximum instrument reading  list of id numbers of equipment in vacuum service  Maintain records in a readily accessible location.			Not applicable.	list of id numbers of subject equipment  list of id numbers of equipment designated for no detectable emissions and signed by owner/operator  list of id numbers for pressure relief devices in gas/vapor service  for each compliance test for components designated for no detectable emissions:  dates conducted background level measured maximum instrument reading  list of id numbers of equipment in vacuum service	list of id numbers of subject equipment (except certain connectors)  connectors do not need to be individually identified if all connectors in a designated area or length of pipe are identified as a group and the number of connectors is identified  schedule by process unit for monitoring connectors and valves  identification of equipment in HAP service by tagging, identified on a plant site plan, in log entries, or other methods  list of id numbers for equipment equipped with a closed-vent system and control device



Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
All equipment ... (concluded)					Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.	<div>list of id numbers of compressors and pressure relief devices complying with an instrument reading of less than 500 ppm above background standard</div> <div>id of surge control vessels or bottoms receivers equipped with a closed-vent system or control device</div> <div>id of pressure relief devices equipped with rupture disks</div> <div>id of instrumentation systems (individual components need not be identified)</div> <div>id of screwed connectors complying with §63.174(c)(2). Identification can be by grouping or area.</div> <div>list of valves and connectors removed from or added to the process if net credits for the removal or the valves or connectors are expected to be used</div> <div>documentation of the integrity of the weld for removed connectors</div> <div>if complying with §63.649, documentation that all monitoring and inspections have been conducted as required and document repair of leaks as applicable.</div> <div>Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.</div>
Unsafe- or Difficult-to-Monitor Valves				Not applicable.	<div>list of id numbers</div> <div>explanation for designation</div> <div>planned schedule for monitoring</div>	

SUMMARY OF REGULATIONS

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Unsafe-to- Monitor or Repair, Inaccessible or Glass-Lined Connectors	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	list of id numbers  explanation for designation  planned schedule for monitoring
Valves complying with alternative standard for skip-periods	schedule of monitoring  percent valves leaking during each monitoring period			Not applicable.	schedule of monitoring  percent valves leaking during each monitoring period	Not applicable.
Barrier fluid and seal systems	design criteria for indicating failure  explanation for selected criteria  any changes to selected criteria and reasons for change			Not applicable.	design criteria for indicating failure  explanation for selected criteria  any changes to selected criteria and reasons for change	
Exemptions Determinations	analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VOC service		analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VOC service  analysis demonstration that a reciprocating compressor is in wet gas service	Not applicable.	analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VHAP service  identification of equipment in organic HAP service less than 300 hours per year	identification of equipment in organic HAP service less than 300 hours per year  demonstration that compressor is not in hydrogen service
Not "In service"	information and data used to demonstrate that a piece of equipment is not in VOC service			Not applicable.	information and data used to demonstrate that a piece of equipment is not in organic HAP service	information, data, and analysis used to demonstrate that a piece of equipment or process unit is in heavy liquid service
"In wet gas service"	Not applicable.	Not applicable.	information and data used to demonstrate that a reciprocating compressor is in wet gas service	Not applicable.	Not applicable.	Not applicable.

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>If leak not repaired within 15 calendar days of discovery, reason for leak repair delay and expected date of successful repair</p> <p>Records of all analyses required under §§63.175(e) and §63.176(d):</p> <p>    areas associated with poorer than average performance and the associated service characteristics of the stream, the operating conditions, and maintenance practices</p> <p>    the reasons for rejecting specific candidate superior emission performing valve or pump technology from performance trials</p> <p>    the list of candidate superior emission performing valve or pump technologies and documentation of performance trial program items</p> <p>    the beginning date and duration of performance trials of each candidate superior emission performing technology</p> <p>Records documenting the quality assurance program</p> <p>Records indicating all valves or pumps replaced or modified are in compliance with the quality assurance requirements</p> <p>Records documenting compliance with the 20 percent or greater annual replacement rate for pumps</p> <p>Information and data showing company has less than 100 employees</p>

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP - Reasonable further progress	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>for each valve in each process unit subject to the QIP:</p> <ul style="list-style-type: none"><li>- maximum instrument reading observed in each monitoring observation before repair, the response factor for the stream (if appropriate), the instrument model number, and the date of the observation</li><li>- whether the valve is in gas or light liquid service</li><li>- if a leak is detected, the repair methods used and the instrument readings after repair</li></ul> <p>percent leaking valves and rolling average percent reduction each quarter</p> <p>beginning and end dates while meeting the requirements of the QIP</p>

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP - Technology review and improvement	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>For valves:</p> <p>valve type and manufacturer, valve design, materials of construction, packing material, and year installed</p> <p>service characteristics of the stream (e.g., operating pressure, temperature, line diameter, corrosivity)</p> <p>gas/vapor or light liquid service</p> <p>if a leak is detected, the maximum instrument reading observed before a repair, response factor for stream if adjusted, instrument model number, and date of observation</p> <p>repair methods used and the instrument readings after the repair</p> <p>a description of any maintenance or quality assurance program used in the process unit that are intended to improve performance</p> <p>percent leaking valves</p> <p>documentation of all inspections and recommendations for design or specification changes to reduce leak frequency</p> <p>beginning and end date while meeting requirements of the QIP</p>

SUMMARY OF REGULATIONS

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP - Technology review and improvement (concluded)	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	For pumps:  type and manufacturer, seal type and manufacturer, pump design, materials of construction, barrier fluid or packing material, and year installed  service characteristics of the stream: discharge pressure, temperature, flow rate, corrosivity, annual operating hours  maximum instrument readings observed before repair, response factor for the stream, instrument number, and date of observation  if a leak is detected, repair methods used and the instrument readings after the repair  rolling average percent leaking pumps  documentation of all inspections and recommendations for design or specification changes to reduce leak frequency  beginning and end date while meeting requirements of the QIP
No detectable emissions	background level  maximum instrument reading					Not applicable.
Enclosed Vented Process Units	Not applicable.				Not applicable.	id of process units and organic HAP handled  schematic of process unit, enclosure, and closed-vent system  description of system used to create negative pressure

Reporting Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Initial Report	process unit identification  number of valves, pumps, and compressors, excluding those designated for no detectable emissions			Certification that initial inspection of closed-vent system and control device has been performed.	process unit identification  number of valves, pumps, and compressors, excluding those designated for no detectable emissions	<u>Initial Notification</u>  name and address of owner/operator  address of facility (physical location)  identification of subject processes  compliance statement  statement of whether a source can achieve compliance by the applicable compliance date  <u>Notification of Compliance Status (for each subject process unit)</u>  A. For each subject unit:  process unit identification  number of each equipment type (except those in vacuum service)  method of compliance  planned schedule for each phase  whether percent valves leaking will be calculated on a process unit or source-wide basis  if performance test required, complete test report  B. Enclosed-vented Process Units  process unit identification  description of negative pressure system and control device

Reporting Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Subsequent semiannual/ Periodic Reports	<p>process unit identification</p> <p>The following information by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p> <p>Dates of process unit shutdowns that occurred within the semiannual reporting period</p> <p>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</p>			<p>Semi-annual certification that all required inspections have been carried out.</p> <p>Initial and semi-annual reports that summarize all inspections that identify problems that could result in VOC emissions, including information about repairs and corrective action taken.</p> <p>Semi-annual reports of each period of exceedance for incinerators and carbon adsorbers.</p>	<p>process unit identification</p> <p>The following information by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p> <p>Dates of process unit shutdowns that occurred within the semiannual reporting period</p> <p>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</p>	<p>Submit the following information semi-annually starting 6 months after the Notification of Compliance:</p> <p>the number of valves, pumps, compressors, connectors, and screwed connectors for which leaks were detected</p> <p>the percent leakers for valves, pumps, connectors, and screwed connectors</p> <p>the total number of valves, pumps, connectors, and screwed connectors monitored</p> <p>the number of valves, pumps, compressors, connectors, and screwed connectors for which leaks were not repaired</p> <p>identification of the number of valves and connectors determined to be nonreparable</p> <p>explanation of why repairs delayed and why process unit shutdown was infeasible</p> <p>notification of change in connector monitoring alternatives (if applicable)</p> <p>For "no detectable emissions" components: all monitoring to show compliance</p> <p>initiation of monthly monitoring under phase III or QIP (if applicable)</p>
Other	<p>Notification 90 days prior to election to comply with either alternative standard for valves in gas/vapor service.</p> <p>Report of all performance test in accordance with §60.8.</p>			<p>If flare used, initial performance test within 60 days of initial startup.</p>	<p>Notification 90 days prior to complying with either alternative standard for valves in gas/vapor service.</p> <p>Report of all performance tests in accordance with §60.8.</p>	<p>None specified.</p>



General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
APPLICABILITY	Plants which produce: - ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene - vinyl chloride by any process - one or more polymers containing any fraction of polymerized vinyl chloride.	At furnace and foundry coke by-product recovery plants: - tar decanters - tar storage tanks - tar-intercepting sumps - flushing-liquor circulation tanks - light-oil sumps - light-oil condensers - light-oil decanters - wash-oil decanters - wash-oil circulation tanks - naphthalene processing - final coolers - final-cooler cooling towers - equipment intended to operate in benzene service  Also applies to benzene storage tanks, BTX storage tanks, light-oil storage tanks, and excess ammonia-liquor storage tanks at furnace coke by-product recovery plants.	Owners/operators of chemical manufacturing plants, coke by-product recovery plants, and petroleum refineries and the owners/operators of hazardous waste treatment, storage, and disposal facilities that treat, store, or dispose of hazardous waste generated by these facilities.	Facilities that treat, store, or dispose of hazardous waste in tanks, surface impoundments, or containers subject to either 40 CFR Part 264, Subpart I (Use and Management of Containers), J (Tank Systems), or K (Surface Impoundments).  Containers: >0.1 cubic meters capacity	
EXEMPTIONS	Equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity #0.19 m <sup>3</sup> (50 gal).	None specified.	The following waste is exempted:  - waste in the form of gases or vapors that is emitted from process fluids  - waste that is contained in a segregated stormwater sewer system	A waste management unit that holds hazardous waste placed in the unit before June 5, 1995, and in which no hazardous waste is added to the unit on or after June 5, 1995.  A container that has a design capacity ≤ 0.1 m <sup>3</sup> .  A tank or surface impoundment in which an owner/operator has stopped adding hazardous waste and begun implementing or completed closure pursuant to an approved closure plan.  A waste management unit used solely for on-site treatment or storage of hazardous waste that is generated as the result of implementing remedial activities required under certain corrective action RCRA, CERCLA, and other similar authorities.  A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act.	

General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
DEFINITIONS					
"In gas/vapor service"	None specified.	A piece of equipment contains process fluid that is in the gaseous state at operating conditions.	None specified.	Not applicable.	Not applicable.
"In heavy liquid service"	None specified.	Not applicable.	None specified.	Not applicable.	Not applicable.
"In light liquid service"	None specified.	Not applicable.	None specified.	Not applicable.	Not applicable.
"In liquid service"	None specified.	A piece of equipment is not in gas/vapor service.	None specified.	Not applicable.	Not applicable.
"In VOC service"	The piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight and the piece of equipment is not in heavy liquid service (as defined under 40 CFR Part 60, subpart VV).	The piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight and the piece of equipment is not in heavy liquid service (as defined under 40 CFR Part 60, subpart VV).	None specified.	Not applicable.	Not applicable.
"In VHAP service"	Not applicable.	A piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight a volatile hazardous air pollutant (VHAP).	None specified.	Not applicable.	Not applicable.
"In organic hazardous air pollutant or in organic (HAP) service"	None specified.	Not applicable.	None specified.	Not applicable.	Not applicable.
"In benzene service"	None specified.	A piece of equipment, other than an exhauster, contains or contacts a fluid (liquid or gas) that is at least 10% benzene by weight.  Any exhauster that contains or contacts a fluid (liquid or gas) that is at least 1% benzene by weight.	None specified.	Not applicable.	Not applicable.
DEFINITIONS (concluded)					
"In vinyl chloride service"	A piece of equipment either contains or contacts a liquid that is at least 10 percent by weight vinyl chloride or a gas that is at least 10 percent by volume vinyl chloride.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATIONS

General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
"No detectable organic emissions"	Not applicable.	Not applicable.	Not applicable.	No escape of organics from a device or system to the atmosphere as determined by: (1) an instrument reading less than 500 ppmv above the background level of each joint, fitting, and seal and (2) by no visible openings or defects in the device or system such as rips, tears, or gaps.	
Equipment	None specified.	Each pump, valve, exhauster, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in benzene service.	None specified.	Not applicable.	Not applicable.
Exhauster	None specified.	Fan located between the inlet gas flange and outlet gas flange of the coke oven gas line that provides motive power for coke oven gases.	None specified.	Not applicable.	Not applicable.
Process Unit	None specified.	Equipment assembled to produce a VHAP or its derivatives as intermediate or final products, or equipment assembled to use a VHAP in the production of a product. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient product storage facilities.	Equipment assembled and connected by pipes or ducts to produce intermediate or final products. A process unit can be operated independently if supplied with sufficient fuel or raw material and sufficient product storage facilities.	Not applicable.	Not applicable.
Repaired	None specified.	Equipment is adjusted, or otherwise altered, to eliminate a leak.	None specified.	None specified.	None specified.
First Attempt at Repair	None specified.	To take rapid action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.	None specified.	None specified.	None specified.
EQUIPMENT IDENTIFICATION (see also Recordkeeping Requirements)	If complying with subpart V:  Marked in manner such that it can be readily distinguished from other pieces of equipment.  Not required for process units with less than 2% leaking valves.	Marked in manner such that it can be readily distinguished from other pieces of equipment in benzene service.	None specified.	None specified.	None specified.
COMPLIANCE DEMONSTRATIONS	For existing sources, shall be in compliance within 90 days after the effective date of the applicable standard.  For new sources, shall be in compliance upon effective date of the applicable standard.			None specified.	None specified.
METHOD OF COMPLIANCE DETERMINATION	Review of records, review of performance test results, and inspections.		None specified.	None specified.	None specified.

General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
REQUIREMENTS WHEN MORE THAN ONE STANDARD APPLIES	A source subject to this subpart that is also subject to 40 CFR Part 60 only will be required to comply with the provisions of this subpart.	None specified.	None specified.	None specified.	None specified.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PROCESS UNIT/PLANT AREA					
Standards	Vinyl chloride (VC) monitoring system capable of detecting major leaks and identification of the general area of the plant where the leak is located.  System to be operated according to plan developed by plant owner or operator.  Location and number of points to be monitored and the frequency of the monitoring based on the number of pieces of equipment in VC service and the size and physical layout of the plant.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Determined by plant owner or operator.  Acceptable definition when compared to background concentrations of vinyl chloride in the areas of the plant to be monitored for leaks.  Definition of a leak may vary from area to area.  Is to change over time as background concentrations are reduced.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	None specified. Plan is to include action to be taken when a leak is detected.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
VALVES, GAS/VAPOR OR LIGHT LIQUID SERVICE					
Standards	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Monitor monthly.</p> <p>After two consecutive months of no leaks, a valve may be monitored quarterly.</p> <p>If leak detected, monitor valve monthly until leak is not detected for two consecutive months.</p> <p>Not required for process units with less than 2% leaking valves.</p> <p>"No detectable emissions" valves: less than 500 ppm above background.</p> <p>"Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.</p> <p>"Difficult-to-monitor" valves: written plan to monitor at least once per year.</p>	<p>Monitor monthly.</p> <p>After two consecutive months of no leaks, a valve may be monitored quarterly.</p> <p>If leak detected, monitor valve monthly until leak is not detected for two consecutive months.</p> <p>"No detectable emissions" valves: less than 500 ppm above background.</p> <p>"Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.</p> <p>"Difficult-to-monitor" valves: written plan to monitor at least once per year.</p>	Not applicable.	Not applicable.	Not applicable.
Leak Definition	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>10,000 ppm</p>	<p>10,000 ppm</p>	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
VALVES, GAS/VAPOR OR LIGHT LIQUID SERVICE (concluded)					
Repair	If complying with subpart V, 40 CFR Part 61:  Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
First Attempt at Repair	If complying with subpart V, 40 CFR Part 61:  Best practices include, but are not limited to:  - tightening of bonnet bolts - replacement of bonnet bolts - tightening of packing gland nuts - injection of lubricant into lubricated packing	Best practices include, but are not limited to:  - tightening of bonnet bolts - replacement of bonnet bolts - tightening of packing gland nuts - injection of lubricant into lubricated packing	Not applicable.	Not applicable.	Not applicable.
Exemptions	If complying with subpart V, 40 CFR Part 61:  Equipment in vacuum service.	Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
ALTERNATIVE STANDARDS FOR VALVES					
Allowable Percentage of Valves Leaking					
Standard	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Notify Administrator of election to comply with alternative standard.</p> <p>Conduct performance test initially, annually, and at other times as requested by the Administrator.</p> <p>Performance tests shall:</p> <ul style="list-style-type: none"><li>- Monitor all valves in gas/vapor and in light liquid service within one week.</li><li>- Calculate percent leaking.</li><li>- Equal to or less than 2.0 percent leaking.</li></ul>	<p>Notify Administrator of election to comply with alternative standard.</p> <p>Conduct performance test initially, annually, and at other times as requested by the Administrator.</p> <p>Performance tests shall:</p> <ul style="list-style-type: none"><li>- Monitor all valves in gas/vapor and in light liquid service within one week.</li><li>- Calculate percent leaking.</li><li>- Equal to or less than 2.0 percent leaking.</li></ul> <p>Notify Administrator in writing when owner or operator elects to no longer comply with alternative standard.</p>	Not applicable.	Not applicable.	Not applicable.
Leak Definition	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>10,000 ppm</p>	<p>10,000 ppm</p>	Not applicable.	Not applicable.	Not applicable.
Repair	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Repair as soon as practicable, no later than 15 calendar days after detection.</p> <p>First attempt within 5 calendar days of detection.</p>	<p>Repair as soon as practicable, no later than 15 calendar days after detection.</p> <p>First attempt within 5 calendar days of detection.</p>	Not applicable.	Not applicable.	Not applicable.
Allowable Percentage of Valves Leaking (concluded)					



Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
First Attempt at Repair	If complying with subpart V, 40 CFR Part 61:  Best practices include, but are not limited to: - tightening of bonnet bolts - replacement of bonnet bolts - tightening of packing gland nuts - injection of lubricant into lubricated packing	Best practices include, but are not limited to:  - tightening of bonnet bolts - replacement of bonnet bolts - tightening of packing gland nuts - injection of lubricant into lubricated packing	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Skip Period Leak Detection and Repair					
Standard	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Notify Administrator of election to comply with alternative standard.</p> <p>Conduct performance test initially, annually, and at other times as requested by the Administrator.</p> <p>Comply initially with monthly LDAR, then:</p> <p>1. After 2 consecutive quarters with equal to or less than 2 percent leakers, monitor semiannually; or</p> <p>2. After 5 consecutive quarters with equal to or less than 2 percent leakers, monitor annually.</p> <p>Revert to monthly monitoring if percent leakers exceed 2 percent.</p>	<p>Notify Administrator of election to comply with alternative standard.</p> <p>Conduct performance test initially, annually, and at other times as requested by the Administrator.</p> <p>Comply initially with monthly LDAR, then either:</p> <p>1. After 2 consecutive quarters with equal to or less than 2 percent leakers, monitor semiannually.</p> <p>2. After 5 consecutive quarters with equal to or less than 2 percent leakers, monitor annually.</p> <p>Revert to monthly monitoring if percent leakers exceed 2 percent.</p>	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PUMPS, LIGHT LIQUID SERVICE					
Standards	<p><u>Rotating Pumps</u></p> <p>Minimize VC emissions by installing sealless pumps, pumps with double mechanical seals or equivalent. If double mechanical seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p> <p><u>Reciprocating Pumps</u></p> <p>Minimize VC emissions by installing double outboard seals, or equivalent. If double outboard seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p>	<p>Pumps: Monitor monthly and conduct weekly visual inspections. If located at unmanned plant site, visual inspections required at least monthly.</p> <p>"Dual Mechanical Seal" Pumps: specific operating and design requirements.</p> <p>"No Detectable Emissions" Pumps: less than 500 ppm above background and specified design requirements.</p>	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PUMPS, LIGHT LIQUID SERVICE (continued)					
Standards (concluded)	Alternatively, comply with subpart V, part CFR Part 61:  Pumps: Monitor monthly and conduct weekly visual inspections. If located at unmanned plant site, visual inspections required at least monthly.  "Dual Mechanical Seal" Pumps: specific operating and design requirements.  "No Detectable Emissions" Pumps: less than 500 ppm above background and specified design requirements.				
Leak Definition	If complying with subpart V, 40 CFR Part 61:  10,000 ppm  Indications of liquids dripping from pump seal  "Dual Mechanical Seal" Pumps: Indications of liquid dripping from pump seal where monitoring for VHAP indicates the presence of VHAP (less background reading) and for monitoring total VOC measures greater than 10,000 ppm	10,000 ppm  Indications of liquids dripping from pump seal  "Dual Mechanical Seal" Pumps: Indications of liquid dripping from pump seal where monitoring for VHAP indicates the presence of VHAP (less background reading) and for monitoring total VOC measures greater than 10,000 ppm	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PUMPS, LIGHT LIQUID SERVICE (concluded)					
Repair	If complying with subpart V, 40 CFR Part 61:  Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
First Attempt at Repair	None specified.	None specified.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Equipment in vacuum service.  Any pump equipped with a compliant closed-vent system and control device.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PRESSURE RELIEF DEVICES, GAS/VAPOR SERVICE					
Standards	Discharges: No discharge to the atmosphere.  Leaks: No detectable emissions (less than 500 ppm above background).  After each release, return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device.	No detectable emissions (less than 500 ppm above background).  After each release, return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Leaks: "No detectable emissions" - less than 500 ppm above background.	"No detectable emissions" - less than 500 ppm above background.	Not applicable.	Not applicable.	Not applicable.
Repair	Leaks: Return to condition of "no detectable emissions" as soon as practicable but no later than 5 calendar days after pressure release.	Return to condition of "no detectable emissions" as soon as practicable but no later than 5 calendar days after pressure release.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Emergency relief discharges or relief valve discharges ducted to control device continually operating while the emissions from the release are present at the device.  "Emergency relief discharge" means a discharge that could not have been avoided by taking measures to prevent the discharge.	Pressure relief devices equipped with compliant closed-vent system and control device.  Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PRESSURE RELIEF DEVICES, LIGHT LIQUID OR HEAVY LIQUID SERVICE					
Standards	Not applicable.	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	10,000 ppm	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Not applicable.	Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COMPRESSORS					
Standards	<p><u>Rotating Compressors</u></p> <p>Minimize VC emissions by installing compressors with double mechanical seals or equivalent. If double mechanical seals are used, minimize vinyl chloride emissions by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p> <p><u>Reciprocating Pumps</u></p> <p>Minimize VC emissions by installing double outboard seals, or equivalent. If double outboard seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p>	Not applicable.	Not applicable.	Not applicable.	Not applicable.



Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COMPRESSORS (continued)					
Standards (concluded)	Alternatively, comply with subpart V, 40 CFR Part 61:  Equip with seal system that includes a barrier fluid system and that prevents leakage to atmosphere.  Seal system shall meet certain design and operation requirements.  Install sensor to detect failure of seal system, barrier fluid system, or both.  Check sensor daily or equip with audible alarm (unless located at unmanned plant site).  Establish criteria that indicates failure of seal system, barrier fluid system, or both.				
Leak Definition	If complying with subpart V, 40 CFR Part 61:  Sensor indicates failure of seal system, barrier fluid system, or both based on established criteria.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COMPRESSORS (concluded)					
Repair	If complying with subpart V, 40 CFR Part 61:  Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
SAMPLING CONNECTION SYSTEMS					
Standards	Unused portions of samples containing at least 10 percent by weight VC are to be returned to the process or destroyed in a compliant control device. Sampling techniques are to be such that samples containers in VC service are purged into a closed process system.  Alternatively, comply with subpart V, 40 CFR Part 61:  Equipped with closed-purge system or closed-vent system that either returns the fluid to the process line or collects and recycles the purged fluid with zero VHAP emissions to the atmosphere, or captures and transports all purged fluids to a compliant control device.	Equipped with closed-purge system or closed-vent system that either returns the fluid to the process line or collects and recycles the purged fluid with zero VHAP emissions to the atmosphere, or captures and transports all purged fluids to a compliant control device.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	If complying with subpart V, 40 CFR Part 61:  Equipment in vacuum service.  In-situ sampling systems.	Equipment in vacuum service.  In-situ sampling systems.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
OPEN-ENDED VALVES OR LINES					
Standards	Comply with subpart V, 40 CFR Part 61:  Equip with cap, blind flange, plug, or second valve to seal open end at all time except when operations require flow through open end.  <u>Second Valve</u>  Close valve on process fluid end prior to closing second valve  <u>Double Block and Bleed System</u>  May remain open during operations that require venting the line between the block valves, but comply with basic standard at all other times.	Equip with cap, blind flange, plug, or second valve to seal open end at all time except when operations require flow through open end.  <u>Second Valve</u>  Close valve on process fluid end prior to closing second valve  <u>Double Block and Bleed System</u>  May remain open during operations that require venting the line between the block valves, but comply with basic standard at all other times.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	OELs located on multiple service process lines that operate in VC service less than 10 percent of the time, provided they are addressed in the process unit/plant area monitoring system.  Exemption may be extended to OELS demonstrated to require significant retrofit cost to comply with subpart V.	Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
FLANGES AND OTHER CONNECTORS (ALL SERVICES)					
Standards	Comply with subpart V, 40 CFR Part 61:  Monitor within 5 days if evidence of a potential leak is found by visual, auditory, olfactory, or other detection methods.	Monitor within 5 days if evidence of a potential leak is found by visual, auditory, olfactory, or other detection methods.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	10,000	10,000	Not applicable.	Not applicable.	Not applicable.
Repair	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Equipment in vacuum service.  Not required for process units with less than 2% leaking valves.	Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
AGITATORS, GAS/VAPOR SERVICE OR LIGHT LIQUID SERVICE					
Standards	Minimize VC emissions by installing agitators with double mechanical seals, or equivalent. If double mechanical seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the agitated vessel; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repairs	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PRODUCT ACCUMULATOR VESSELS					
Standards	Compliant closed-vent system and control device.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Equipment in vacuum service.  Not required for process units with less than 2% leaking valves.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CLOSED VENT SYSTEMS AND CONTROL DEVICES					
Standards	<p>Continually operating while emissions from the release are present.</p> <p><u>Control Devices</u></p> <p>Other than flares: limit VC emissions to less than 10 ppm (average over 3-hour period)</p> <p>Flares: Comply with §60.18.</p>	<p>Control devices and closed-vent systems to be operated at all time that emissions may be vented to them.</p> <p><u>Control Devices</u></p> <p>Vapor recovery systems: 95 percent or greater recovery</p> <p>Combustion devices: 95 percent or greater reduction or minimum residence time of 0.50 seconds and minimum temperature of 760°C.</p> <p>Flares: Comply with §60.18</p> <p><u>Closed-Vent Systems (CVS)</u></p> <p>No detectable emissions (less than 500 ppm above background) and no visual indications.</p>	<p>Control devices and closed-vent systems to be operated at all times when waste is placed in the waste management unit, except when maintenance or repair cannot be completed without a shutdown of the control device.</p> <p><u>Closed-Vent System (CVS)</u></p> <p>No detectable emissions (less than 500 ppmv above background).</p> <p>All gauging and sampling devices are to be gas-tight except when in operation.</p> <p><u>Control Devices</u></p> <p>Enclosed combustion device: reduce organic emissions by <math>\geq</math>95% by weight</p> <p>achieve a total organic compound concentration of 20 ppmv on a dry basis corrected to 3% O<sub>2</sub></p> <p>minimum residence time of 0.5 sec at minimum temperature of 760EC</p> <p>Boiler/Process Heater:</p> <p>introduce vent stream into flame zone</p>	<p>Operating at all times when gases, vapors, or fumes are vented from the waste management unit through the CVS to the control device.</p> <p><u>Control Devices</u></p> <p>Designed and operated to reduce total organic content of the inlet vapor stream vented to the control device by at least 95% by weight.</p> <p>For carbon adsorbers, carbon replacement intervals specified [see §264.1033(g) and (h)].</p> <p>Enclosed combustion devices: 95 percent or greater reduction; 20 ppmv total organic compound concentration; or minimum residence time of 0.50 seconds and minimum temperature of 760°C.</p> <p>Boilers and process heaters: Introduce vent stream into flame combustion zone.</p> <p>Flares: Flame present at all times, no visible emissions (except for periods not to exceed a total of 5 minutes during any 2 consecutive hours), basic requirements for heat content and exit velocities.</p> <p>An applicable control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system: develop documentation including sufficient information to describe the control device operation and identify process parameter(s) that indicate proper operation and maintenance of the control device.</p> <p><u>Closed-Vent System (CVS)</u></p> <p>Designed for and operated with no detectable emissions.</p> <p>Route gases, vapors, and fumes emitted from the hazardous waste to a control device.</p> <p>If the system contains one or more bypass devices that could be used to divert gases, vapors, or fumes from entering the control device, §264.1087(b)(3) requirements apply.</p>	



Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CLOSED VENT SYSTEMS AND CONTROL DEVICES (continued)					
Standards (concluded)			<p>Vapor recovery system:</p> <p>≥95% (by weight) recovery or control efficiency of the organic emissions</p> <p>≥98% (by weight) recovery or control efficiency of the benzene emissions</p> <p>Flares: Comply with §60.18</p> <p>Other Control Devices:</p> <p>≥95% (by weight) recovery or control efficiency of the organic emissions</p> <p>≥98% (by weight) recovery or control efficiency of the benzene emissions</p> <p>develop test data and design information to document efficiency</p> <p>identify critical operating parameters, range of values of these parameters that ensure emission control efficiency and how these will be monitored</p> <p>CVS and CDs:</p> <p>visually inspect initially and quarterly thereafter</p> <p>include ductwork, piping, and connections for evidence of visible defects (e.g., holes, loose connections)</p>		

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CLOSED VENT SYSTEMS AND CONTROL DEVICES (concluded)					
Monitoring	Not applicable.	Control Devices: Monitor to ensure operated and maintained in conformance with their designs.  Closed-Vent Systems: Initially, annually, and at other times as requested by the Administrator.	Control Devices: Continuous monitoring of operations  Closed-Vent Systems: Monitor initially and at least once per year thereafter.  If contains by-pass lines, (1) vent stream flow indicators or (2) car-seal or lock-and-key type of configuration with monthly visual inspection required.  Visually inspect flow monitoring device at least once per operating day.	Closed-Vent Systems (CVS): Initially, annually, and at other times as requested by the Administrator.  If contains by-pass lines, (1) vent stream flow meters or (2) car-seal or lock-and-key type of configuration with monthly visual inspection required.	
Leak Definition	Not applicable.	Not applicable.	Monitoring: 500 ppm  Visual: visible defects	CVS: detectable emissions ≥500 above background	
Repair	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.			
Exemptions	Not applicable.	Equipment in vacuum service.	None specified.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PROCESS VESSELS, STORAGE TANKS, AND TAR-INTERCEPTING SUMPS					
Standards	Not applicable.	<p>Option 1: Duct to a control device designed and operated for no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background and visual inspections.</p> <p>Monitor the connections and seals on each control system to determine if it is operating with no detectable emissions.</p> <p>Visually inspect each source, including sealing materials, and the ductwork of the control system for evidence of visible defects (e.g., tears, gaps).</p> <p>Conduct monitoring and visually inspection semi-annually and at any other time after the control system is repressurized.</p> <p>Option 2: Install, operate, and maintain a pressure relief device, vacuum relief device, access hatch, and sampling port. Equip each hatch and sampling port with gasket and cover, seal, or lid that is closed at all times except when in use.</p> <p>Use of sludge conveyors requires operation of water leg seal on tar decanter roof to ensure enclosure of the major portion of the liquid surface not necessary of its operation.</p>	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PROCESS VESSELS, STORAGE TANKS, AND TAR-INTERCEPTING SUMPS (concluded)					
Leak Definition	Not applicable.	Monitoring: 500 ppmv above background level.  Visual: Visible defects are observed.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
LIGHT-OIL SUMPS					
Standards	Not applicable.	<p>Option 1: Enclose and seal the liquid surface in the sump to form a closed system to contain the emissions.</p> <p>Option 2: Install, operate, and maintain a vent on the light-oil sump cover. Equip each vent pipe with a water leg seal, a pressure relief device, or vacuum relief device.</p> <p>Option 3: Install, operate, and maintain an access hatch on each light-oil sump cover. Equip each hatch with a gasket and a cover, seal, or lid that is kept closed except when in use.</p> <p>Covers may be removed for maintenance but must be replaced with seal at completion of maintenance.</p> <p>If control equipment is used to comply:</p> <p>    monitor the connections and seals on each control system to determine if it is operating with no detectable emissions.</p> <p>    visually inspect each source, including sealing materials, for evidence of visible defects (e.g., tears, gaps).</p> <p>    conduct this monitoring and inspection semiannually and at any other time the cover is removed.</p>	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
LIGHT-OIL SUMPS (concluded)					
Leak Definition	Not applicable.	Monitoring: 500 ppmv above background level.  Visual: Visible defects are observed.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION																			
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC															
TANKS																				
Standards	Not applicable.	Not applicable.	<p>Option 1: Compliant fixed roof (see Covers) and compliant closed-vent system and control device.</p> <p>Option 2: Compliant fixed roof provided certain conditions are met including but not limited to the following maximum organic vapor pressure and size requirements:</p> <table><tr><th>Capacity (cubic meters)</th><th>Vapor pressure (kilopascals)</th></tr><tr><td>not specified</td><td>5.2</td></tr><tr><td>≥75 to &lt;151</td><td>27.6</td></tr><tr><td>&lt;75</td><td>76.6</td></tr></table> <p>Each fixed roof, seal, access door, and other opening: initial and quarterly inspections for cracks and gaps and that access doors and other openings are closed and properly gasketed.</p>	Capacity (cubic meters)	Vapor pressure (kilopascals)	not specified	5.2	≥75 to <151	27.6	<75	76.6	<p>Pressure tanks: no detectable organic emissions</p> <p>Non-pressure tanks:</p> <p>Option 1: Compliant cover and compliant closed-vent system and control device.</p> <p>Option 2: Compliant cover provided certain conditions are met including but not limited to the following maximum organic vapor pressure and size requirements:</p> <table><tr><th>Capacity (cubic meters)</th><th>Vapor pressure (kilopascals)</th></tr><tr><td>≥151</td><td>5.2</td></tr><tr><td>≥75 to &lt;151</td><td>27.6</td></tr><tr><td>&lt;75</td><td>76.6</td></tr></table> <p>Option 3: Equipped with fixed roof and internal floating roof that meets §265.1091 or (§60.112b).</p> <p>Option 4: Equipped with external floating roof that meets §265.1091 (or§60.112b).</p>	Capacity (cubic meters)	Vapor pressure (kilopascals)	≥151	5.2	≥75 to <151	27.6	<75	76.6
Capacity (cubic meters)	Vapor pressure (kilopascals)																			
not specified	5.2																			
≥75 to <151	27.6																			
<75	76.6																			
Capacity (cubic meters)	Vapor pressure (kilopascals)																			
≥151	5.2																			
≥75 to <151	27.6																			
<75	76.6																			
Leak Definition	Not applicable.	Not applicable.	<p>Broken seal or gasket.</p> <p>Detectable emissions measured.</p>	(see Covers)																
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 45 calendar days after identification.	(see Covers)																
Exemptions	Not applicable.	Not applicable.	<p>Tanks with fixed roof and internal floating roof meeting §60.112b(a)(1).</p> <p>External floating roofs that comply with §60.112b(a)(2).</p> <p>Alternative means of emission limitation. (§60.114b)</p>	<p>A tank that meets all of the requirements identified in §265.1083© [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is &lt;100 ppmw.</p> <p>Tanks used for biological treatment of hazardous waste in accordance with §265.1083© [§264.1082(c)(2)(iv)].</p>																

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
SURFACE IMPOUNDMENTS					
Standards	Not applicable.	Not applicable.	Compliant covers (see Covers) that are vented to compliant closed-vent system and control device.  Inspect initially and quarterly thereafter for cracks or gaps.	Option 1: Compliant covers that are vented to compliant closed-vent system and control device.  Option 2: Floating membrane cover that meets certain requirements including designed to operate with no detectable organic emissions.	
Leak Definition	Not applicable.	Not applicable.	Broken seal or gasket.	(see Covers)	
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 15 calendar days after identification.	(see Covers)	
Exemptions	Not applicable.	Not applicable.	None specified.	A surface impoundment that meets all of the requirements identified in §265.1083© [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is <100 ppmw.  Surface impoundments used for biological treatment of hazardous waste in accordance with §265.1083(c)(2)(iv) [§264.1082(c)(2)(iv)].	



Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CONTAINERS					
Standards	Not applicable.	Not applicable.	<p>Compliant cover (see Covers) designed for no detectable emissions.</p> <p>Monitor initially and annually thereafter.</p> <p>Maintain cover in closed, sealed position.</p> <p>Treatment Containers:</p> <p>Locate in compliant enclosure vented to compliant closed vent system and control device.</p> <p>Compliant Enclosure: designed and operated with sufficient airflow to capture organic vapors emitted from container and vent them to compliant closed vent system and control device.</p> <p>Transfer into Containers:</p> <p>use of conveyance system that uses a tube (or other means) to add waste to the container and cover to remain in place and all container openings to be in closed, sealed position except for opening.</p>	<p>Non-treatment Containers:</p> <p>Option 1: Compliant cover (see Covers).</p> <p>Monitor first time hazardous waste placed in container.</p> <p>If cannot repair immediately, remove hazardous waste from containers. Do not use container until leak is repaired and container retested.</p> <p>Option 2: If capacity is ≤0.46 cubic meters, compliant cover and complies with 49 CFR Part 178 regulations for packaging hazardous waste for transport.</p> <p>Option 3: If attached to or part of truck, trailer, or railcar, demonstrate that within preceding 12 months to be organic vapor tight (sustains a pressure change of ≤750 pascals within 5 minutes after pressurization).</p> <p>Treatment Containers:</p> <p>Located in compliant enclosure vented to compliant closed vent system and control device.</p> <p>Compliant Enclosure: designed and operated with sufficient airflow to capture organic vapors emitted from container and vent them to compliant closed vent system and control device.</p> <p>Transfer into Containers (&gt;0.46 cubic meters capacity:</p> <p>use of conveyance system that uses a tube (or other means) to add waste to the container and cover to remain in place and all container openings to be in closed, sealed position except for opening.</p>	
Leak Definition	Not applicable.	Not applicable.	Broken seal or gasket.	(see Covers)	
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 15 calendar days after identification.	(see Covers)	

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CONTAINERS (concluded)					
Exemptions	Not applicable.	Not applicable.	Containers with fixed roof and internal floating roof meeting §60.112b(a)(1).  External floating roofs that comply with §60.112b(a)(2).  Alternative means of emission limitation. (§60.114b)	A container that meets all of the requirements identified in §265.1083© [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is <100 ppmw.  Containers used for biological treatment of hazardous waste in accordance with §265.1083(c)(2)(iv) [§264.1082(c)(2)(iv)].	

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COVERS					
Standards	Not applicable.	Not applicable.	Initial and subsequent annual monitoring for no detectable organic emissions from cover and all openings.  Maintain each opening in closed, sealed position at all times except when necessary to use opening.	Initial and semiannual visual inspection and monitoring for no detectable organic emissions from cover and cover openings when all cover openings are secured in closed, sealed position.  "Unsafe-to-inspect" covers: written plan to inspect and monitor cover as frequently as practicable during times when a worker can safely access the cover.  "Difficult-to-inspect" covers: written plan and schedule to inspect and monitor at least once per calendar year.	
Leak Definition	Not applicable.	Not applicable.	Detectable emissions.  Broken seal or gasket.	Seals around rotating shaft: 10,000 ppmv  All other seals and cover connections: detectable emissions (i.e., concentrations greater than 500 ppmv plus background level).  Visual: a visible hole, gap, tear, or split in cover surface or cover opening.	
Monitoring	Not applicable.	Not applicable.	Instrument: Method 21 of 40 CFR Part 60, subpart A  Visual inspection: view entire cover surface and each cover opening in closed, sealed position for evidence of defect that may affect ability to continue to operate with no detectable organic emissions.	Instrument: Method 21 of 40 CFR Part 60, subpart A  Visual inspection: view entire cover surface and each cover opening in closed, sealed position for evidence of defect that may affect ability to continue to operate with no detectable organic emissions.	
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 15 (45 for tanks) calendar days after identification.	First attempt to repair: within 5 calendar days of detection.  Completed repair: within 15 calendar days of detection.  Delay of repair allowed under certain circumstances.	

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COVERS (concluded)					
Exemptions	Not applicable.	Not applicable.	None specified.	<p>Tank with internal floating roof or external floating roof that is inspected and monitored in accordance with §265.1091 (§264.1091).</p> <p>Tank is buried partially or entirely underground -- only inspect or monitor portion that is above ground and can be opened to the atmosphere .</p> <p>Containers that meet all requirements specified in either §265.1087(b)(1)(ii) or (iii) [§264.1086(b)(1)(ii) or (iii)]</p> <p>Semiannual inspection/monitoring exemptions:</p> <p>cover remained closed and sealed since last visual inspection and monitoring</p> <p>designated as unsafe to inspect and monitor</p> <p>designated as difficult to inspect and monitor if installed and placed in service before December 6, 1994</p>	

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
EXHAUSTERS					
Standards	Not applicable.	Option 1: Monitor quarterly to detect leaks  Option 2: Equip with seal system that includes a barrier fluid system and that prevents leakage to atmosphere.  Seal system shall meet certain design and operation requirements.  Install sensor to detect failure of seal system, barrier fluid system, or both.  Check sensor daily or equip with audible alarm (unless located at unmanned plant site).  Establish criteria that indicates failure of seal system, barrier fluid system, or both.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Option 1: 10,000 ppm  Option 2: Sensor indicates failure of seal system, barrier fluid system, or both based on established criteria.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detected.  A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.	Not applicable.	Not applicable.	Not applicable.

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
EXHAUSTERS (concluded)					
Exemptions	Not applicable.	Equipment in vacuum service.  Exhausters equipped with compliant closed-vent system and control device.  Exhausters designed to operate with an instrument reading less than 500 ppm above background.	Not applicable.	Not applicable.	Not applicable.

Delay of Repair	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
General	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Allowed if repair is technically infeasible without a process unit shutdown.</p> <p>Repair to occur before end of next process unit shutdown.</p> <p>Allowed for equipment isolated from the process and that does not remain in VHAP service.</p>	<p>Allowed if repair is technically infeasible without a process unit shutdown.</p> <p>Repair to occur before end of next process unit shutdown.</p> <p>Allowed for equipment isolated from the process and that does not remain in VHAP service.</p>	<p>Allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.</p> <p>Repair of such equipment shall occur before the end of the next facility or unit shutdown.</p>	<p>For tanks and surface impoundment covers:</p> <p>Allowed beyond 15 days if repair requires first emptying contents and temporary removal of tank or surface impoundment from service results in unscheduled production stoppage of the source generating the hazardous waste being managed.</p> <p>Repair to occur at next time source generating the hazardous waste being managed stops operation for any reason.</p>	
Valves	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Allowed if:</p> <p>emissions of purged material resulting from immediate repair greater than the fugitive emissions likely to result from the delay in the repair and</p> <p>purged material is collected and destroyed or recovered in compliant control device when procedures are effected.</p> <p>Delay beyond a process unit shutdown allowed if valve assemblies have been depleted, valve assembly supplies had been sufficiently stocked before supplies were depleted.</p> <p>Not allowed unless next process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.</p>	<p>Allowed if:</p> <p>emissions of purged material resulting from immediate repair greater than the fugitive emissions likely to result from the delay in the repair and</p> <p>purged material is collected and destroyed or recovered in compliant control device when procedures are effected.</p> <p>Delay beyond a process unit shutdown allowed if valve assemblies have been depleted, valve assembly supplies had been sufficiently stocked before supplies were depleted.</p> <p>Not allowed unless next process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.</p>	<p>Not applicable.</p>	<p>Not applicable.</p>	<p>Not applicable.</p>

Delay of Repair	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Pumps	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Allowed if:</p> <p>Repair requires use of DMS seal system that includes barrier fluid and</p> <p>Repair completed as soon as practicable, but not later than 6 months after leak detected.</p>	<p>Allowed if:</p> <p>Repair requires use of DMS seal system that includes barrier fluid and</p> <p>Repair completed as soon as practicable, but not later than 6 months after leak detected.</p>	Not applicable.	Not applicable.	Not applicable.



SUMMARY OF REGULATIONS

Equivalence of (or Alternative) Means of Emission Limitation: General	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Equipment, Design, and Operational Requirements	Upon written application from an owner or operator, the Administrator may approve use of equipment or procedures that have been demonstrated to his satisfaction to be equivalent in terms of reducing VC emissions to the atmosphere to those prescribed for compliance with a specific paragraph of this subpart.	The Administrator shall compare test data for alternative means of emission limitation to a benzene control efficiency of 98% or 95% for a tar decanters.	Any person can collect, verify, and submit information showing alternative means achieves equivalent emission reductions.  Administrator makes findings.  Administrator may condition approval.	Not applicable.	Not applicable.
Work Practices	Upon written application from an owner or operator, the Administrator may approve use of equipment or procedures that have been demonstrated to his satisfaction to be equivalent in terms of reducing VC emissions to the atmosphere to those prescribed for compliance with a specific paragraph of this subpart.	Owner/operator collect and verify test data for alternative means of emission limitation.  Owner/operator demonstrates emission reduction achieved by required work practice (for minimum of 12 months).  Owner/operator demonstrates emission reduction achieved by alternative means of emission limitation.  Owner/operator commits in writing to work practices that provide for emission reductions equal to or greater than emission reductions achieved by required work practices.  Administrator compares demonstrated emission reductions.  Administrator may condition approval.	Not applicable.	Not applicable.	Not applicable.
Unique Approach	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Manufacturers of Equipment	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Test Methods and Procedures	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Monitoring Method and Technique	Process Unit/Plant Area:  Device that obtains representative samples from one or more applicable emission points on a continuous sequential basis.  Samples analyzed with gas chromatography or, if all hydrocarbons measures are VC, with infrared spectrography, flame ion detection, or alternative method.  Daily span check required using VC concentration of 10 ppm or equivalent to emission limit, as appropriate.	Method 21 of 40 CFR Part 60, Appendix A  Instrument to meet performance criteria of Method 21		Method 21 of 40 CFR Part 60, Appendix A	
Calibration	Gas mixtures:  conform as specified in sections 5.2.1 and 5.2.2 of Test Method 106 and in accordance with section 7.1 of Test Method 106	Before use on each day of its use, the instrument shall be calibrated by procedures specified in Method 21  Calibration gases used:  zero air (less than 10 ppm hydrocarbon in air)  mixture of methane or n-hexane and air at about, but less than, 10,000 ppm methane or n-hexane			
"No detectable emissions" monitoring	Background level determined by Method 21  Traverse probe as close to the potential leak interface as possible as described in Method 21  Calculate arithmetic difference between the maximum concentration indicated by the instrument and the background level compared to 500 ppm to determine compliance				

Test Methods and Procedures	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Not "in service" demonstration	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Equipment is presumed to be in VHAP service unless demonstrated that the VHAP content can never reasonably expected to exceed 10 percent by weight.</p> <p>For demonstration:</p> <p>Use procedures that conform to ASTM Method D-2267.</p> <p>Engineering judgment may be used to determine percent VHAP clearly does not exceed 10 percent.</p> <p>Administrator will require use of ASTM Method D-2267b in event of disagreement to determine VOC content.</p> <p>If owner or operator determines that a piece of equipment is in VHAP service, determination can only be revised by following demonstration procedures.</p>	<p>Equipment is presumed to be in benzene service unless demonstrated that the benzene content can never reasonably expected to exceed 10 percent by weight.</p> <p>Exhausters are presumed to be in benzene service unless demonstrated that the benzene content can never reasonably expected to exceed 1 percent by weight.</p> <p>For demonstration:</p> <p>Use procedures that conform to ASTM Method D-2267.</p> <p>Engineering judgment may be used to determine percent VHAP clearly does not exceed 10 percent.</p> <p>Administrator will require use of ASTM Method D-2267b in event of disagreement to determine VOC content.</p> <p>If owner or operator determines that a piece of equipment is in VHAP service, determination can only be revised by following demonstration procedures.</p>	Not applicable.	Not applicable.	Not applicable.
Samples	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Representative of process fluid that is contained in or contacts the equipment or the gas being combusted in flare.</p>	<p>Representative of process fluid that is contained in or contacts the equipment or the gas being combusted in flare.</p>	Not applicable.	<p>Collect at point of waste origination at least 4 discrete samples</p> <p>Collect within 1-hour period</p> <p>Collect in accordance with "Test Methods for Evaluating Solid Waste, Chemical/Physical Methods," EPA SW-846, 3rd, edition, Sept. 1986.</p>	

Test Methods and Procedures	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Vapor pressures	None specified.	None specified.	Not applicable.	Not applicable.	Not applicable.
VO concentration of hazardous waste	Not applicable.	Not applicable.	Not applicable.	Method 25D, 40 CFR Part 60, appendix A	
Flare Compliance	Visible emissions: Method 22				
	Presence of flame: thermocouple or equivalent				
	Exit velocity: Method 2, 2A, 2C, or 2D				
	Concentration: Method 18 or ASTM D2509-67.				
	Net Heat of Combustion: published value or ASTM D2382-76, if published values not available or cannot be calculated.				

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Consolidated Recordkeeping	<p><u>Subpart F</u>: None specified.</p> <p><u>Subpart V</u>, 40 CFR Part 61:</p> <p>An owner or operator of more than one process unit subject to this subpart may use one recordkeeping system if the system identifies each record by process unit.</p>	An owner or operator of more than one process unit subject to this subpart may use one recordkeeping system if the system identifies each record by process unit.	Not applicable.	None specified.	None specified.
When leak detected ...	<p><u>Subpart F</u>:</p> <p>Process Unit/Plant Area:</p> <p>concentration of VC measures, analyzed, and recorded by the VC detector</p> <p>location of each measurement</p> <p>date and approximate time of each measurement</p> <p>Method 21:</p> <p>leaks detected</p> <p>action taken to repair</p> <p>location of leak</p> <p>cause of leak</p> <p>date and time leak detected</p> <p>action taken to eliminate the leak</p> <p>Retain records for at least 3 years</p>	(see next page)	<p>Record of each test of detectable emissions:</p> <p>date test performed</p> <p>background level measured</p> <p>maximum concentration</p> <p>waste management unit</p> <p>control equipment</p> <p>leak interface location where detectable emissions were measured</p> <p>description of problem and the corrective action taken</p> <p>date the corrective action completed</p>	<p>Date of attempt to repair</p> <p>Repair method applied</p> <p>Date of successful repair</p> <p>Retain for 3 years</p>	

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
When leak detected ... (continued)	<p><u>Subpart V, 40 CFR Part 61:</u></p> <p>Tagging Requirements:</p> <p>a weather-proof and readily visible identification, marked with the equipment id number, attached to the leaking equipment</p> <p>id may be removed after it has been repaired, except for valves</p> <p>for valves, id may be removed after 2 months of monitoring with no leaks detected</p> <p>Log Requirements:</p> <p>instrument and operator id number and equipment id number</p> <p>date leak detected</p> <p>dates of each attempt to repair leak</p> <p>repair methods applied in each attempt to repair</p> <p>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq</math> 10,000 ppm</p> <p>"repair delayed" and reason for delay if leak is not repaired within 15 calendar days after detection</p> <p>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</p>	<p>Tagging Requirements:</p> <p>a weather-proof and readily visible identification, marked with the equipment id number, attached to the leaking equipment</p> <p>id may be removed after it has been repaired, except for valves</p> <p>for valves, id may be removed after 2 months of monitoring with no leaks detected</p> <p>Log Requirements:</p> <p>instrument and operator id number and equipment id number</p> <p>date leak detected</p> <p>dates of each attempt to repair leak</p> <p>repair methods applied in each attempt to repair</p> <p>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq</math> 10,000 ppm</p> <p>"repair delayed" and reason for delay if leak is not repaired within 15 calendar days after detection</p> <p>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</p>			

SUMMARY OF REGULATIONS

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
When leak detected ... (concluded)	<p>expected date of successful repair if leak is not repaired with the 15 days</p> <p>date of successful repair of the leak</p> <p>Retain for 2 years in readily accessible location.</p>	<p>expected date of successful repair if leak is not repaired with the 15 days</p> <p>date of successful repair of the leak</p> <p>Retain for 2 years in readily accessible location.</p>			
Closed vent systems and control devices	<p><u>Subpart F</u>: None specified.</p> <p><u>Subpart V, 40 CFR Part 61</u>:</p> <p>detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>dates and descriptions of any changes in design specifications</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>explanation of selection of parameter(s)</p> <p>periods when not operated according to design</p> <p>dates of startups and shutdowns of control devices and closed-vent systems</p> <p>Keep these records in a readily accessible location.</p>	<p>For control devices:</p> <p>detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>dates and descriptions of any changes in design specifications</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>explanation of selection of parameter(s)</p> <p>periods when not operated according to design</p> <p>dates of startups and shutdowns of control devices and closed-vent systems</p> <p>Keep these records in a readily accessible location.</p>	<p>Certification that the closed-vent system or control device is designed to operate at the documented performance level or highest load or capacity expected to occur</p> <p>For control devices:</p> <p>engineering calculations used to determine performance and a design analysis that includes detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>performance tests, including description of test procedures, control device, sampling and monitoring procedures, and all test results</p>	<p>Signed certification of compliance of control device under maximum operating conditions</p> <p>Design analysis or performance test plan and test results</p> <p>Description and date of each modification made to the closed-vent system or control device design.</p> <p>Identification of operating parameter, description of monitoring device, and diagram of monitoring sensor location(s) for the following types of monitoring devices: vent stream flow, temperature, heat sensing, organic concentration, regeneration cycles for carbon beds, and good combustion practices.</p> <p>Records of all Method 27 tests</p> <p>Records of all visual inspections</p> <p>Records of all monitoring for detectable organic emissions</p> <p>Records of management of carbon removed from carbon adsorption system</p> <p>For compliance with §265.1083(c)(2)(vi) or (v) [§264.1082(c)(2)(vi) or (v)]:</p> <p>id number of incinerator, boiler, or industrial furnace</p>	

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Closed vent systems and control devices (continued)			<div>dates of startup and shutdown</div> <div>description of parameter(s) to be monitored to ensure proper operation and maintenance</div> <div>description of operating periods when device is not in operation</div> <div>For all thermal vapor and catalytic vapor incinerators and for boilers with &lt;44 MW capacity:</div> <div>temperature of the gas stream</div> <div>exceedances</div> <div>For all boilers and process heater:</div> <div>each occurrence when there is a change in the location at which the vent stream is introduced into the flame zone</div> <div>temperature of the gas stream</div> <div>For boilers and process heaters with ≥44 MW capacity:</div> <div>parameter(s) that indicates good combustion operating practices are being used</div>		



Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Closed vent systems and control devices (concluded)			Flares:  continuous records of flare pilot flame monitoring  all periods when pilot flame is absent  Condensers:  organic or benzene concentration or temperature  exceedances  Carbon adsorbers:  organic or benzene concentrations  exceedances		
Visual inspections	Not applicable.	Not applicable.	Maintain a record for each visual inspection that identifies a problem that could result in benzene emissions. Include date of inspection, waste management unit and control equipment location inspected, description of problem, corrective action taken, and date corrective action was completed.	All visual inspections of covers	

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
All equipment ...	<p><u>Subpart F</u>: None specified.</p> <p><u>Subpart V</u>, 40 CFR Part 61:</p> <p>list of id numbers of subject equipment (except welded fittings)</p> <p>list of id numbers of equipment designated for no detectable emissions and signed by owner/operator</p> <p>list of id numbers for pressure relief devices in gas/vapor service</p> <p>for each compliance test for components designated for no detectable emissions:</p> <p>dates conducted background level measured maximum instrument reading</p> <p>list of id numbers of equipment in vacuum service</p> <p>Maintain records for 2 years in a readily accessible location.</p>	<p>list of id numbers of subject equipment (except welded fittings)</p> <p>list of id numbers of equipment designated for no detectable emissions and signed by owner/operator</p> <p>list of id numbers for pressure relief devices in gas/vapor service</p> <p>for each compliance test for components designated for no detectable emissions:</p> <p>dates conducted background level measured maximum instrument reading</p> <p>list of id numbers of equipment in vacuum service</p> <p>Maintain records for 2 years in a readily accessible location. For foundry coke by-product recovery plant, the annual coke production (of furnace and foundry coke) shall be recorded and maintained for 2 years following determination.</p>	<p>for each compliance test for components designated for no detectable emissions:</p> <p>dates conducted background level measured maximum instrument reading</p>	Not applicable.	Not applicable.
Unsafe- or Difficult-to-Monitor Valves (covers for 264 and 265)	<p><u>Subpart F</u>: None specified.</p> <p><u>Subpart V</u>, 40 CFR Part 61:</p> <p>list of id numbers</p> <p>explanation for designation</p> <p>planned schedule for monitoring</p>	<p>list of id numbers</p> <p>explanation for designation</p> <p>planned schedule for monitoring</p>	Not applicable.	<p>list of id numbers</p> <p>explanation for designation</p> <p>planned schedule for monitoring</p>	

SUMMARY OF REGULATIONS

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Valves complying with alternative standard for skip-periods	<u>Subpart F</u> : None specified. <u>Subpart V, 40 CFR Part 61</u> :  schedule of monitoring  percent valves leaking during each monitoring period	  schedule of monitoring  percent valves leaking during each monitoring period	Not applicable.	Not applicable.	Not applicable.
Barrier fluid and seal systems	<u>Subpart F</u> : None specified. <u>Subpart V, 40 CFR Part 61</u> :  design criteria for indicating failure  explanation for selected criteria  any changes to selected criteria and reasons for change	  design criteria for indicating failure  explanation for selected criteria  any changes to selected criteria and reasons for change	Not applicable.	Not applicable.	Not applicable.
Exemptions Determinations	<u>Subpart F</u> : None specified. <u>Subpart V, 40 CFR Part 61</u> :  analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VHAP service	  analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VHAP service	Not applicable.	Not applicable.	Not applicable.
Not "In service"	<u>Subpart F</u> : None specified. <u>Subpart V, 40 CFR Part 61</u> :  information and data used to demonstrate that a piece of equipment is not in VHAP service	  information and data used to demonstrate that a piece of equipment is not in VHAP service	Not applicable.	Not applicable.	Not applicable.
Tanks	Not applicable.	Not applicable.	Not applicable.	§265.1085(c) or §264.1084(c):  date and time each waste sample is collected  results of each determination for maximum organic vapor pressure  tank dimensions and design capacity	

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Tanks, surface impoundments, containers	Not applicable.	Not applicable.	Not applicable.	No air emission controls:  information used for each waste determination  date, time, and location of each waste sample if results are used	
Alternative Recordkeeping	Not applicable,	Not applicable.	Not applicable.	Owners/operators also subject to 40 CFR Part 60, subpart VV or 40 CFR Part 61, subpart V may elect to demonstrate compliance using the documentation required under said subpart VV or subpart V to the extent that such documentation duplicated the documentation required under 40 CFR Part 265 [264], subpart CC.	

<sup>a</sup> Subpart V, 40 CFR Part 61, recordkeeping requirements are not required for process units with less than 2% leaking valves. Other recordkeeping requirements required under subpart F are still applicable.

Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Initial Report	<p><u>Subpart F:</u></p> <p>Equipment and procedural specifications are being met.</p> <p>Statement that contains the following:</p> <ul style="list-style-type: none"><li>list of equipment installed for compliance</li><li>description of the physical and functional characteristics of each piece of equipment</li><li>description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li><li>statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li></ul> <p><u>Subpart V, 40 CFR Part 61:</u></p> <p>For each source:</p> <ul style="list-style-type: none"><li>equipment id number</li><li>process unit id</li><li>type of equipment</li></ul>	<p>For each source in benzene service:</p> <ul style="list-style-type: none"><li>equipment id number</li><li>process unit id</li><li>type of equipment</li></ul>	<p>For subject facilities:</p> <ul style="list-style-type: none"><li>regulatory status of each waste stream</li><li>total annual benzene quantity</li><li>each benzene waste stream and whether it will be controlled for benzene</li><li>for each benzene waste stream not being controlled for benzene<ul style="list-style-type: none"><li>-- whether water content is &gt;10%</li><li>-- type of waste stream</li><li>-- annual waste quantity</li><li>-- range of benzene concentration</li><li>-- average benzene concentration</li><li>-- annual benzene quantity</li></ul></li></ul>	<p>None specified.</p>	<p>None specified.</p>

Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Initial Report (concluded)	percent weight VHAP  process fluid state  method of compliance  Reporting schedule for submittal of subsequent semiannual reports  An owner or operator is also required to submit a statement notifying the Administrator that the requirements of this subpart are being implemented. For existing sources and new sources with an initial startup date preceding the effective date, this notification is to be submitted within 90 days of the effective date. For new source with an initial startup date after the compliance date, this notification is to be submitted with the application for approval of construction.	percent weight VHAP  process fluid state  method of compliance  Reporting schedule for submittal of subsequent semiannual reports  Submit statement that the requirements of this subpart and 40 CFR Part 61, subpart V have been implemented. For existing sources and new sources with an initial startup date preceding the effective date, submit within 90 days of the effective date. For new source with an initial startup date after the compliance date, submit with the application for approval of construction.			

Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Subsequent Semiannual/Periodic Reports	<p><u>Subpart F:</u></p> <p>Due March 15, June 15, September 15, and December 15:</p> <p>VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</p> <p>the number of 3-hour periods determined during the reporting period</p> <p>if no excess emissions, a statement to that effect</p> <p><u>Subpart V, 40 CFR Part 61:</u></p> <p>process unit identification</p> <p>The following information by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p>	<p>For sources subject to §61.132 and §61.133:</p> <p>brief description of any visible defect in the source or ductwork</p> <p>number of leaks</p> <p>number of leaks repaired</p> <p>brief description of any system abnormalities</p> <p>For equipment in benzene service:</p> <p>process unit identification</p> <p>The following by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p>	<p>Facilities with &gt;10 Mg/yr benzene waste:</p> <p>Annual reports including but not limited to:</p> <p>update of information contained in initial report</p> <p>all inspections during which detectable emissions are measured or a problem (e.g., broken seal, gap) that could result in benzene emissions is identified</p> <p>information on repair and corrective action taken</p> <p>Quarterly:</p> <p>all inspections required have been carried out</p> <p>for control devices: periods of exceedances</p>	<p><u>Exempted tanks, surface impoundments, and containers:</u></p> <p>each occurrence when hazardous waste is placed in unit in noncompliance with §264.1082(c)(1) or (2)</p> <p><u>Tanks complying with §264.1084(c):</u></p> <p>each occurrence of noncompliance</p> <p>submit within 15 calendar days of time when become aware of noncompliance</p> <p><u>Control Device</u></p> <p>semiannual report when noncompliance has occurred</p> <p>each period of 24 hour or longer when operating in noncompliance</p> <p>for flares; when operated with visible emissions</p> <p><u>All reports to include:</u></p> <p>EPA id number</p> <p>facility name and address</p> <p>description of event and cause (not for control devices)</p> <p>explanation why control device not returned to compliance within 24 hours (control devices only)</p> <p>dates of the noncompliance</p>	None specified.

Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Subsequent Semiannual/Periodic Reports (concluded)	Dates of process unit shutdowns that occurred within the semiannual reporting period  Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report	Dates of process unit shutdowns that occurred within the semiannual reporting period  Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report.  For each exhauster for each quarter in the semi-annual period:  number for which leaks were detected  number for which leaks were repaired as required  performance test results  Signed statement stating whether all the provisions of this subpart have been fulfilled		actions taken to correct noncompliance and prevent reoccurrence  signed and dated by authorized representative	



Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Other	<p><u>Subpart F:</u></p> <p>Within 10 days of any discharge, submit report containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total VC loss during the discharge, the method used for determining the loss, the action taken to prevent the discharge, and measures adopted to prevent future discharges.</p> <p><u>Subpart V, 40 CFR Part 61:</u></p> <p>Notification 90 days prior to complying with either alternative standard for valves in gas/vapor service.</p> <p>Report of all performance test and monitoring to determine compliance with no detectable emissions and with §63.243-1 and -2 conducted within the semiannual reporting period.</p>	<p>Notification 90 days prior to complying with either alternative standard for valves in gas/vapor service (§63.243-1 and -2).</p> <p>Report of all performance test and monitoring to determine compliance with no detectable emissions and with conducted within the semiannual reporting period.</p>	<p>If total annual benzene waste is &lt;1 Mg/yr: updates whenever changes occur that may increase benzene waste to more than 1 Mg/yr</p> <p>If total annual benzene waste is 1 to 10 Mg/yr, updates whenever changes occur that may increase benzene waste to more than 10 Mg/yr</p> <p>If total annual benzene waste is &gt;10 Mg/yr, certification that necessary equipment has been installed and initial performance tests have been carried out.</p>	Not applicable.	Not applicable.

<sup>a</sup> Subpart V, 40 CFR Part 61, reporting requirements are not required for process units with less than 2% leaking valves. Other reporting requirements required under subpart F are still applicable.

**APPENDIX B****EQUIPMENT LEAK REGULATIONS: SUMMARY OF DIFFERENCES****40 CFR Part 60, Subparts DDD, GGG, KKK, QQQ****40 CFR Part 63, Subpart CC**page**GENERAL ASPECTS OF RULE**

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#### **40 CFR Part 61, Subparts F, L, FF**

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SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
APPLICABILITY	<p>Each group of fugitive emission equipment within a process unit in the polymer manufacturing industry that commences construction, reconstruction, or modification after September 30, 1987.</p> <p>The facilities covered are polypropylene, polyethylene, and polystyrene.</p>	<p>Each compressor and the group of all equipment within a process unit in a petroleum refinery that commences construction, reconstruction, or modification after January 4, 1983.</p>	<p>Each compressor and the group of all equipment within a process unit in an onshore natural gas processing plant that commences construction, reconstruction, or modification after January 20, 1984.</p>	<p>Individual drain systems, individual oil-water separators, and aggregate facilities located within a petroleum refinery wastewater system that commences construction, reconstruction, or modification after May 4, 1987.</p> <p>"Aggregate facility" is an individual drain system together with ancillary downstream sewer lines and oil-water separators, down to and including the secondary oil-water separator.</p>	<p>This subpart applies to all equipment leaks from petroleum refining process units that are located at a major source and that emit or have equipment containing or contacting one or more of the HAP listed in Table 1 of this subpart.</p> <p>This subpart does not apply to equipment intended to operate in organic HAP service for less than 300 hours during the calendar year.</p>	
EXEMPTIONS	<p>This subpart does not apply to VOC emissions from equipment leaks from poly(ethylene terephthalate) manufacturing processes</p> <p>Any affected facility with design capacity to produce less than 1,000 Mg per year.</p>	<p>None specified.</p>	<p>Any compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system or liquified natural gas unit that is not located at the onshore processing plant site.</p>	<p>None specified.</p>	<p>Research and development facilities.</p> <p>Equipment that does not contain any of the HAP listed in Table 1 of this subpart.</p> <p>Units processing natural gas liquids.</p> <p>Units used specifically for recycling discarded oil.</p> <p>Shale oil extraction units.</p> <p>Ethylene processes.</p> <p>Process units and emission points subject to subparts F, G, H, and I of 40 CFR Part 63.</p>	
DEFINITIONS						
"In gas/vapor service"	<p>The piece of equipment contains process fluid that is in gaseous state at operating conditions.</p>			<p>Not applicable.</p>	<p>A piece of equipment in organic hazardous air pollutant (HAP) service contains a gas or vapor at operating conditions.</p>	

SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
DEFINITIONS (continued)						
"In heavy liquid service"	The piece of equipment is not in gas/vapor service or in light liquid service.		The piece of equipment is not in gas/vapor service or in light liquid service or the weight percent evaporated is 10 percent or less at 150EC.	Not applicable.	A piece of equipment is not in gas/vapor service or in light liquid service.	
"In light liquid service"				Not applicable.		
"In VOC service"	The piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight.			Not applicable.	Not applicable.	
"In organic hazardous air pollutant or in organic (HAP) service"	Not applicable.	Not applicable.	Not applicable.	Not applicable.	A piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight total organic HAP.	
"In wet gas service"	Not applicable.	Not applicable.	A piece of equipment contains or contacts the field gas before the extraction step in the process.	Not applicable.	Not applicable.	
"Gas tight"	Not applicable.	Not applicable.	Not applicable.	Operated with no detectable emissions.	Not applicable.	
Equipment ("Equipment Leaks" for 40 CFR Part 63, subpart CC)	Each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by Subpart VV.	Each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service. For the purposes of recordkeeping and reporting, compressors are considered equipment.	Each pump, pressure relief device, open-ended valve or line, valve, compressor and flange or other connector that is in VOC service or in wet gas service and any device or system required by this subpart.	Not applicable.	HAP emissions from a pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, or instrumentation system in organic HAP service. Vents from wastewater system drains, tank mixers, and sample valves on storage tanks are not equipment leaks.	

SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
DEFINITIONS (concluded)						
Process Unit	Equipment assembled to perform any of the physical and chemical operations in the production of polypropylene, polyethylene, polystyrene, (general purpose, crystal, or expandable), or poly(ethylene terephthalate) or one of their copolymers. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.	Components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.	Equipment assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.	Not applicable.	Equipment assembled and connected by pipes or ducts to process raw and/or intermediate materials and to manufacture an intended product. A process unit includes any associated storage vessels. For the purposes of this subpart, a process unit includes, but is not limited to, chemical manufacturing process units and petroleum refining process units.	
Repaired	Equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: an instrument reading of 10,000 ppm or greater, indications of liquids dripping, or indication by sensor that a seal or barrier fluid has failed.			Not applicable.	Equipment is adjusted, or otherwise altered, to eliminate a leak as defined in the applicable sections of this subpart.	
First Attempt at Repair				Not applicable.		
EQUIPMENT IDENTIFICATION (see also Recordkeeping Requirements)	None specified.				Marked in manner such that it can be readily distinguished from equipment not subject to this subpart (does not require physical tagging except for leaking equipment).	
COMPLIANCE DEMONSTRATIONS	Required for all equipment within 180 days of initial startup.				Existing Sources: in compliance by August 18, 1998  Existing Sources electing to comply with subpart H, 40 CFR Part 63: Phase I - August 18, 1998; Phase II - August 18, 1999; Phase III - June 18, 2001  New Sources that commence construction or reconstruction after July 14, 1994: in compliance upon initial startup or August 18, 1998, whichever is later.	
METHOD OF COMPLIANCE DETERMINATION						



SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
REQUIREMENTS WHEN MORE THAN ONE STANDARD APPLIES	None specified.	Facilities subject to subpart VV or subpart KKK of 40 CFR Part 60 are excluded from this subpart.	Facilities covered by subpart VV or subpart GGG of 40 CFR Part 60 are excluded from this subpart.	None specified.	Equipment subject to this subpart that are also subject to 40 CFR Part 60 or 40 CFR Part 61 will be required to comply only with the provisions of this subpart.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION																							
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)																		
VALVES, GAS/VAPOR OR LIGHT LIQUID SERVICE																								
Standards	Monitor monthly.  After two consecutive months of no leaks, a valve may be monitored quarterly.  If leak detected, monitor valve monthly until leak is not detected for two consecutive months.  "No detectable emissions" valves: less than 500 ppm above background.  "Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.  "Difficult-to-monitor" valves: written plan to monitor at least once per year. No more than 3.0 percent of valves in affected facility can be designated as difficult-to-monitor.			Not applicable.	Monitor monthly.  After two consecutive months of no leaks, a valve may be monitored quarterly. Provisions made to allow use of qualified previously generated monitoring data to use less frequent monitoring.  If leak detected, monitor valve monthly until leak is not detected for two consecutive months.  "No detectable emissions" valves: less than 500 ppm above background.  "Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.  "Difficult-to-monitor" valves: written plan to monitor at least once per year. No more than 3 percent of valves in affected facility can be designated as difficult-to-monitor.	In Phases I and II, monitor each valve quarterly.  In Phase III, monitoring frequency based on percent valves found leaking and whether connectors are being monitored according to §63.649 [with CM = connector monitoring; w/o CM = no connector monitoring]: <table><tr><th colspan="2">Percent Leaking</th><th>Monitoring</th></tr><tr><th>with CM</th><th>w/o CM</th><th>Frequency</th></tr><tr><td>≥ 4</td><td>≤ 5</td><td>Monthly or implement a quality implementation plan (QIP)</td></tr><tr><td>&lt; 4</td><td>&lt; 5</td><td>Quarterly</td></tr><tr><td>&lt; 3</td><td>&lt; 4</td><td>Quarterly or once every 2 quarters</td></tr><tr><td>&lt; 2</td><td>&lt; 3</td><td>Quarterly or once every 4 quarters</td></tr></table> (If ≥2% leaking valves at a plant site with less than 250 valves in organic HAP service: monitor quarterly.)  "Unsafe-to-monitor" valves: written plan to monitor as frequently as practicable during safe-to-monitor times.  "Difficult-to-monitor" valves: written plan to monitor at least once per year. No more than 3.0 percent of valves in new facility can be designated as difficult-to-monitor.	Percent Leaking		Monitoring	with CM	w/o CM	Frequency	≥ 4	≤ 5	Monthly or implement a quality implementation plan (QIP)	< 4	< 5	Quarterly	< 3	< 4	Quarterly or once every 2 quarters	< 2	< 3	Quarterly or once every 4 quarters
Percent Leaking		Monitoring																						
with CM	w/o CM	Frequency																						
≥ 4	≤ 5	Monthly or implement a quality implementation plan (QIP)																						
< 4	< 5	Quarterly																						
< 3	< 4	Quarterly or once every 2 quarters																						
< 2	< 3	Quarterly or once every 4 quarters																						

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
VALVES, GAS/VAPOR OR LIGHT LIQUID SERVICE (continued)						
Standards (concluded)						Calculation of percent leaking may be done on process unit or source-wide basis. Calculation procedures remains the same until a permit change is made. Decision on how to calculate required within the first monitoring period after August 18, 1998.  Phase III: Any valve designated as having no detectable emissions may comply with §60.482-7(f) instead.
Leak Definition	10,000 ppm			Not applicable.	10,000	Phase I: 10,000 ppm Phase II: 1,000 ppm Phase III: 1,000 ppm
Repair				Not applicable.		ADDS:  When repaired, monitor at least once within first 3 months after repair.
First Attempt at Repair				Not applicable.		

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
VALVES, GAS/VAPOR AND LIGHT LIQUID SERVICE (concluded)						
Exemptions		ADDS:  Valves in gas/vapor or light liquid service within a process unit located on the Alaskan North slope.	ADDS:  Valves in gas/vapor or light liquid service within a process unit located on the Alaskan North slope are exempt from the routine monitoring requirements of §60.482-7(a).  Valves in gas/vapor or light liquid service located at a nonfractionating plant that does not have a design capacity to process 283,000 standard cubic meters per day or more of field gas are exempt from the routine monitoring requirements of §60.482-7(a).	Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
VALVES, HEAVY LIQUID SERVICE						
Standards				Not applicable.		
Leak Definition				Not applicable.		
Repair				Not applicable.	ADDS:  For valves in heavy liquid service that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.	
First Attempt at Repair				Not applicable.		
Exemptions				Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	
ALTERNATIVE STANDARDS FOR VALVES						
Allowable Percentage of Valves Leaking						
Standard				Not applicable.	ADDS:  Calculation of percent leaking may be done on a process unit or source-wide basis. Once decided, all subsequent calculations made on same basis unless permit change.	Not applicable.
Leak Definition				Not applicable.		Not applicable.
Repair				Not applicable.		Not applicable.
First Attempt at Repair				Not applicable.		Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Skip Period Leak Detection and Repair						
Standard				Not applicable.		Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PUMPS, LIGHT LIQUID SERVICE						
Standards				Not applicable.		<p>ADDS:</p> <p>Phase III: If less than 10 percent of the light liquid pumps or less than 3 light liquid pumps are leaking, monitor monthly. If less than 3 percent of the light liquid pumps or less than 1 light liquid pump are leaking, monitor quarterly. If the greater of either 10 percent of pumps in a process unit (or source-wide) or 3 pumps in a process unit (or source-wide) leak, then implement technology review and improvement QIP. (This does not apply to process unit if more than 90% of the pumps in the unit are either dual mechanical seal or designed with no externally activated shaft penetrating the housing.)</p> <p>Phase I: this phase is not applicable.</p> <p>Phase II: begins upon facility startup.</p> <p>Phase III: begins no later than one year after initial startup.</p>
Leak Definition	10,000 ppm  ADDS:  ... except that indications of liquid dripping from bleed ports in existing pumps are not considered to be a leak.	10,000 ppm		Not applicable.	10,000 ppm	<p>Phase I: 10,000 ppm</p> <p>Phase II: 5,000 ppm</p> <p>Phase III: 2,000 ppm</p>
Repair				Not applicable.		

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PUMPS, LIGHT LIQUID SERVICE (concluded)						
First Attempt at Repair	None specified.			Not applicable.	None specified.	Best practices include, but are not limited to:  tightening of packing gland nuts  ensuring that the seal flush is operating at design pressure and temperature
Exemptions		ADDS:  Pumps in light liquid service within a process unit located on the Alaskan North slope.	ADDS:  Pumps in light liquid service within a process unit located on the Alaskan North slope and those located at a non-fractionating plant that does not have the design capacity to process 283,000 standard cubic meters per day or more of field gas are exempt from the routine monitoring requirements of §60.482-2(a)(1).	Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	



SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PUMPS, HEAVY LIQUID SERVICE						
Standards				Not applicable.		
Leak Definition				Not applicable.		
Repair				Not applicable.	ADDS:  For pumps in heavy liquid service that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.	
First Attempt at Repair				Not applicable.		
Exemptions				Not applicable.	ADDS:  Equipment operated less than 300 hours per year.  Reciprocating pumps in heavy liquid service.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PRESSURE RELIEF DEVICES, GAS/VAPOR SERVICE						
Standards			ADDS Option:  Option 1: Monitor quarterly and after each release monitor within 5 days. At nonfractionating plants where monitoring is done by non-plant personnel, monitoring after each release must be done when non-plant personnel are next on-site but within 30 days.	Not applicable.		ADDS:  <u>With Rupture Disk</u>  After each release, replace rupture disk within 5 calendar days.
Leak Definition			ADDS:  Option 1: 10,000 ppmv	Not applicable.		
Repair			ADDS:  Option 1: First attempt to repair within 5 days. Completed repair within 15 days.	Not applicable.		Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
PRESSURE RELIEF DEVICES, GAS/VAPOR SERVICE (concluded)						
Exemptions			ADDS:  PRDs in gas/vapor service within a process unit located on the Alaskan North slope and those located at a non-fractionating plant that does not have the design capacity to process 283,000 standard cubic meters per day or more of field gas are exempt from the routine monitoring requirements of §60.632(b)(1).	Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	
PRESSURE RELIEF DEVICES, LIGHT LIQUID OR HEAVY LIQUID SERVICE						
Standards				Not applicable.		
Leak Definition	10,000 ppm			Not applicable.	10,000 ppm	Monitoring: 500 ppm
Repair				Not applicable.		ADDS:  For pressure relief devices in liquid service that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.
Exemptions				Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
COMPRESSORS						
Standards				Not applicable.	ADDS:  Subpart H does not require compressors located at unmanned plant sites to be comply with daily sensor check or be equipped with audible alarm.	
Leak Definition				Not applicable.		
Repair				Not applicable.		
Exemptions		ADDS:  Reciprocating compressors that are in hydrogen service.	ADDS:  Reciprocating compressors that are in wet gas service.	Not applicable.	ADDS:  Equipment operated less than 300 hours per year.  Compressors in hydrogen service.	
SAMPLING CONNECTION SYSTEMS						
Standards	Equipped with closed-purge, closed-loop, or closed-vent system that returns the purged process fluid to the process line, collects and recycles the purged process fluid to a process, or is designed and operated to capture and transport all the purged process fluid to a compliant control device.		Not applicable.	Not applicable.	Equipped with closed-purge, closed-loop, or closed-vent system that returns the purged process fluid to the process line or collects and recycles the purged process fluid to a process or is designed and operated to capture and transport all the purged process fluid to a compliant control device.	Equipped with closed-purge system, closed-loop, or closed-vent system that either returns the fluid to the process, recycles the purged fluid, or sends it to a compliant control device.  Gases displaced during filling of samples are not required to be collected or captured.
Leak Definition	Not applicable.		Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.		Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions			Not applicable.	Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
OPEN-ENDED VALVES OR LINES						
Standards				Not applicable.		
Leak Definition	Not applicable.			Not applicable.	Not applicable.	
Repair	Not applicable.			Not applicable.	Not applicable.	
Exemptions				Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	ADDS:  Open-ended valves and lines in an emergency shutdown system that are designed to open automatically in the event of a process upset.  Equipment operated less than 300 hours per year.
FLANGES AND OTHER CONNECTORS (ALL SERVICES)						
Standards				Not applicable.		ADDS:  Alternatively, connectors in gas/vapor and light liquid service may comply with an alternative program (see Connectors, gas/vapor or light liquid service).
Leak Definition				Not applicable.		
Repair				Not applicable.		
Exemptions				Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION																							
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)																		
CONNECTORS, GAS/VAPOR OR LIGHT LIQUID SERVICE																								
Standards	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>NOTE: The following applies only to units opting to comply with §63.649.</p> <p>Option 1: Random 200 Connector Alternative</p> <p>Initial monitoring of 200 randomly selected connectors within first 12 months</p> <p>Monitor each repaired leak within 3 months</p> <p>Subsequent monitoring required based on percent leaking connectors:</p> <table><thead><tr><th><u>Percent Leaking</u></th><th><u>Frequency</u></th></tr></thead><tbody><tr><td>≥ 2.0</td><td>semiannual</td></tr><tr><td>&lt; 2</td><td>annual</td></tr><tr><td>&lt; 1</td><td>every 2 years</td></tr><tr><td>&lt;0.5</td><td>every 4 years</td></tr></tbody></table> <p>Identify by area or length of pipe; physical tagging and individual component identification is not required.</p> <p>Option 2: Connector Inspection Alternative</p> <p>For all connectors &gt;2 inches in diameter, monitor if in gas/vapor service and inspect if in light liquid service within 12 months after compliance date. Excludes inaccessible and unsafe-to-monitor connectors.</p> <p>Monitor/inspect each repaired leak within 3 months</p> <p>Subsequent monitoring required based on percent leaking connectors:</p> <table><thead><tr><th><u>Percent Leaking</u></th><th><u>Frequency</u></th></tr></thead><tbody><tr><td>≥ 2.0</td><td>annual</td></tr><tr><td>&lt; 2</td><td>every 2 years</td></tr><tr><td>&lt; 1</td><td>every 4 years</td></tr></tbody></table>		<u>Percent Leaking</u>	<u>Frequency</u>	≥ 2.0	semiannual	< 2	annual	< 1	every 2 years	<0.5	every 4 years	<u>Percent Leaking</u>	<u>Frequency</u>	≥ 2.0	annual	< 2	every 2 years	< 1	every 4 years
<u>Percent Leaking</u>	<u>Frequency</u>																							
≥ 2.0	semiannual																							
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≥ 2.0	annual																							
< 2	every 2 years																							
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SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
CONNECTORS, GAS/VAPOR OR LIGHT LIQUID SERVICE (concluded)						
Standards (concluded)					Option 2 concluded:  Equation to calculate percent leaking provided.  Cannot combine gas/vapor and light liquid to calculate percent leaking.  Identify by area or length of pipe; physical tagging and individual component identification is not required.	
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Option 1: 1,000 ppm  Option 2: gas/vapor service - 1,000 ppm  light liquid service - 3 drips per minute	
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.  Delay of repair allowed under certain circumstances	
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
INSTRUMENTATION SYSTEMS						
Standards	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.	
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	10,000 ppm	
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Repair as soon as practicable, no later than 15 calendar after detection.  For instrumentation systems that are not monitored (Method 21), repair shall mean that visual, audible, olfactory, or other indications of a leak have been eliminated; no bubbles are observed at potential leak sites during leak check with soap solution; or system will hold a test pressure.	
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Equipment in vacuum service.  Equipment operated less than 300 hours per year.	



SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
CLOSED VENT SYSTEMS AND CONTROL DEVICES						
Standards	<u>Closed-Vent Systems (CVS)</u>  Hard pipe construction: Initial inspection (Method 21) and then annual visual inspections.  Ductwork construction: Initial and annual inspections using Method 21.  Does not apply if CVS is in vacuum service.			<u>Closed-Vent Systems (CVS)</u>  No detectable emissions (less than 500 ppm above background).  Monitor initially and semiannually thereafter.	<u>Control Devices</u>  Variation when complying with subpart H:  Combustion devices: 95 percent or greater reduction or minimum residence time of 0.50 seconds and minimum temperature of 760°C.  <u>Closed-Vent Systems (CVS)</u>  Hard pipe construction: Initial inspection (Method 21) and then annual visual inspections.  Ductwork construction: Initial and annual inspections using Method 21.  Does not apply if CVS is in vacuum service.	
Monitoring				No monitoring requirements for closed-vent systems, "unsafe-to-monitor" parts, and "difficult-to-monitor" parts.		
Leak Definition						
Repair	Repair as soon as practicable, but no later than 15 calendar days after detection.			Repairs soon as practicable, but no later than 30 calendar days after detection.  DELETES:  First attempt to repair within 5 calendar days of detection.	Repair as soon as practicable, but no later than 15 calendar days after detection.	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
CLOSED VENT SYSTEMS AND CONTROL DEVICES (concluded)						
Exemptions				Not applicable.	ADDS:  Equipment operated less than 300 hours per year.	ADDS:  Equipment operated less than 300 hours per year.  Equipment needed for safety purposes are not subject to these monitoring requirements.

SUMMARY OF REGULATION DIFFERENCES

Delay of Repair	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
General	Allowed for equipment isolated from the process and that does not remain in VOC service.			(see "Closed-vent Systems and Control Devices")	Allowed for equipment isolated from the process and that does not remain in organic HAP service.	
Valves	Not allowed unless next process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.			(see "Closed-vent Systems and Control Devices")	Not allowed unless next process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.	Not allowed beyond the second process unit shutdown unless the third process unit shutdown occurs sooner than 6 months after 1st process unit shutdown.
Pumps	Repair requires use of DMS seal system that includes barrier fluid			(see "Closed-vent Systems and Control Devices")	Repair requires use of DMS seal system that includes barrier fluid	Repair requires replacing existing seal design with a new system that provides better performance, DMS, meets requirements of §63.163(f), or compliant closed-vent system and control device.

SUMMARY OF REGULATION DIFFERENCES

Equivalence of (or Alternative) Means of Emission Limitation: General	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Equipment, Design, and Operational Requirements	Owner/operator collect and verify test data to demonstrate equivalence.  Administrator compares test data.		Applicant collect and verify test data, covering 12 months, to demonstrate equivalence or better.  Administrator makes finding.  Applicant commits to alternative means.	Any person collect and verify test data to demonstrate equivalence.  Administrator makes finding.	Owner/operator collect and verify test data for alternative means of emission limitation.  Administrator compares test data.	
Work Practices	Owner/operator collect and verify test data to demonstrate equivalence  Owner/operator demonstrates emission reduction achieved by required work practice  Owner/operator demonstrates emission reduction achieved by equivalent means of emission limitation  Owner/operator commits to alternative work practices  Administrator compares demonstrated emission reductions		Applicant collect and verify test data, covering 12 months, to demonstrate equivalence or better.  Administrator makes finding.  Applicant commits to alternative means.	Any person collect and verify test data to demonstrate equivalence.  Administrator makes finding.	Owner/operator collect and verify test data to demonstrate equivalence.  Owner/operator demonstrates emission reduction achieved by required work practice.  Owner/operator demonstrates emission reduction achieved by equivalent means of emission limitation.  Owner/operator commits to alternative work practices.  Administrator compares demonstrated emission reductions.	Owner/operator collect and verify test data for alternative means of emission limitation.  Owner/operator demonstrates emission reduction achieved by required work practice (for minimum of 12 months).  Owner/operator demonstrates emission reduction achieved by alternative means of emission limitation.  Owner/operator commits to alternative work practices.  Administrator compares demonstrated emission reductions.
Unique Approach			None specified.	None specified.		
Manufacturers of Equipment						

SUMMARY OF REGULATION DIFFERENCES

Alternative Means of Emission Limitations: Enclosed-Vented Process Units	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Process units enclosed such that all emissions from equipment leaks are vented through a closed-vent system to a control device are exempt from the requirements of §§63.163 through 63.171 and §§63.173 and 63.174.</p> <p>Enclosure is to be maintained under negative pressure at all times the process unit is in operation.</p>

SUMMARY OF REGULATION DIFFERENCES

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Applicability	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p><u>Valves</u></p> <p>Optional in phase III to owners\operators with <math>\geq 4\%</math> leakers if not also complying with §63.649 or with <math>\geq 5\%</math> leakers if also complying with §63.649.</p> <p>Decision required within first year of phase III.</p> <p>If rolling average of percent leakers is <math>&lt; 4\%</math> (<math>&lt; 5\%</math>) for 2 consecutive quarters: (1) comply with QIP, (2) comply with §63.168, or (3) comply with both QIP and §63.168.</p> <p>If comply with §63.168 only, can not use QIP again if leak rate goes above 4 (5) percent; monthly monitoring is required.</p> <p><u>Pumps</u></p> <p>Required in phase III if 6 month rolling average is the greater of either <math>&gt; 10\%</math> or 3 pumps leaking.</p> <p>Once <math>&lt; 10\%</math> or <math>&lt; 3</math> pumps leaking is achieved, comply with §63.163.</p> <p>If leak rate again exceeds the greater of either <math>&gt; 10\%</math> or 3 pumps leaking, can use QIP again.</p>

SUMMARY OF REGULATION DIFFERENCES

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Valves, Demonstration of Further Progress	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Collect data and maintain records as follows:</p> <ul style="list-style-type: none"><li>• maximum instrument reading observed in each monitoring observation before repair, the response factor for each stream, the instrument model number, and the date of observation</li><li>• classification of valve "gas or light liquid service"</li><li>• repair method used and instrument readings after repair (monitoring required at least once within the first 3 months after the repair is completed)(ID tag on a leaking valve may be removed after the valve successfully passes this monitoring period)</li></ul> <p>Continue to collect data on the valves for as long as the process unit is in QIP</p> <p>Demonstrate progress in reducing the percent leaking valves each quarter by at least:</p> <ul style="list-style-type: none"><li>• 10 percent (meaning that each quarter there is at least a 10 percent reduction in the percent leaking valves from the preceding monitoring period) [calculation to be made by formula specified in §63.175(d)(4)(i)], or</li><li>• alternative quarterly percent reduction [calculated according to the equation in §63.175(d)(4)(iii)(A)] and to less than 4 (5) percent within 2 years.</li></ul> <p>The provisions for failure to meet the 10 percent reduction for 2 consecutive rolling averages are:</p> <ul style="list-style-type: none"><li>• a choice of monthly monitoring, or</li><li>• implementation of a QIP for technology review as specified in §63.175(e).</li></ul>

SUMMARY OF REGULATION DIFFERENCES

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Valves, Technology Review and Improvement	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Data collection for the valves as long as in QIP:</p> <ul style="list-style-type: none"><li>- Valve type and manufacturer, valve design, materials of construction, packing material, and year installed.</li><li>- Service characteristics of the stream (e.g., operating pressure, temperature, line diameter, corrosivity).</li><li>- Gas/vapor or light liquid service.</li><li>- if a leak is detected, the maximum instrument reading observed before a repair, response factor for stream if adjusted, instrument model number, and date of observation.</li><li>- Repair methods used and the instrument readings after the repair.</li></ul> <p>Inspect all valves removed due to leaks to determine cause of failure and recommend design and other changes to reduce leak potential.</p> <p>Analyze data to determine the services, operating and maintenance procedures, and valve designs or technologies that have poorer than average emission performance and those that have better than average emission performance. The first analysis shall be completed no later than 18 months after the start of Phase III, shall use a minimum of 6 months of data, shall be done yearly for as long as the process unit is in the QIP program.</p>



SUMMARY OF REGULATION DIFFERENCES

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Valves, Technology Review and Improvement (concluded)	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Trial evaluation program is required for plants that have not demonstrated superior performing valve designs and technologies:</p> <p>1. The number of valves in the trial program shall be the lesser of 1 percent or 20 valves for programs involving single process units and the lesser of 1 percent or 50 valves for programs involving groups of process units.</p> <p>2. The program shall specify and include design documentation of:</p> <ul style="list-style-type: none"><li>- superior performing valve designs or technologies</li><li>- the stages of evaluating these valve designs or technologies</li><li>- the frequency of monitoring or inspection</li><li>- range of operating conditions component will be evaluated under</li><li>- conclusions regarding the emission performance and appropriate operating conditions and services</li></ul> <p>The performance trials shall be conducted for a 6-month period beginning no later than 18 months after the beginning of the QIP.</p> <p>Conclusions will be drawn no later than 24 months after the beginning of the QIP.</p> <p>Any plant site with fewer than 400 valves and owned by a company with fewer than 100 total employees is exempt from the trial evaluations of valves. These exempted plants shall begin the program at the start of the fourth year of Phase III.</p> <p>If superior emission performance technology can not be identified, replacement valve shall be one with lowest emission performance technologies identified for the specific application.</p>

SUMMARY OF REGULATION DIFFERENCES

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Pumps, Technology Review and Improvement	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Data collection:</p> <ul style="list-style-type: none"><li>- Pumps: type and manufacturer, seal type and manufacturer, pump design, materials of construction, barrier fluid or packing material, and year installed.</li><li>- Service characteristics of the stream: discharge pressure, temperature, flow rate, corrosivity, annual operating hours.</li><li>- Maximum instrument readings observed before repair, response factor for the stream, instrument number, and date of observation.</li><li>- If a leak is detected, repair methods used and the instrument readings after the repair.</li></ul> <p>Inspect all pumps or pump seals that exhibit frequent seal failure and were removed due to leaks. Inspection shall determine probable cause and recommendation for design changes or changes in specifications to reduce leak potential.</p> <p>Analyze data to determine the services, operating and maintenance procedures, and pumps and pump seal designs or technologies that have poorer than average emission performance and those that have better than average emission performance. The first analysis shall be completed no later than 18 months after the start of the program, shall use a minimum of 6 months of data, shall be done yearly for as long as the process unit is in the QIP program.</p>

SUMMARY OF REGULATION DIFFERENCES

Quality Improvement Programs	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Pumps, Technology Review and Improvement (concluded)	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>Trial evaluation program is required for plants that have not demonstrated superior technologies:</p> <p>1. The number of pump seal technologies or pumps in the trial program shall be the lesser of 1 percent or 2 pumps for programs involving single process units and the lesser of 1 percent or 5 pumps for plant sites or groups of process units. The minimum number of pumps or pump seal technologies in the program shall be 1; and</p> <p>2. The program shall specify and include design documentation of:</p> <ul style="list-style-type: none"><li>- superior performing pump seal designs or technologies</li><li>- the stages of evaluating these pump designs or pump seal technologies</li><li>- the frequency of monitoring or inspection</li><li>- range of operating conditions component will be evaluated under</li><li>- conclusions regarding the emission performance and appropriate operating conditions and services</li></ul> <p>The performance trials shall be conducted for a 6-month period beginning no later than 18 months after the beginning of the QIP.</p> <p>Conclusions will be drawn no later than 24 months after the beginning of the QIP.</p> <p>Beginning at the start of the third year of the QIP for plants with 400 or more valves or 100 or more employees and at the start of the fourth year for others, the owner/operator shall replace the pumps and pump seals that are not superior technology. Pumps or pump seals shall be replaced at the rate of 20 percent per year and shall continue to be replaced until all are superior technology.</p>

SUMMARY OF REGULATION DIFFERENCES

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Monitoring Method and Technique	Test each piece of equipment unless demonstration is made that equipment is not in VOC service				Test each piece of equipment unless demonstration is made that equipment is not in organic HAP service.	<p>Instrument to meet performance criteria of Method 21 except:</p> <p>response factor criteria is for the average composition of the process fluid, not each individual VOC in stream</p> <p>for process streams that contain inerts that are not organic HAP or VOC, average stream response factor is calculated on an inert-free basis</p> <p>If no instrument available that meet all Method 21 criteria, then instrument readings may be adjusted as specified.</p> <p>Monitor all equipment while it is "in service"</p>
Calibration	<p>calibration gases used:</p> <p>mixture of methane or n-hexane and air at about, but less than, 10,000 ppm methane or n-hexane</p>					<p>calibration gases used:</p> <p>Phase I: mixture of methane in air at concentration of about, but less than, 10,000 ppm</p> <p>Phase II: mixture of methane in air at concentration of about, but less than:</p> <p>10,000 ppm for agitators 5,000 ppm for pumps 500 ppm all other equipment</p>

SUMMARY OF REGULATION DIFFERENCES

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
						<p>Phase III: mixture of methane in air at concentration of about, but less than:</p> <p>10,000 ppm for agitators</p> <p>2,000 ppm for pumps in food/ medical service</p> <p>5,000 ppm for pumps in polymerizing monomer service</p> <p>1,000 ppm for all other pumps</p> <p>500 ppm for all other equipment</p> <p>Phases II and III Exception: under certain conditions may calibrate up to 2,000 ppm higher than the leak definition</p>
"No detectable emissions" monitoring						

SUMMARY OF REGULATION DIFFERENCES

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Not "in service" demonstration	<p>Equipment must be demonstrated not to be in VOC service (i.e., VOC content never greater than 10% by weight).</p> <p>For demonstration:</p> <p>Use procedures that conform to ASTM E-260, E-168, E-169 to determine percent VOC in process fluid that is contained or contacts a piece of equipment.</p> <p>Engineering judgement may be used to estimate the VOC content if piece of equipment had not been shown previously to be in VOC service.</p> <p>Administrator will require use of ASTM Method D-2267b in event of disagreement to determine VOC content.</p> <p>Compounds determined by EPA to have negligible photochemical reactivity can be excluded in determining VOC content of a process fluid.</p>		<p>Equipment must be demonstrated that the percent VOC content can be reasonable expected never to exceed 10.0 percent by weight.</p> <p>For demonstration:</p> <p>Use procedures that conform to ASTM Methods E169, E168, or E-260 (incorporated by reference).</p>	Not applicable.	<p>Equipment is presumed to be in organic HAP service unless demonstrated that the organic HAP content can never reasonably expected to exceed 5 percent by weight.</p> <p>For demonstration:</p> <p>Use Method 18 of 40 CFR Part 60, appendix A to determine percent organic HAP.</p> <p>Engineering judgment may be used to determine percent organic HAP does not exceed 5 percent.</p> <p>Owner/operator may instead determine organic HAP content does not exceed 5 percent by weight.</p>	
"In wet gas service"	Not applicable.	Not applicable.	Equipment to be in wet gas service, it must be determined that it contains or contacts the field gas before the extraction step in the process.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Test Methods and Procedures	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Not "in hydrogen service"	Not applicable.	Equipment must be demonstrated to be not in hydrogen service; that is, the percent hydrogen content can be reasonably expected always to exceed 50 percent by volume.  For demonstration:  Use procedures that conform to the general method described in ASTM E-260, E-168, or E-169.  Engineering judgement may be used instead provided it demonstrates that the content clearly exceeds 50 percent by volume.  In case of disagreement, the ASTM procedure results will prevail.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Samples	Representative of process fluid that is contained in or contacts the equipment or the gas being combusted in flare.			Not applicable.	Representative of process fluid that is contained in or contacts the equipment.	
Vapor pressures	Standard reference texts  or  ASTM D-2879			Not applicable.	None specified.	None specified.
Flare Compliance						

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Consolidated Recordkeeping	An owner or operator of more than one affected facility subject to this subpart may use one recordkeeping system if the system identifies each record by <u>facility</u> .			None specified.	An owner or operator of more than one process unit subject to this subpart may use one recordkeeping system if the system identifies each record by <u>process unit</u> .	An owner or operator of more than one process unit subject to this subpart may use one recordkeeping system if the system identifies each record by <u>process unit and the program being implemented for each type of equipment</u> .
When leak detected ...	<p>Tagging Requirements:</p> <p>for valves, id may be removed after 2 months of monitoring with no leaks detected</p> <p>Log Requirements:</p> <p>dates of each attempt to repair leak</p> <p>repair methods applied in each attempt to repair</p> <p>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq</math> 10,000 ppm</p>			<p>Tagging Requirements:</p> <p>None required.</p> <p>Log Requirements:</p> <p>location</p> <p>date</p> <p>corrective action taken</p> <p>If delay:</p> <p>reason for delay</p>	<p>Tagging Requirements:</p> <p>for valves, id may be removed after 2 months of monitoring with no leaks detected</p> <p>Log Requirements:</p> <p>dates of each attempt to repair leak</p> <p>repair methods applied in each attempt to repair</p> <p>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq</math> 10,000 ppm</p>	<p>Tagging Requirements:</p> <p>ALSO applies to connector</p> <p>for valves and connectors, id may be removed after it has been monitored as specified and no leak has been detected during the follow-up monitoring</p> <p>Log Requirements:</p> <p>ADDS: operator name and initials</p> <p>dates of first attempt to repair leak</p> <p>maximum instrument reading after successful repair or determined to be nonrepairable</p>



SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
When leak detected ... (concluded)	Retain for 2 years in readily accessible location.			Retain for 2 years	Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.	<p>for connectors: id of connectors disturbed since last monitoring period, and dates and results of follow-up monitoring</p> <p>copies of periodic reports (if database not capable of generating such)</p> <p>Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.</p> <p>DELETES:</p> <p>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</p>

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Closed vent systems and control devices	periods when not operated according to design  dates of startups and shutdowns of control devices and closed-vent systems  Keep these records in a readily accessible location.			For life of facility:  documentation that control device will achieve required control efficiency during maximum loading conditions  For 2 years:  periods when not operated according to design  dates of startups and shutdowns of control devices and closed-vent systems  Incinerators: temperatures and exceedances  Carbon adsorbers: outlet VOC concentrations and exceedances  For no detectable emissions:  dates of each measurement background level maximum instrument reading	periods when not operated according to design  dates of startups and shutdowns of control devices and closed-vent systems  Keep these records in a readily accessible location.	Design Specifications and Performance Demonstration:  - flare design and compliance demonstration results  The design specification and performance demonstration records are to be kept for the life of the equipment.  Records of Operation:  - records of operation of closed-vent systems and control devices  - dates and duration when closed-vent systems, and control devices not operated according to design  - dates and duration when monitoring systems/devices are nonoperative  - dates of startups and shutdowns  - records of closed-vent inspections  Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.
Visual Inspections	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	documentation that inspection was conducted  dates of inspection  Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
All equipment ...	<p>list of id numbers of subject equipment</p> <p>list of id numbers of equipment designated for no detectable emissions and signed by owner/operator</p> <p>list of id numbers for pressure relief devices in gas/vapor service</p> <p>for each compliance test for components designated for no detectable emissions:</p> <p>    dates conducted</p> <p>    background level measured</p> <p>    maximum instrument reading</p> <p>list of id numbers of equipment in vacuum service</p> <p>Maintain records in a readily accessible location.</p>			Not applicable.	<p>list of id numbers of subject equipment</p> <p>list of id numbers of equipment designated for no detectable emissions and signed by owner/operator</p> <p>list of id numbers for pressure relief devices in gas/vapor service</p> <p>for each compliance test for components designated for no detectable emissions:</p> <p>    dates conducted</p> <p>    background level measured</p> <p>    maximum instrument reading</p> <p>list of id numbers of equipment in vacuum service</p> <p>Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.</p>	<p>list of id numbers of subject equipment (except certain connectors)</p> <p>connectors do not need to be individually identified if all connectors in a designated area or length of pipe are identified as a group and the number of connectors is identified</p> <p>schedule by process unit for monitoring connectors and valves</p> <p>identification of equipment in HAP service by tagging, identified on a plant site plan, in log entries, or other methods</p> <p>list of id numbers for equipment equipped with a closed-vent system and control device</p> <p>list of id numbers of compressors and pressure relief devices complying with an instrument reading of less than 500 ppm above background standard</p> <p>id of surge control vessels or bottoms receivers equipped with a closed-vent system or control device</p> <p>id of pressure relief devices equipped with rupture disks</p> <p>id of instrumentation systems (individual components need not be identified)</p> <p>id of screwed connectors complying with §63.174(c)(2). Identification can be by grouping or area.</p>

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
All equipment ... (concluded)						<p>list of valves and connectors removed from or added to the process if net credits for the removal or the valves or connectors are expected to be used</p> <p>documentation of the integrity of the weld for removed connectors</p> <p>if complying with §63.649, documentation that all monitoring and inspections have been conducted as required and document repair of leaks as applicable.</p> <p>Retain for 5 years; most recent 2 years on-site or accessible from central location via computer; other 3 years may be off-site.</p>
Unsafe- or Difficult-to-Monitor Valves				Not applicable.		
Unsafe-to- Monitor or Repair, Inaccessible or Glass-Lined Connectors	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>list of id numbers</p> <p>explanation for designation</p> <p>planned schedule for monitoring</p>
Valves complying with alternative standard for skip-periods				Not applicable.		Not applicable.
Barrier fluid and seal systems				Not applicable.		

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Exemptions Determinations	analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VOC service		analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VOC service  analysis demonstration that a reciprocating compressor is in wet gas service	Not applicable.	analysis demonstrating facility design capacity  analysis demonstrating that equipment is not in VHAP service  identification of equipment in organic HAP service less than 300 hours per year	identification of equipment in organic HAP service less than 300 hours per year  demonstration that compressor is not in hydrogen service
Not "In service"	information and data used to demonstrate that a piece of equipment is not in VOC service			Not applicable.	information and data used to demonstrate that a piece of equipment is not in organic HAP service	information, data, and analysis used to demonstrate that a piece of equipment or process unit is in heavy liquid service
"In wet gas service"	Not applicable.	Not applicable.	information and data used to demonstrate that a reciprocating compressor is in wet gas service	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>If leak not repaired within 15 calendar days of discovery, reason for leak repair delay and expected date of successful repair</p> <p>Records of all analyses required under §§63.175(e) and §63.176(d):</p> <ul style="list-style-type: none"><li>areas associated with poorer than average performance and the associated service characteristics of the stream, the operating conditions, and maintenance practices</li><li>the reasons for rejecting specific candidate superior emission performing valve or pump technology from performance trials</li><li>the list of candidate superior emission performing valve or pump technologies and documentation of performance trial program items</li><li>the beginning date and duration of performance trials of each candidate superior emission performing technology</li></ul> <p>Records documenting the quality assurance program</p> <p>Records indicating all valves or pumps replaced or modified are in compliance with the quality assurance requirements</p> <p>Records documenting compliance with the 20 percent or greater annual replacement rate for pumps</p> <p>Information and data showing company has less than 100 employees</p>

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP - Reasonable further progress	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>for each valve in each process unit subject to the QIP:</p> <ul style="list-style-type: none"><li>- maximum instrument reading observed in each monitoring observation before repair, the response factor for the stream (if appropriate), the instrument model number, and the date of the observation</li><li>- whether the valve is in gas or light liquid service</li><li>- if a leak is detected, the repair methods used and the instrument readings after repair</li></ul> <p>percent leaking valves and rolling average percent reduction each quarter</p> <p>beginning and end dates while meeting the requirements of the QIP</p>

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP - Technology review and improvement	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<p>For valves:</p> <p>valve type and manufacturer, valve design, materials of construction, packing material, and year installed</p> <p>service characteristics of the stream (e.g., operating pressure, temperature, line diameter, corrosivity)</p> <p>gas/vapor or light liquid service</p> <p>if a leak is detected, the maximum instrument reading observed before a repair, response factor for stream if adjusted, instrument model number, and date of observation</p> <p>repair methods used and the instrument readings after the repair</p> <p>a description of any maintenance or quality assurance program used in the process unit that are intended to improve performance</p> <p>percent leaking valves</p> <p>documentation of all inspections and recommendations for design or specification changes to reduce leak frequency</p> <p>beginning and end date while meeting requirements of the QIP</p>



SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
QIP - Technology review and improvement (concluded)	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	For pumps:  type and manufacturer, seal type and manufacturer, pump design, materials of construction, barrier fluid or packing material, and year installed  service characteristics of the stream: discharge pressure, temperature, flow rate, corrosivity, annual operating hours  maximum instrument readings observed before repair, response factor for the stream, instrument number, and date of observation  if a leak is detected, repair methods used and the instrument readings after the repair  rolling average percent leaking pumps  documentation of all inspections and recommendations for design or specification changes to reduce leak frequency  beginning and end date while meeting requirements of the QIP
No detectable emissions	background level  maximum instrument reading					Not applicable.
Enclosed Vented Process Units	Not applicable.				Not applicable.	id of process units and organic HAP handled  schematic of process unit, enclosure, and closed-vent system  description of system used to create negative pressure

SUMMARY OF REGULATION DIFFERENCES

Reporting Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Initial Report	process unit identification  number of valves, pumps, and compressors, excluding those designated for no detectable emissions			Certification that initial inspection of closed-vent system and control device has been performed.	process unit identification  number of valves, pumps, and compressors, excluding those designated for no detectable emissions	<u>Initial Notification</u>  name and address of owner/operator  address of facility (physical location)  identification of subject processes  compliance statement  statement of whether a source can achieve compliance by the applicable compliance date  <u>Notification of Compliance Status (for each subject process unit)</u>  A. For each subject unit:  process unit identification  number of each equipment type (except those in vacuum service)  method of compliance  planned schedule for each phase  whether percent valves leaking will be calculated on a process unit or source-wide basis  if performance test required, complete test report  B. Enclosed-vented Process Units  process unit identification  description of negative pressure system and control device

SUMMARY OF REGULATION DIFFERENCES

Reporting Requirements	REGULATION					
	40 CFR Part 60, Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)
Subsequent SemiAnnual/ Periodic Reports	<p>process unit identification</p> <p>The following information by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p> <p>Dates of process unit shutdowns that occurred within the semiannual reporting period</p> <p>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</p>			<p>Semi-annual certification that all required inspections have been carried out.</p> <p>Initial and semi-annual reports that summarize all inspections that identify problems that could result in VOC emissions, including information about repairs and corrective action taken.</p> <p>Semi-annual reports of each period of exceedance for incinerators and carbon adsorbers.</p>	<p>process unit identification</p> <p>The following information by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p> <p>Dates of process unit shutdowns that occurred within the semiannual reporting period</p> <p>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</p>	<p>Submit the following information semi-annually starting 6 months after the Notification of Compliance:</p> <p>the number of valves, pumps, compressors, connectors, and screwed connectors for which leaks were detected</p> <p>the percent leakers for valves, pumps, connectors, and screwed connectors</p> <p>the total number of valves, pumps, connectors, and screwed connectors monitored</p> <p>the number of valves, pumps, compressors, connectors, and screwed connectors for which leaks were not repaired</p> <p>identification of the number of valves and connectors determined to be nonrepairable</p> <p>explanation of why repairs delayed and why process unit shutdown was infeasible</p> <p>notification of change in connector monitoring alternatives (if applicable)</p> <p>For "no detectable emissions" components: all monitoring to show compliance</p> <p>initiation of monthly monitoring under phase III or QIP (if applicable)</p>
Other	<p>Notification 90 days prior to election to comply with either alternative standard for valves in gas/vapor service.</p> <p>Report of all performance test in accordance with §60.8.</p>			<p>If flare used, initial performance test within 60 days of initial startup.</p>	<p>Notification 90 days prior to complying with either alternative standard for valves in gas/vapor service.</p> <p>Report of all performance tests in accordance with §60.8.</p>	<p>None specified.</p>

SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
APPLICABILITY	Plants which produce: - ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene - vinyl chloride by any process - one or more polymers containing any fraction of polymerized vinyl chloride.	At furnace and foundry coke by-product recovery plants: - tar decanters - tar storage tanks - tar-intercepting sumps - flushing-liquor circulation tanks - light-oil sumps - light-oil condensers - light-oil decanters - wash-oil decanters - wash-oil circulation tanks - naphthalene processing - final coolers - final-cooler cooling towers - equipment intended to operate in benzene service  Also applies to benzene storage tanks, BTX storage tanks, light-oil storage tanks, and excess ammonia-liquor storage tanks at furnace coke by-product recovery plants.	Owners/operators of chemical manufacturing plants, coke by-product recovery plants, and petroleum refineries and the owners/operators of hazardous waste treatment, storage, and disposal facilities that treat, store, or dispose of hazardous waste generated by these facilities.	Facilities that treat, store, or dispose of hazardous waste in tanks, surface impoundments, or containers subject to either 40 CFR Part 264, Subpart I (Use and Management of Containers), J (Tank Systems), or K (Surface Impoundments).  Containers: >0.1 cubic meters capacity	
EXEMPTIONS	Equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity #0.19 m <sup>3</sup> (50 gal).	None specified.	The following waste is exempted:  - waste in the form of gases or vapors that is emitted from process fluids  - waste that is contained in a segregated stormwater sewer system	A waste management unit that holds hazardous waste placed in the unit before June 5, 1995, and in which no hazardous waste is added to the unit on or after June 5, 1995.  A container that has a design capacity ≤ 0.1 m <sup>3</sup> .  A tank or surface impoundment in which an owner/operator has stopped adding hazardous waste and begun implementing or completed closure pursuant to an approved closure plan.  A waste management unit used solely for on-site treatment or storage of hazardous waste that is generated as the result of implementing remedial activities required under certain corrective action RCRA, CERCLA, and other similar authorities.  A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act.	

SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
DEFINITIONS					
"In gas/vapor service"	None specified.	A piece of equipment contains process fluid that is in the gaseous state at operating conditions.	None specified.	Not applicable.	Not applicable.
"In heavy liquid service"	None specified.	Not applicable.	None specified.	Not applicable.	Not applicable.
"In light liquid service"	None specified.	Not applicable.	None specified.	Not applicable.	Not applicable.
"In liquid service"	None specified.	A piece of equipment is not in gas/vapor service.	None specified.	Not applicable.	Not applicable.
"In VOC service"	The piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight and the piece of equipment is not in heavy liquid service (as defined under 40 CFR Part 60, subpart VV).	The piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight and the piece of equipment is not in heavy liquid service (as defined under 40 CFR Part 60, subpart VV).	None specified.	Not applicable.	Not applicable.
"In VHAP service"	Not applicable.	A piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight a volatile hazardous air pollutant (VHAP).	None specified.	Not applicable.	Not applicable.
"In organic hazardous air pollutant or in organic (HAP) service"	None specified.	Not applicable.	None specified.	Not applicable.	Not applicable.
"In benzene service"	None specified.	A piece of equipment, other than an exhauster, contains or contacts a fluid (liquid or gas) that is at least 10% benzene by weight.  Any exhauster that contains or contacts a fluid (liquid or gas) that is at least 1% benzene by weight.	None specified.	Not applicable.	Not applicable.
DEFINITIONS (concluded)					
"In vinyl chloride service"	A piece of equipment either contains or contacts a liquid that is at least 10 percent by weight vinyl chloride or a gas that is at least 10 percent by volume vinyl chloride.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
"No detectable organic emissions"	Not applicable.	Not applicable.	Not applicable.	No escape of organics from a device or system to the atmosphere as determined by: (1) an instrument reading less than 500 ppmv above the background level of each joint, fitting, and seal and (2) by no visible openings or defects in the device or system such as rips, tears, or gaps.	
Equipment	None specified.	Each pump, valve, exhauster, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in benzene service.	None specified.	Not applicable.	Not applicable.
Exhauster	None specified.	Fan located between the inlet gas flange and outlet gas flange of the coke oven gas line that provides motive power for coke oven gases.	None specified.	Not applicable.	Not applicable.
Process Unit	None specified.	Equipment assembled to produce a VHAP or its derivatives as intermediate or final products, or equipment assembled to use a VHAP in the production of a product. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient product storage facilities.	Equipment assembled and connected by pipes or ducts to produce intermediate or final products. A process unit can be operated independently if supplied with sufficient fuel or raw material and sufficient product storage facilities.	Not applicable.	Not applicable.
Repaired	None specified.	Equipment is adjusted, or otherwise altered, to eliminate a leak.	None specified.	None specified.	None specified.
First Attempt at Repair	None specified.	To take rapid action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.	None specified.	None specified.	None specified.
EQUIPMENT IDENTIFICATION (see also Recordkeeping Requirements)	If complying with subpart V:  Marked in manner such that it can be readily distinguished from other pieces of equipment.  Not required for process units with less than 2% leaking valves.	Marked in manner such that it can be readily distinguished from other pieces of equipment in benzene service.	None specified.	None specified.	None specified.
COMPLIANCE DEMONSTRATIONS	For existing sources, shall be in compliance within 90 days after the effective date of the applicable standard.  For new sources, shall be in compliance upon effective date of the applicable standard.			None specified.	None specified.
METHOD OF COMPLIANCE DETERMINATION	Review of records, review of performance test results, and inspections.		None specified.	None specified.	None specified.

SUMMARY OF REGULATION DIFFERENCES

General Aspects of Rule	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
REQUIREMENTS WHEN MORE THAN ONE STANDARD APPLIES	A source subject to this subpart that is also subject to 40 CFR Part 60 only will be required to comply with the provisions of this subpart.	None specified.	None specified.	None specified.	None specified.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PROCESS UNIT/PLANT AREA					
Standards	Vinyl chloride (VC) monitoring system capable of detecting major leaks and identification of the general area of the plant where the leak is located.  System to be operated according to plan developed by plant owner or operator.  Location and number of points to be monitored and the frequency of the monitoring based on the number of pieces of equipment in VC service and the size and physical layout of the plant.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Determined by plant owner or operator.  Acceptable definition when compared to background concentrations of vinyl chloride in the areas of the plant to be monitored for leaks.  Definition of a leak may vary from area to area.  Is to change over time as background concentrations are reduced.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	None specified. Plan is to include action to be taken when a leak is detected.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.



SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
VALVES, GAS/VAPOR OR LIGHT LIQUID SERVICE					
Standards	If complying with subpart V, 40 CFR Part 61:  ADDS: Monthly monitoring not required for process units with less than 2% leaking valves.		Not applicable.	Not applicable.	Not applicable.
Leak Definition			Not applicable.	Not applicable.	Not applicable.
Repair			Not applicable.	Not applicable.	Not applicable.
First Attempt at Repair			Not applicable.	Not applicable.	Not applicable.
Exemptions			Not applicable.	Not applicable.	Not applicable.
ALTERNATIVE STANDARDS FOR VALVES					
Allowable Percentage of Valves Leaking					
Standard		ADDS:  Notify Administrator in writing when owner or operator elects to no longer comply with alternative standard.	Not applicable.	Not applicable.	Not applicable.
Leak Definition			Not applicable.	Not applicable.	Not applicable.
Repair			Not applicable.	Not applicable.	Not applicable.
First Attempt at Repair			Not applicable.	Not applicable.	Not applicable.
Skip Period Leak Detection and Repair					
Standard			Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PUMPS, LIGHT LIQUID SERVICE					
Standards	<p>ADDS:</p> <p><u>Rotating Pumps</u></p> <p>Minimize VC emissions by installing sealless pumps, pumps with double mechanical seals or equivalent. If double mechanical seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p> <p><u>Reciprocating Pumps</u></p> <p>Minimize VC emissions by installing double outboard seals, or equivalent. If double outboard seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p>		Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PUMPS, LIGHT LIQUID SERVICE (concluded)					
Leak Definition			Not applicable.	Not applicable.	Not applicable.
Repair			Not applicable.	Not applicable.	Not applicable.
First Attempt at Repair	None specified.	None specified.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Equipment in vacuum service.  Any pump equipped with a compliant closed-vent system and control device.	Not applicable.	Not applicable.	Not applicable.
PRESSURE RELIEF DEVICES, GAS/VAPOR SERVICE					
Standards	ADDS:  Discharges: No discharge to the atmosphere.		Not applicable.	Not applicable.	Not applicable.
Leak Definition			Not applicable.	Not applicable.	Not applicable.
Repair			Not applicable.	Not applicable.	Not applicable.
Exemptions	Emergency relief discharges or relief valve discharges ducted to control device continually operating while the emissions from the release are present at the device.  "Emergency relief discharge" means a discharge that could not have been avoided by taking measures to prevent the discharge.	Pressure relief devices equipped with compliant closed-vent system and control device.  Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PRESSURE RELIEF DEVICES, LIGHT LIQUID OR HEAVY LIQUID SERVICE					
Standards	Not applicable.	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	10,000 ppm	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Not applicable.	Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COMPRESSORS					
Standards	<p><u>Rotating Compressors</u></p> <p>Minimize VC emissions by installing compressors with double mechanical seals or equivalent. If double mechanical seals are used, minimize vinyl chloride emissions by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p> <p><u>Reciprocating Pumps</u></p> <p>Minimize VC emissions by installing double outboard seals, or equivalent. If double outboard seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p>	Not applicable.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COMPRESSORS (continued)					
Standards (concluded)	Alternatively, comply with subpart V, 40 CFR Part 61:  Equip with seal system that includes a barrier fluid system and that prevents leakage to atmosphere.  Seal system shall meet certain design and operation requirements.  Install sensor to detect failure of seal system, barrier fluid system, or both.  Check sensor daily or equip with audible alarm (unless located at unmanned plant site).  Establish criteria that indicates failure of seal system, barrier fluid system, or both.				
Leak Definition	If complying with subpart V, 40 CFR Part 61:  Sensor indicates failure of seal system, barrier fluid system, or both based on established criteria.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COMPRESSORS (concluded)					
Repair	If complying with subpart V, 40 CFR Part 61:  Repair as soon as practicable, no later than 15 calendar days after detection.  First attempt within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
SAMPLING CONNECTION SYSTEMS					
Standards	ADDS:  Unused portions of samples containing at least 10 percent by weight VC are to be returned to the process or destroyed in a compliant control device. Sampling techniques are to be such that samples containers in VC service are purged into a closed process system.		Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions			Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
OPEN-ENDED VALVES OR LINES					
Standards			Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	OELs located on multiple service process lines that operate in VC service less than 10 percent of the time, provided they are addressed in the process unit/plant area monitoring system.  Exemption may be extended to OELS demonstrated to require significant retrofit cost to comply with subpart V.	Equipment in vacuum service.	Not applicable.	Not applicable.	Not applicable.
FLANGES AND OTHER CONNECTORS (ALL SERVICES)					
Standards			Not applicable.	Not applicable.	Not applicable.
Leak Definition			Not applicable.	Not applicable.	Not applicable.
Repair			Not applicable.	Not applicable.	Not applicable.
Exemptions	ADDS:  Not required for process units with less than 2% leaking valves.		Not applicable.	Not applicable.	Not applicable.



SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
AGITATORS, GAS/VAPOR SERVICE OR LIGHT LIQUID SERVICE					
Standards	Minimize VC emissions by installing agitators with double mechanical seals, or equivalent. If double mechanical seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the agitated vessel; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repairs	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
PRODUCT ACCUMULATOR VESSELS					
Standards	Compliant closed-vent system and control device.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Equipment in vacuum service.  Not required for process units with less than 2% leaking valves.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CLOSED VENT SYSTEMS AND CONTROL DEVICES					
Standards	<p>Continually operating while emissions from the release are present.</p> <p><u>Control Devices</u></p> <p>Other than flares: limit VC emissions to less than 10 ppm (average over 3-hour period)</p> <p>Flares: Comply with §60.18.</p>	<p>Control devices and closed-vent systems to be operated at all time that emissions may be vented to them.</p> <p><u>Control Devices</u></p> <p>Vapor recovery systems: 95 percent or greater recovery</p> <p>Combustion devices: 95 percent or greater reduction or minimum residence time of 0.50 seconds and minimum temperature of 760°C.</p> <p>Flares: Comply with §60.18</p> <p><u>Closed-Vent Systems (CVS)</u></p> <p>No detectable emissions (less than 500 ppm above background) and no visual indications.</p>	<p>Control devices and closed-vent systems to be operated at all times when waste is placed in the waste management unit, except when maintenance or repair cannot be completed without a shutdown of the control device.</p> <p><u>Closed-Vent System (CVS)</u></p> <p>No detectable emissions (less than 500 ppmv above background).</p> <p>All gauging and sampling devices are to be gas-tight except when in operation.</p> <p><u>Control Devices</u></p> <p>Enclosed combustion device: reduce organic emissions by <math>\geq</math>95% by weight</p> <p>achieve a total organic compound concentration of 20 ppmv on a dry basis corrected to 3% O<sub>2</sub></p> <p>minimum residence time of 0.5 sec at minimum temperature of 760EC</p> <p>Boiler/Process Heater:</p> <p>introduce vent stream into flame zone</p>	<p>Operating at all times when gases, vapors, or fumes are vented from the waste management unit through the CVS to the control device.</p> <p><u>Control Devices</u></p> <p>Designed and operated to reduce total organic content of the inlet vapor stream vented to the control device by at least 95% by weight.</p> <p>For carbon adsorbers, carbon replacement intervals specified [see §264.1033(g) and (h)].</p> <p>Enclosed combustion devices: 95 percent or greater reduction; 20 ppmv total organic compound concentration; or minimum residence time of 0.50 seconds and minimum temperature of 760°C.</p> <p>Boilers and process heaters: Introduce vent stream into flame combustion zone.</p> <p>Flares: Flame present at all times, no visible emissions (except for periods not to exceed a total of 5 minutes during any 2 consecutive hours), basic requirements for heat content and exit velocities.</p> <p>An applicable control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system: develop documentation including sufficient information to describe the control device operation and identify process parameter(s) that indicate proper operation and maintenance of the control device.</p> <p><u>Closed-Vent System (CVS)</u></p> <p>Designed for and operated with no detectable emissions.</p> <p>Route gases, vapors, and fumes emitted from the hazardous waste to a control device.</p> <p>If the system contains one or more bypass devices that could be used to divert gases, vapors, or fumes from entering the control device, §264.1087(b)(3) requirements apply.</p>	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CLOSED VENT SYSTEMS AND CONTROL DEVICES (continued)					
Standards (continued)			<p>Vapor recovery system:</p> <p>≥95% (by weight) recovery or control efficiency of the organic emissions</p> <p>≥98% (by weight) recovery or control efficiency of the benzene emissions</p> <p>Flares: Comply with §60.18</p> <p>Other Control Devices:</p> <p>≥95% (by weight) recovery or control efficiency of the organic emissions</p> <p>≥98% (by weight) recovery or control efficiency of the benzene emissions</p> <p>develop test data and design information to document efficiency</p> <p>identify critical operating parameters, range of values of these parameters that ensure emission control efficiency and how these will be monitored</p>		

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CLOSED VENT SYSTEMS AND CONTROL DEVICES (concluded)					
Standards (concluded)			CVS and CDs:  visually inspect initially and quarterly thereafter  include ductwork, piping, and connections for evidence of visible defects (e.g., holes, loose connections)		
Monitoring	Not applicable.	Control Devices: Monitor to ensure operated and maintained in conformance with their designs.  Closed-Vent Systems: Initially, annually, and at other times as requested by the Administrator.	Control Devices: Continuous monitoring of operations  Closed-Vent Systems: Monitor initially and at least once per year thereafter.  If contains by-pass lines, (1) vent stream flow indicators or (2) car-seal or lock-and-key type of configuration with monthly visual inspection required.  Visually inspect flow monitoring device at least once per operating day.	Closed-Vent Systems (CVS): Initially, annually, and at other times as requested by the Administrator.  If contains by-pass lines, (1) vent stream flow meters or (2) car-seal or lock-and-key type of configuration with monthly visual inspection required.	
Leak Definition	Not applicable.	Not applicable.	Monitoring: 500 ppm  Visual: visible defects	CVS: detectable emissions ≥500 above background	
Repair	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.			
Exemptions	Not applicable.	Equipment in vacuum service.	None specified.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PROCESS VESSELS, STORAGE TANKS, AND TAR-INTERCEPTING SUMPS					
Standards	Not applicable.	<p>Option 1: Duct to a control device designed and operated for no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background and visual inspections.</p> <p>Monitor the connections and seals on each control system to determine if it is operating with no detectable emissions.</p> <p>Visually inspect each source, including sealing materials, and the ductwork of the control system for evidence of visible defects (e.g., tears, gaps).</p> <p>Conduct monitoring and visually inspection semi-annually and at any other time after the control system is repressurized.</p> <p>Option 2: Install, operate, and maintain a pressure relief device, vacuum relief device, access hatch, and sampling port. Equip each hatch and sampling port with gasket and cover, seal, or lid that is closed at all times except when in use.</p> <p>Use of sludge conveyors requires operation of water leg seal on tar decanter roof to ensure enclosure of the major portion of the liquid surface not necessary of its operation.</p>	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
PROCESS VESSELS, STORAGE TANKS, AND TAR-INTERCEPTING SUMPS (concluded)					
Leak Definition	Not applicable.	Monitoring: 500 ppmv above background level.  Visual: Visible defects are observed.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
LIGHT-OIL SUMPS					
Standards	Not applicable.	<p>Option 1: Enclose and seal the liquid surface in the sump to form a closed system to contain the emissions.</p> <p>Option 2: Install, operate, and maintain a vent on the light-oil sump cover. Equip each vent pipe with a water leg seal, a pressure relief device, or vacuum relief device.</p> <p>Option 3: Install, operate, and maintain an access hatch on each light-oil sump cover. Equip each hatch with a gasket and a cover, seal, or lid that is kept closed except when in use.</p> <p>Covers may be removed for maintenance but must be replaced with seal at completion of maintenance.</p> <p>If control equipment is used to comply:</p> <p>monitor the connections and seals on each control system to determine if it is operating with no detectable emissions.</p> <p>visually inspect each source, including sealing materials, for evidence of visible defects (e.g., tears, gaps).</p> <p>conduct this monitoring and inspection semiannually and at any other time the cover is removed.</p>	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
LIGHT-OIL SUMPS (concluded)					
Leak Definition	Not applicable.	Monitoring: 500 ppmv above background level.  Visual: Visible defects are observed.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, but no later than 15 calendar days after detection.  First attempt to repair within 5 calendar days of detection.	Not applicable.	Not applicable.	Not applicable.
Exemptions	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.



SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION																			
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC															
TANKS																				
Standards	Not applicable.	Not applicable.	<p>Option 1: Compliant fixed roof (see Covers) and compliant closed-vent system and control device.</p> <p>Option 2: Compliant fixed roof provided certain conditions are met including but not limited to the following maximum organic vapor pressure and size requirements:</p> <table><thead><tr><th>Capacity (cubic meters)</th><th>Vapor pressure (kilopascals)</th></tr></thead><tbody><tr><td>not specified</td><td>5.2</td></tr><tr><td>≥75 to &lt;151</td><td>27.6</td></tr><tr><td>&lt;75</td><td>76.6</td></tr></tbody></table> <p>Each fixed roof, seal, access door, and other opening: initial and quarterly inspections for cracks and gaps and that access doors and other openings are closed and properly gasketed.</p>	Capacity (cubic meters)	Vapor pressure (kilopascals)	not specified	5.2	≥75 to <151	27.6	<75	76.6	<p>Pressure tanks: no detectable organic emissions</p> <p>Non-pressure tanks:</p> <p>Option 1: Compliant cover and compliant closed-vent system and control device.</p> <p>Option 2: Compliant cover provided certain conditions are met including but not limited to the following maximum organic vapor pressure and size requirements:</p> <table><thead><tr><th>Capacity (cubic meters)</th><th>Vapor pressure (kilopascals)</th></tr></thead><tbody><tr><td>≥151</td><td>5.2</td></tr><tr><td>≥75 to &lt;151</td><td>27.6</td></tr><tr><td>&lt;75</td><td>76.6</td></tr></tbody></table> <p>Option 3: Equipped with fixed roof and internal floating roof that meets §265.1091 or (§60.112b).</p> <p>Option 4: Equipped with external floating roof that meets §265.1091 (or§60.112b).</p>	Capacity (cubic meters)	Vapor pressure (kilopascals)	≥151	5.2	≥75 to <151	27.6	<75	76.6
Capacity (cubic meters)	Vapor pressure (kilopascals)																			
not specified	5.2																			
≥75 to <151	27.6																			
<75	76.6																			
Capacity (cubic meters)	Vapor pressure (kilopascals)																			
≥151	5.2																			
≥75 to <151	27.6																			
<75	76.6																			
Leak Definition	Not applicable.	Not applicable.	<p>Broken seal or gasket.</p> <p>Detectable emissions measured.</p>	(see Covers)																
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 45 calendar days after identification.	(see Covers)																
Exemptions	Not applicable.	Not applicable.	<p>Tanks with fixed roof and internal floating roof meeting §60.112b(a)(1).</p> <p>External floating roofs that comply with §60.112b(a)(2).</p> <p>Alternative means of emission limitation. (§60.114b)</p>	<p>A tank that meets all of the requirements identified in §265.1083(c) [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is &lt;100 ppmw.</p> <p>Tanks used for biological treatment of hazardous waste in accordance with §265.1083(c) [§264.1082(c)(2)(iv)].</p>																

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
SURFACE IMPOUNDMENTS					
Standards	Not applicable.	Not applicable.	Compliant covers (see Covers) that are vented to compliant closed-vent system and control device.  Inspect initially and quarterly thereafter for cracks or gaps.	Option 1: Compliant covers that are vented to compliant closed-vent system and control device.  Option 2: Floating membrane cover that meets certain requirements including designed to operate with no detectable organic emissions.	
Leak Definition	Not applicable.	Not applicable.	Broken seal or gasket.	(see Covers)	
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 15 calendar days after identification.	(see Covers)	
Exemptions	Not applicable.	Not applicable.	None specified.	A surface impoundment that meets all of the requirements identified in §265.1083(c) [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is <100 ppmw.  Surface impoundments used for biological treatment of hazardous waste in accordance with §265.1083(c)(2)(iv) [§264.1082(c)(2)(iv)].	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CONTAINERS					
Standards	Not applicable.	Not applicable.	<p>Compliant cover (see Covers) designed for no detectable emissions.</p> <p>Monitor initially and annually thereafter.</p> <p>Maintain cover in closed, sealed position.</p> <p>Treatment Containers:</p> <p>Locate in compliant enclosure vented to compliant closed vent system and control device.</p> <p>Compliant Enclosure: designed and operated with sufficient airflow to capture organic vapors emitted from container and vent them to compliant closed vent system and control device.</p> <p>Transfer into Containers:</p> <p>use of conveyance system that uses a tube (or other means) to add waste to the container and cover to remain in place and all container openings to be in closed, sealed position except for opening.</p>	<p>Non-treatment Containers:</p> <p>Option 1: Compliant cover (see Covers).</p> <p>Monitor first time hazardous waste placed in container.</p> <p>If cannot repair immediately, remove hazardous waste from containers. Do not use container until leak is repaired and container retested.</p> <p>Option 2: If capacity is <math>\leq</math>0.46 cubic meters, compliant cover and complies with 49 CFR Part 178 regulations for packaging hazardous waste for transport.</p> <p>Option 3: If attached to or part of truck, trailer, or railcar, demonstrate that within preceding 12 months to be organic vapor tight (sustains a pressure change of <math>\leq</math>750 pascals within 5 minutes after pressurization).</p> <p>Treatment Containers:</p> <p>Located in compliant enclosure vented to compliant closed vent system and control device.</p> <p>Compliant Enclosure: designed and operated with sufficient airflow to capture organic vapors emitted from container and vent them to compliant closed vent system and control device.</p> <p>Transfer into Containers (&gt;0.46 cubic meters capacity:</p> <p>use of conveyance system that uses a tube (or other means) to add waste to the container and cover to remain in place and all container openings to be in closed, sealed position except for opening.</p>	
Leak Definition	Not applicable.	Not applicable.	Broken seal or gasket.	(see Covers)	
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 15 calendar days after identification.	(see Covers)	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
CONTAINERS (concluded)					
Exemptions	Not applicable.	Not applicable.	Containers with fixed roof and internal floating roof meeting §60.112b(a)(1).  External floating roofs that comply with §60.112b(a)(2).  Alternative means of emission limitation. (§60.114b)	A container that meets all of the requirements identified in §265.1083(c) [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is <100 ppmw.  Containers used for biological treatment of hazardous waste in accordance with §265.1083(c)(2)(iv) [§264.1082(c)(2)(iv)].	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
COVERS					
Standards	Not applicable.	Not applicable.	Initial and subsequent annual monitoring for no detectable organic emissions from cover and all openings.  Maintain each opening in closed, sealed position at all times except when necessary to use opening.	Initial and semiannual visual inspection and monitoring for no detectable organic emissions from cover and cover openings when all cover openings are secured in closed, sealed position.  "Unsafe-to-inspect" covers: written plan to inspect and monitor cover as frequently as practicable during times when a worker can safely access the cover.  "Difficult-to-inspect" covers: written plan and schedule to inspect and monitor at least once per calendar year.	
Leak Definition	Not applicable.	Not applicable.	Detectable emissions.  Broken seal or gasket.	Seals around rotating shaft: 10,000 ppmv  All other seals and cover connections: detectable emissions (i.e., concentrations greater than 500 ppmv plus background level).  Visual: a visible hole, gap, tear, or split in cover surface or cover opening.	
Monitoring	Not applicable.	Not applicable.			
Repair	Not applicable.	Not applicable.	As soon as practicable, but not later than 15 (45 for tanks) calendar days after identification.	First attempt to repair: within 5 calendar days of detection.  Completed repair: within 15 calendar days of detection.  Delay of repair allowed under certain circumstances.	
Exemptions	Not applicable.	Not applicable.	None specified.	Tank with internal floating roof or external floating roof that is inspected and monitored in accordance with §265.1091 (§264.1091).  Tank is buried partially or entirely underground -- only inspect or monitor portion that is above ground and can be opened to the atmosphere .  Containers that meet all requirements specified in either §265.1087(b)(1)(ii) or (iii) [§264.1086(b)(1)(ii) or (iii)]  Semiannual inspection/monitoring exemptions:  cover remained closed and sealed since last visual inspection and monitoring designated as unsafe to inspect and monitor  designated as difficult to inspect and monitor if installed and placed in service before December 6, 1994	

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
EXHAUSTERS					
Standards	Not applicable.	Option 1: Monitor quarterly to detect leaks  Option 2: Equip with seal system that includes a barrier fluid system and that prevents leakage to atmosphere.  Seal system shall meet certain design and operation requirements.  Install sensor to detect failure of seal system, barrier fluid system, or both.  Check sensor daily or equip with audible alarm (unless located at unmanned plant site).  Establish criteria that indicates failure of seal system, barrier fluid system, or both.	Not applicable.	Not applicable.	Not applicable.
Leak Definition	Not applicable.	Option 1: 10,000 ppm  Option 2: Sensor indicates failure of seal system, barrier fluid system, or both based on established criteria.	Not applicable.	Not applicable.	Not applicable.
Repair	Not applicable.	Repair as soon as practicable, no later than 15 calendar days after detected.  A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Specific Component Summaries	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
EXHAUSTERS (concluded)					
Exemptions	Not applicable.	Equipment in vacuum service.  Exhausters equipped with compliant closed-vent system and control device.  Exhausters designed to operate with an instrument reading less than 500 ppm above background.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Delay of Repair	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
General	<p>If complying with subpart V, 40 CFR Part 61:</p> <p>Allowed if repair is technically infeasible without a process unit shutdown.</p> <p>Repair to occur before end of next process unit shutdown.</p> <p>Allowed for equipment isolated from the process and that does not remain in VHAP service.</p>	<p>Allowed if repair is technically infeasible without a process unit shutdown.</p> <p>Repair to occur before end of next process unit shutdown.</p> <p>Allowed for equipment isolated from the process and that does not remain in VHAP service.</p>	<p>Allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.</p> <p>Repair of such equipment shall occur before the end of the next facility or unit shutdown.</p>	<p>For tanks and surface impoundment covers:</p> <p>Allowed beyond 15 days if repair requires first emptying contents and temporary removal of tank or surface impoundment from service results in unscheduled production stoppage of the source generating the hazardous waste being managed.</p> <p>Repair to occur at next time source generating the hazardous waste being managed stops operation for any reason.</p>	
Valves			Not applicable.	Not applicable.	Not applicable.
Pumps			Not applicable.	Not applicable.	Not applicable.



SUMMARY OF REGULATION DIFFERENCES

Equivalence of (or Alternative) Means of Emission Limitation: General	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Equipment, Design, and Operational Requirements	Upon written application from an owner or operator, the Administrator may approve use of equipment or procedures that have been demonstrated to his satisfaction to be equivalent in terms of reducing VC emissions to the atmosphere to those prescribed for compliance with a specific paragraph of this subpart.	The Administrator shall compare test data for alternative means of emission limitation to a benzene control efficiency of 98% or 95% for a tar decanters.	Any person can collect, verify, and submit information showing alternative means achieves equivalent emission reductions.  Administrator makes findings.  Administrator may condition approval.	Not applicable.	Not applicable.
Work Practices	Upon written application from an owner or operator, the Administrator may approve use of equipment or procedures that have been demonstrated to his satisfaction to be equivalent in terms of reducing VC emissions to the atmosphere to those prescribed for compliance with a specific paragraph of this subpart.	Owner/operator collect and verify test data for alternative means of emission limitation.  Owner/operator demonstrates emission reduction achieved by required work practice (for minimum of 12 months).  Owner/operator demonstrates emission reduction achieved by alternative means of emission limitation.  Owner/operator commits in writing to work practices that provide for emission reductions equal to or greater than emission reductions achieved by required work practices.  Administrator compares demonstrated emission reductions.  Administrator may condition approval.	Not applicable.	Not applicable.	Not applicable.
Unique Approach	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Manufacturers of Equipment	None specified.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

SUMMARY OF REGULATION DIFFERENCES

Test Methods and Procedures	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Monitoring Method and Technique	Process Unit/Plant Area:  Device that obtains representative samples from one or more applicable emission points on a continuous sequential basis.  Samples analyzed with gas chromatography or, if all hydrocarbons measures are VC, with infrared spectrography, flame ion detection, or alternative method.  Daily span check required using VC concentration of 10 ppm or equivalent to emission limit, as appropriate.	Method 21 of 40 CFR Part 60, Appendix A  Instrument to meet performance criteria of Method 21		Method 21 of 40 CFR Part 60, Appendix A	
Calibration	Gas mixtures:  conform as specified in sections 5.2.1 and 5.2.2 of Test Method 106 and in accordance with section 7.1 of Test Method 106	Before use on each day of its use, the instrument shall be calibrated by procedures specified in Method 21  Calibration gases used:  zero air (less than 10 ppm hydrocarbon in air)  mixture of methane or n-hexane and air at about, but less than, 10,000 ppm methane or n-hexane			
"No detectable emissions" monitoring					

SUMMARY OF REGULATION DIFFERENCES

Test Methods and Procedures	REGULATION				
	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Not "in service" demonstration	If complying with subpart V, 40 CFR Part 61:  Equipment is presumed to be in VHAP service unless demonstrated that the VHAP content can never reasonably expected to exceed 10 percent by weight.	Equipment is presumed to be in benzene service unless demonstrated that the benzene content can never reasonably expected to exceed 10 percent by weight.  Exhausters are presumed to be in benzene service unless demonstrated that the benzene content can never reasonably expected to exceed 1 percent by weight.	Not applicable.	Not applicable.	Not applicable.
Samples	If complying with subpart V, 40 CFR Part 61:  Representative of process fluid that is contained in or contacts the equipment or the gas being combusted in flare.	Representative of process fluid that is contained in or contacts the equipment or the gas being combusted in flare.	Not applicable.	Collect at point of waste origination at least 4 discrete samples  Collect within 1-hour period  Collect in accordance with "Test Methods for Evaluating Solid Waste, Chemical/Physical Methods," EPA SW-846, 3rd, edition, Sept. 1986.	
Vapor pressures	None specified.	None specified.	Not applicable.	Not applicable.	Not applicable.
VO concentration of hazardous waste	Not applicable.	Not applicable.	Not applicable.	Method 25D, 40 CFR Part 60, appendix A	
Flare Compliance					

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Consolidated Recordkeeping	<u>Subpart F</u> : None specified.		Not applicable.	None specified.	None specified.
When leak detected ...	<u>Subpart F</u> :  Process Unit/Plant Area:  concentration of VC measures, analyzed, and recorded by the VC detector  location of each measurement  date and approximate time of each measurement  Method 21:  leaks detected  action taken to repair  location of leak  cause of leak  date and time leak detected  action taken to eliminate the leak  Retain records for at least 3 years	(see next page)	Record of each test of detectable emissions:  date test performed  background level measured  maximum concentration  waste management unit  control equipment  leak interface location where detectable emissions were measured  description of problem and the corrective action taken  date the corrective action completed	Date of attempt to repair  Repair method applied  Date of successful repair  Retain for 3 years	

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Closed vent systems and control devices	<p><u>Subpart F</u>: None specified.</p> <p><u>Subpart V</u>, 40 CFR Part 61:</p> <p>detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>dates and descriptions of any changes in design specifications</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>explanation of selection of parameter(s)</p> <p>periods when not operated according to design</p> <p>dates of startups and shutdowns of control devices and closed-vent systems</p> <p>Keep these records in a readily accessible location.</p>	<p>For control devices:</p> <p>detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>dates and descriptions of any changes in design specifications</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>explanation of selection of parameter(s)</p> <p>periods when not operated according to design</p> <p>dates of startups and shutdowns of control devices and closed-vent systems</p> <p>Keep these records in a readily accessible location.</p>	<p>Certification that the closed-vent system or control device is designed to operate at the documented performance level or highest load or capacity expected to occur</p> <p>For control devices:</p> <p>engineering calculations used to determine performance and a design analysis that includes detailed schematics, design specifications, and piping and instrumentation diagrams</p> <p>performance tests, including description of test procedures, control device, sampling and monitoring procedures, and all test results</p> <p>dates of startup and shutdown</p> <p>description of parameter(s) to be monitored to ensure proper operation and maintenance</p> <p>description of operating periods when device is not in operation</p> <p>For all thermal vapor and catalytic vapor incinerators and for boilers with &lt;44 MW capacity:</p> <p>temperature of the gas stream</p> <p>exceedances</p>	<p>Signed certification of compliance of control device under maximum operating conditions</p> <p>Design analysis or performance test plan and test results</p> <p>Description and date of each modification made to the closed-vent system or control device design.</p> <p>Identification of operating parameter, description of monitoring device, and diagram of monitoring sensor location(s) for the following types of monitoring devices: vent stream flow, temperature, heat sensing, organic concentration, regeneration cycles for carbon beds, and good combustion practices.</p> <p>Records of all Method 27 tests</p> <p>Records of all visual inspections</p> <p>Records of all monitoring for detectable organic emissions</p> <p>Records of management of carbon removed from carbon adsorption system</p> <p>For compliance with §265.1083(c)(2)(vi) or (v) [§264.1082(c)(2)(vi) or (v)]:</p> <p>id number of incinerator, boiler, or industrial furnace</p>	

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Closed vent systems and control devices (concluded)			<p>For all boilers and process heater:</p> <p>each occurrence when there is a change in the location at which the vent stream is introduced into the flame zone</p> <p>temperature of the gas stream</p> <p>For boilers and process heaters with ≥44 MW capacity:</p> <p>parameter(s) that indicates good combustion operating practices are being used</p> <p>Flares:</p> <p>continuous records of flare pilot flame monitoring</p> <p>all periods when pilot flame is absent</p> <p>Condensers:</p> <p>organic or benzene concentration or temperature</p> <p>exceedances</p> <p>Carbon adsorbers:</p> <p>organic or benzene concentrations</p> <p>exceedances</p>		

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Visual inspections	Not applicable.	Not applicable.	Maintain a record for each visual inspection that identifies a problem that could result in benzene emissions. Include date of inspection, waste management unit and control equipment location inspected, description of problem, corrective action taken, and date corrective action was completed.	All visual inspections of covers	
All equipment ...	<p><u>Subpart F</u>: None specified.</p> <p><u>Subpart V, 40 CFR Part 61</u>:</p> <p>list of id numbers of subject equipment (except welded fittings)</p> <p>list of id numbers of equipment designated for no detectable emissions and signed by owner/operator</p> <p>for each compliance test for components designated for no detectable emissions:</p> <p>dates conducted background level measured maximum instrument reading</p> <p>list of id numbers for pressure relief devices in gas/vapor service</p> <p>list of id numbers of equipment in vacuum service</p> <p>Maintain records for 2 years in a readily accessible location.</p>	<p>list of id numbers of subject equipment (except welded fittings)</p> <p>list of id numbers of equipment designated for no detectable emissions and signed by owner/operator</p> <p>for each compliance test for components designated for no detectable emissions:</p> <p>dates conducted background level measured maximum instrument reading</p> <p>list of id numbers for pressure relief devices in gas/vapor service</p> <p>list of id numbers of equipment in vacuum service</p> <p>Maintain records for 2 years in a readily accessible location. For foundry coke by-product recovery plant, the annual coke production (of furnace and foundry coke) shall be recorded and maintained for 2 years following determination.</p>	<p>for each compliance test for components designated for no detectable emissions:</p> <p>dates conducted background level measured maximum instrument reading</p>	Not applicable.	Not applicable.
Unsafe- or Difficult-to-Monitor Valves (covers for 264 and 265)	<u>Subpart F</u> : None specified.		Not applicable.		

SUMMARY OF REGULATION DIFFERENCES

Recordkeeping Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Valves complying with alternative standard for skip-periods	<u>Subpart F</u> : None specified.		Not applicable.	Not applicable.	Not applicable.
Barrier fluid and seal systems	<u>Subpart F</u> : None specified.		Not applicable.	Not applicable.	Not applicable.
Exemptions Determinations	<u>Subpart F</u> : None specified.		Not applicable.	Not applicable.	Not applicable.
Not "In service"	<u>Subpart F</u> : None specified.		Not applicable.	Not applicable.	Not applicable.
Tanks	Not applicable.	Not applicable.	Not applicable.	§265.1085© or §264.1084(c):  date and time each waste sample is collected  results of each determination for maximum organic vapor pressure  tank dimensions and design capacity	
Tanks, surface impoundments, containers	Not applicable.	Not applicable.	Not applicable.	No air emission controls:  information used for each waste determination  date, time, and location of each waste sample if results are used	
Alternative Recordkeeping	Not applicable,	Not applicable.	Not applicable.	Owners/operators also subject to 40 CFR Part 60, subpart VV or 40 CFR Part 61, subpart V may elect to demonstrate compliance using the documentation required under said subpart VV or subpart V to the extent that such documentation duplicated the documentation required under 40 CFR Part 265 [264], subpart CC.	

<sup>a</sup> Subpart V, 40 CFR Part 61, recordkeeping requirements are not required for process units with less than 2% leaking valves. Other recordkeeping requirements required under subpart F are still applicable.



SUMMARY OF REGULATION DIFFERENCES

Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Initial Report	<p><u>Subpart F</u>:</p> <p>Equipment and procedural specifications are being met.</p> <p>Statement that contains the following:</p> <ul style="list-style-type: none"><li>list of equipment installed for compliance</li><li>description of the physical and functional characteristics of each piece of equipment</li><li>description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li><li>statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li></ul> <p><u>Subpart V, 40 CFR Part 61</u>:</p> <p>For each source:</p> <ul style="list-style-type: none"><li>equipment id number</li><li>process unit id</li><li>type of equipment</li></ul>	<p>For each source in benzene service:</p> <ul style="list-style-type: none"><li>equipment id number</li><li>process unit id</li><li>type of equipment</li></ul>	<p>For subject facilities:</p> <ul style="list-style-type: none"><li>regulatory status of each waste stream</li><li>total annual benzene quantity</li><li>each benzene waste stream and whether it will be controlled for benzene</li><li>for each benzene waste stream not being controlled for benzene<ul style="list-style-type: none"><li>-- whether water content is &gt;10%</li><li>-- type of waste stream</li><li>-- annual waste quantity</li><li>-- range of benzene concentration</li><li>-- average benzene concentration</li><li>-- annual benzene quantity</li></ul></li></ul>	None specified.	None specified.

SUMMARY OF REGULATION DIFFERENCES

Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Initial Report (concluded)	percent weight VHAP  process fluid state  method of compliance  Reporting schedule for submittal of subsequent semiannual reports  An owner or operator is also required to submit a statement notifying the Administrator that the requirements of this subpart are being implemented. For existing sources and new sources with an initial startup date preceding the effective date, this notification is to be submitted within 90 days of the effective date. For new source with an initial startup date after the compliance date, this notification is to be submitted with the application for approval of construction.	percent weight VHAP  process fluid state  method of compliance  Reporting schedule for submittal of subsequent semiannual reports  Submit statement that the requirements of this subpart and 40 CFR Part 61, subpart V have been implemented. For existing sources and new sources with an initial startup date preceding the effective date, submit within 90 days of the effective date. For new source with an initial startup date after the compliance date, submit with the application for approval of construction.			
Subsequent SemiAnnual/Periodic Reports	<u>Subpart F:</u>  Due March 15, June 15, September 15, and December 15:  VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted	For sources subject to §61.132 and §61.133:  brief description of any visible defect in the source or ductwork  number of leaks  number of leaks repaired  brief description of any system abnormalities	Facilities with >10 Mg/yr benzene waste:  Annual reports including but not limited to:  update of information contained in initial report  all inspections during which detectable emissions are measured or a problem (e.g., broken seal, gap) that could result in benzene emissions is identified	<u>Exempted tanks, surface impoundments, and containers:</u>  each occurrence when hazardous waste is placed in unit in noncompliance with §264.1082(c)(1) or (2)  <u>Tanks complying with §264.1084(c):</u>  each occurrence of noncompliance  submit within 15 calendar days of time when become aware of noncompliance	None specified.

SUMMARY OF REGULATION DIFFERENCES

Reporting Requirements	REGULATION				
	40 CFR Part 61, Subpart F <sup>a</sup>	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF	40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC
Subsequent SemiAnnual/Periodic Reports (continued)	<p>the number of 3-hour periods determined during the reporting period</p> <p>if no excess emissions, a statement to that effect</p> <p><u>Subpart V, 40 CFR Part 61:</u></p> <p>process unit identification</p> <p>The following information by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p> <p>Dates of process unit shutdowns that occurred within the semiannual reporting period</p> <p>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</p>	<p>For equipment in benzene service:</p> <p>process unit identification</p> <p>The following by month in the reporting period:</p> <p>number of valves, pumps, and compressors for which leaks were detected</p> <p>number of valves, pumps, and compressors for which leaks were not repaired as required</p> <p>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</p> <p>Dates of process unit shutdowns that occurred within the semiannual reporting period</p> <p>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report.</p>	<p>information on repair and corrective action taken</p> <p>Quarterly:</p> <p>all inspections required have been carried out</p> <p>for control devices: periods of exceedances</p>	<p><u>Control Device</u></p> <p>semiannual report when noncompliance has occurred</p> <p>each period of 24 hour or longer when operating in noncompliance</p> <p>for flares; when operated with visible emissions</p> <p><u>All reports to include:</u></p> <p>EPA id number</p> <p>facility name and address</p> <p>description of event and cause (not for control devices)</p> <p>explanation why control device not returned to compliance within 24 hours (control devices only)</p> <p>dates of the noncompliance</p> <p>actions taken to correct noncompliance and prevent reoccurrence</p> <p>signed and dated by authorized representative</p>	

<sup>a</sup> Subpart V, 40 CFR Part 61, reporting requirements are not required for process units with less than 2% leaking valves. Other reporting requirements required under subpart F are still applicable.

## APPENDIX C

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## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Control Devices:</p> <ul style="list-style-type: none"> <li>vapor recovery systems: 95 percent or greater recovery</li> <li>combustion devices: 95 percent or greater reduction or minimum residence time of 0.75 seconds and minimum temperature of 816°C</li> <li>flares: comply with §60.18</li> </ul> <p>Closed-Vent Systems:</p> <ul style="list-style-type: none"> <li>no detectable emissions (less than 500 ppm above background)</li> <li>control devices and closed-vent systems to be operated at all times that emissions may be vented to them</li> </ul> <p>Monitoring:</p> <ul style="list-style-type: none"> <li>control devices: monitor to ensure operated and maintained in conformance with their designs</li> <li>closed-vent systems: initially, annually, and at other times as requested by the Administrator</li> </ul>
Leak Definition	Closed-vent system: 500 ppm or visible indications
Alternative Standards	N/A
Exemptions	<p>Vapor collection or closed-vent systems operated under a vacuum</p> <p>Unsafe or difficult to monitor portions of closed-vent systems require alternate inspection plan</p>
Monitoring Method	<p>Hard piping construction: Method 21 for initial inspection, annual visual inspections</p> <p>Duct work construction: Method 21 for initial and annual inspections</p>
Repair Requirements	<p>First attempt to repair within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>When no leak detected: records that instrument or visual inspection was conducted, date of inspection, and statement that no leaks were detected</p> <p>Information to be kept for all closed-vent systems and control devices:</p> <ul style="list-style-type: none"> <li>detailed schematics, design specifications, and piping and instrumentation diagrams</li> <li>dates and descriptions of any changes in design specifications</li> <li>description of parameter(s) to be monitored to ensure proper operation and maintenance</li> <li>explanation of selected parameter(s)</li> <li>periods of non-operation according to design</li> <li>dates of startups and shutdown</li> <li>list of ID numbers of subject closed-vent systems and control devices</li> <li>list of ID numbers of closed-vent systems and control devices designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for closed-vent systems and control devices designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for closed-vent systems and control devices in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Equipped with compliant seal system that prevents leakage to atmosphere</p> <p>Install sensor to detect failure of seal system</p> <p>Check sensor daily or equip with audible alarm</p> <p>Establish criteria basic standard that indicates failure of seal system or barrier fluid system or both</p>
Leak Definition	Sensor indicates failure of seal or barrier fluid system or both based on established criteria.
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions, operate less than 500 ppm above background</p> <p>Closed-vent system and control device</p>
Exemptions	<p>Equipment in vacuum service</p> <p>Reciprocating compressors that meet certain criteria</p>
Monitoring Method	Sensor alarm or visual check
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 calendar days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul>

(Continued on next page)

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all compressors:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of subject compressors</li> <li>• list of ID numbers of compressors designated for no detectable emissions and signed by owner/operator</li> <li>• for each compliance test for compressors designated for no detectable emissions <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul> </li> <li>• list of ID numbers for compressors in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of compressors, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• The following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of compressors for which leaks were detected</li> <li>• number of compressors for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• Report of all performance tests in accordance with §60.8.</li> </ul>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>For each dual mechanical seal system:</p> <ul style="list-style-type: none"> <li>operate the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or</li> <li>connect the barrier fluid degassing reservoir by a closed-vent system to a control device, or</li> <li>equip with a system that purges the barrier fluid into a process stream with zero VHAP emissions to the atmosphere</li> </ul> <p>For all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>the barrier fluid system shall be in heavy liquid service or not in VOC service</li> <li>equip each barrier fluid system with a sensor                             <ul style="list-style-type: none"> <li>check each sensor daily or equip with audible alarm</li> <li>determine criterion that indicates failure of the seal system, the barrier fluid system, or both</li> </ul> </li> <li>perform weekly visual inspections for indications of liquids dripping from the pump seals</li> </ul>
Leak Definition	Indications of liquids dripping from the pump seal; sensor
Alternative Standards	Applies as an alternative standard to: Pumps in Light Liquid Service
Exemptions	N/A
Monitoring Method	Visual, sensor
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>If repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but no later than 6 months after leak detected</p> <p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of pumps with dual mechanical seal systems</li> <li>• list of ID numbers designated for no detectable emissions and signed by owner/operator</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• the following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• report of all performance tests in accordance with §60.8</li> </ul>

## NO DETECTABLE EMISSIONS

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>An instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485</p> <p>Demonstrate compliance initially upon designation and test annually</p>
Leak Definition	500 ppm
Alternative Standards	<p>Applies as an alternate standard to:</p> <ul style="list-style-type: none"> <li>pumps in light liquid service (must have no externally actuated shaft penetrating the pump housing)</li> <li>valves in gas/vapor service or in light liquid service (must have no external actuating mechanism in contact with the process fluid)</li> </ul> <p>Applies as regulated standard for:</p> <ul style="list-style-type: none"> <li>closed vent systems</li> <li>pressure relief devices in gas/vapor service</li> </ul>
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept:</p> <ul style="list-style-type: none"> <li>list of ID numbers of equipment designated for no detectable emission and signed by owner/operator</li> <li>for each compliance test for no detectable emission <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul>
Reporting Requirements	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>dates of process unit shutdowns that occurred within the semi-annual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## OPEN-ENDED VALVES OR LINES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Use cap, blind flange, plug, or second valve to seal open end at all times except when operations require flow through open end</p> <p>Second valve - close valve on process fluid end prior to closing second valve</p> <p>Double block and bleed system may remain open during operations but comply with basic standard at all other times</p>
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all open-ended valves or lines</p> <ul style="list-style-type: none"> <li>list of ID number of subject open-ended valves or lines</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>



## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	No detectable emissions (less than 500 ppm above background)  After each release return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device
Leak Definition	500 ppm
Alternative Standards	Equivalent means of emission limitation  Pressure relief device equipment with compliant closed-vent system and control device
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VOC service
Recordkeeping Requirements	Information to be kept for all pressure relief devices: <ul style="list-style-type: none"> <li>list of ID numbers of pressure relief devices required to comply</li> <li>for each compliance test for pressure relief devices designated for no detectable emissions <ul style="list-style-type: none"> <li>dates conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for pressure relief devices in vacuum service</li> </ul>
Reporting Requirements	Initial semiannual report: <ul style="list-style-type: none"> <li>process unit ID for pressure relief devices</li> </ul> Subsequent semiannual reports: <ul style="list-style-type: none"> <li>process unit identification</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8.</li> </ul>

PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

**PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS**

**APPLICABLE REGULATIONS**

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method
Leak Definition	10,000 ppm
Alternative Standards	Equivalent means of emission limitation
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VOC service.
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be affected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul>

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PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	Information to be kept for all equipment in these categories: <ul style="list-style-type: none"> <li>list of ID numbers of subject equipment in these categories</li> <li>list of ID numbers for equipment in vacuum service</li> </ul>
Reporting Requirements	Initial semiannual report: <ul style="list-style-type: none"> <li>process unit identification</li> </ul> Subsequent semiannual reports: <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period <ul style="list-style-type: none"> <li>number of pumps and valves for which leaks were detected</li> <li>number of pumps and valves for which leaks were not repaired within 15 calendar days</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monthly leak detection and repair  Weekly visual observation for leaks
Leak Definition	10,000 ppm  Indications of liquids dripping from pump seal
Alternative Standards	Equivalent means of emission limitation  Dual mechanical seal pumps (see Dual Mechanical Seals)  No detectable emissions (see No Detectable Emissions)  Closed-vent system and control device (see Closed-vent Systems and Control Devices)
Exemptions	Pumps in vacuum service  Liquids dripping from bleed ports in existing pumps
Monitoring Method	Method 21; no more the 1 cm from rotating shaft
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown.  Allowed for equipment that is isolated from the process and that does not remain in VOC service  Allowed if repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but not later than 6 months after leak detected
Recordkeeping Requirements	When leak detected: <ul style="list-style-type: none"> <li>• a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>• ID may be removed after it has been repaired</li> </ul> (Continued on next page)

# PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all pumps:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of subject pumps</li> <li>• list of ID numbers of pumps designated for no detectable emissions and signed by owner/operator</li> <li>• for each compliance test for pumps designated for no detectable emissions <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul> </li> </ul> <p>Information and data used to demonstrate that a pump is not in VOC service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of pumps, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• The following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of pumps for which leaks were detected</li> <li>• number of pumps for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• Report of all performance tests in accordance with §60.8.</li> </ul>

## SAMPLING CONNECTION SYSTEMS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Equipped with closed-purged, closed-loop, or closed-vent system that: returns the fluid to the process, or recycles the purged fluid to a process, or sends it to a complaint control device
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service; in-situ sampling systems; and sampling systems without purges.
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	Information to be kept for all sampling connections <ul style="list-style-type: none"> <li>list of ID numbers of subject sampling connection systems</li> </ul>
Reporting Requirements	Initial semiannual report: <ul style="list-style-type: none"> <li>process unit identification</li> </ul> Subsequent semiannual reports: <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>If valve does not leak for 2 months, may be monitored quarterly</p> <p>If valve leaks, monitor monthly until no leak is detected for 2 consecutive months</p>
Leak Definition	10,000 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions</p> <p>Valves designated unsafe to monitor or difficult to monitor</p> <p>Allowable percentage of valves leaking</p>
Exemptions	Valves in vacuum service
Monitoring Method	Method 21
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair, and purged materials are collected and destroyed or recovered in a control device when repair occurs</p> <p>Allowed beyond process unit shutdown if otherwise sufficient supply of valve assembly replacements are exhausted</p>



# VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored for 2 months with no leaks</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all valves:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject valves</li> <li>list of ID numbers of valves designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for valves designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for valves in vacuum service</li> </ul> <p>Information and data used to demonstrate that a valve is not in VOC service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of valves, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period: <ul style="list-style-type: none"> <li>number of valves for which leaks were detected</li> <li>number of valves for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with alternative standards</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Control Devices:</p> <ul style="list-style-type: none"> <li>vapor recovery systems: 95 percent or greater recovery</li> <li>combustion devices: 95 percent or greater reduction or minimum residence time of 0.75 seconds and minimum temperature of 816°C</li> <li>flares: comply with §60.18</li> </ul> <p>Closed-Vent Systems:</p> <ul style="list-style-type: none"> <li>no detectable emissions (less than 500 ppm above background)</li> <li>control devices and closed-vent systems to be operated at all times that emissions may be vented to them</li> </ul> <p>Monitoring:</p> <ul style="list-style-type: none"> <li>control devices: monitor to ensure operated and maintained in conformance with their designs</li> <li>closed-vent systems: initially, annually, and at other times as requested by the Administrator</li> </ul>
Leak Definition	Closed-vent system: 500 ppm or visible indications
Alternative Standards	N/A
Exemptions	<p>Vapor collection or closed-vent systems operated under a vacuum</p> <p>Unsafe or difficult to monitor portions of closed-vent systems require alternate inspection plan</p>
Monitoring Method	<p>Hard piping construction: Method 21 for initial inspection, annual visual inspections</p> <p>Duct work construction: Method 21 for initial and annual inspections</p>
Repair Requirements	<p>First attempt to repair within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>When no leak detected: records that instrument or visual inspection was conducted, date of inspection, and statement that no leaks were detected</p> <p>Information to be kept for all closed-vent systems and control devices:</p> <ul style="list-style-type: none"> <li>detailed schematics, design specifications, and piping and instrumentation diagrams</li> <li>dates and descriptions of any changes in design specifications</li> <li>description of parameter(s) to be monitored to ensure proper operation and maintenance</li> <li>explanation of selected parameter(s)</li> <li>periods of non-operation according to design</li> <li>dates of startups and shutdown</li> <li>list of ID numbers of subject closed-vent systems and control devices</li> <li>list of ID numbers of closed-vent systems and control devices designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for closed-vent systems and control devices designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for closed-vent systems and control devices in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Equipped with compliant seal system that prevents leakage to atmosphere</p> <p>Install sensor to detect failure of seal system</p> <p>Check sensor daily or equip with audible alarm</p> <p>Establish criteria basic standard that indicates failure of seal system or barrier fluid system or both</p>
Leak Definition	Sensor indicates failure of seal or barrier fluid system or both based on established criteria.
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions, operate less than 500 ppm above background</p> <p>Closed-vent system and control device</p>
Exemptions	<p>Equipment in vacuum service</p> <p>Reciprocating compressors that meet certain criteria</p> <p>Compressors in hydrogen service</p>
Monitoring Method	Sensor alarm or visual check
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 calendar days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul>

(Continued on next page)

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all compressors:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of subject compressors</li> <li>• list of ID numbers of compressors designated for no detectable emissions and signed by owner/operator</li> <li>• for each compliance test for compressors designated for no detectable emissions <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul> </li> <li>• list of ID numbers for compressors in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of compressors, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• The following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of compressors for which leaks were detected</li> <li>• number of compressors for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• Report of all performance tests in accordance with §60.8.</li> </ul>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>For each dual mechanical seal system:</p> <ul style="list-style-type: none"> <li>operate the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or</li> <li>connect the barrier fluid degassing reservoir by a closed-vent system to a control device, or</li> <li>equip with a system that purges the barrier fluid into a process stream with zero VHAP emissions to the atmosphere</li> </ul> <p>For all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>the barrier fluid system shall be in heavy liquid service or not in VOC service</li> <li>equip each barrier fluid system with a sensor <ul style="list-style-type: none"> <li>check each sensor daily or equip with audible alarm</li> <li>determine criterion that indicates failure of the seal system, the barrier fluid system, or both</li> </ul> </li> <li>perform weekly visual inspections for indications of liquids dripping from the pump seals</li> </ul>
Leak Definition	Indications of liquids dripping from the pump seal; sensor
Alternative Standards	Applies as an alternative standard to: Pumps in Light Liquid Service
Exemptions	N/A
Monitoring Method	Visual, sensor
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>If repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but no later than 6 months after leak detected</p> <p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of pumps with dual mechanical seal systems</li> <li>• list of ID numbers designated for no detectable emissions and signed by owner/operator</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• the following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• report of all performance tests in accordance with §60.8</li> </ul>

## NO DETECTABLE EMISSIONS

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>An instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485(c)</p> <p>Demonstrate compliance initially upon designation and test annually</p>
Leak Definition	500 ppm
Alternative Standards	<p>Applies as an alternate standard to:</p> <ul style="list-style-type: none"> <li>pumps in light liquid service (must have no externally actuated shaft penetrating the pump housing)</li> <li>valves in gas/vapor service or in light liquid service (must have no external actuating mechanism in contact with the process fluid)</li> </ul> <p>Applies as regulated standard for:</p> <ul style="list-style-type: none"> <li>closed vent systems</li> <li>pressure relief devices in gas/vapor service</li> </ul>
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept:</p> <ul style="list-style-type: none"> <li>list of ID numbers of equipment designated for no detectable emission and signed by owner/operator</li> <li>for each compliance test for no detectable emission <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul>
Reporting Requirements	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>dates of process unit shutdowns that occurred within the semi-annual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>



## OPEN-ENDED VALVES OR LINES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Use cap, blind flange, plug, or second valve to seal open end at all times except when operations require flow through open end</p> <p>Second valve - close valve on process fluid end prior to closing second valve</p> <p>Double block and bleed system may remain open during operations but comply with basic standard at all other times</p>
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all open-ended valves or lines</p> <ul style="list-style-type: none"> <li>list of ID number of subject open-ended valves or lines</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	No detectable emissions (less than 500 ppm above background)  After each release return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device
Leak Definition	500 ppm
Alternative Standards	Equivalent means of emission limitation  Pressure relief device equipment with compliant closed-vent system and control device
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VOC service
Recordkeeping Requirements	Information to be kept for all pressure relief devices: <ul style="list-style-type: none"> <li>list of ID numbers of pressure relief devices required to comply</li> <li>for each compliance test for pressure relief devices designated for no detectable emissions <ul style="list-style-type: none"> <li>dates conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for pressure relief devices in vacuum service</li> </ul>
Reporting Requirements	Initial semiannual report: <ul style="list-style-type: none"> <li>process unit ID for pressure relief devices</li> </ul> Subsequent semiannual reports: <ul style="list-style-type: none"> <li>process unit identification</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8.</li> </ul>

**PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS**

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method
Leak Definition	10,000 ppm
Alternative Standards	Equivalent means of emission limitation
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VOC service.
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be affected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul>

**PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS**

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements (concluded)	Information to be kept for all equipment in these categories: <ul style="list-style-type: none"> <li>list of ID numbers of subject equipment in these categories</li> <li>list of ID numbers for equipment in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period <ul style="list-style-type: none"> <li>number of pumps and valves for which leaks were detected</li> <li>number of pumps and valves for which leaks were not repaired within 15 calendar days</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## PUMPS IN LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monthly leak detection and repair  Weekly visual observation for leaks
Leak Definition	10,000 ppm  Indications of liquids dripping from pump seal
Alternative Standards	Equivalent means of emission limitation  Dual mechanical seal pumps (see Dual Mechanical Seals)  No detectable emissions (see No Detectable Emissions)  Closed-vent system and control device (see Closed-vent Systems and Control Devices)
Exemptions	Pumps in vacuum service  Pumps in process units located in the Alaskan North Slope
Monitoring Method	Method 21; no more the 1 cm from rotating shaft
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown.  Allowed for equipment that is isolated from the process and that does not remain in VOC service  Allowed if repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but not later than 6 months after leak detected
Recordkeeping Requirements	When leak detected: <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p style="text-align: right;">(Continued on next page)</p>

## PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all pumps:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of subject pumps</li> <li>• list of ID numbers of pumps designated for no detectable emissions and signed by owner/operator</li> <li>• for each compliance test for pumps designated for no detectable emissions <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul> </li> </ul> <p>Information and data used to demonstrate that a pump is not in VOC service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of pumps, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• The following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of pumps for which leaks were detected</li> <li>• number of pumps for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• Report of all performance tests in accordance with §60.8.</li> </ul>

## SAMPLING CONNECTION SYSTEMS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Equipped with closed-purged, closed-loop, or closed-vent system that: returns the fluid to the process, or recycles the purged fluid to a process, or sends it to a complaint control device
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service; in-situ sampling systems; and sampling systems without purges.
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	Information to be kept for all sampling connections <ul style="list-style-type: none"> <li>list of ID numbers of subject sampling connection systems</li> </ul>
Reporting Requirements	Initial semiannual report: <ul style="list-style-type: none"> <li>process unit identification</li> </ul> Subsequent semiannual reports: <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>If valve does not leak for 2 months, may be monitored quarterly</p> <p>If valve leaks, monitor monthly until no leak is detected for 2 consecutive months</p>
Leak Definition	10,000 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions</p> <p>Valves designated unsafe to monitor or difficult to monitor</p> <p>Allowable percentage of valves leaking</p>
Exemptions	<p>Valves in vacuum service</p> <p>Valves in process units located in the Alaskan North Slope</p>
Monitoring Method	Method 21
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair, and purged materials are collected and destroyed or recovered in a control device when repair occurs</p> <p>Allowed beyond process unit shutdown if otherwise sufficient supply of valve assembly replacements are exhausted</p>



# VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored for 2 months with no leaks</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all valves:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject valves</li> <li>list of ID numbers of valves designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for valves designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for valves in vacuum service</li> </ul> <p>Information and data used to demonstrate that a valve is not in VOC service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of valves, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period: <ul style="list-style-type: none"> <li>number of valves for which leaks were detected</li> <li>number of valves for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with alternative standards</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Control Devices:</p> <ul style="list-style-type: none"> <li>vapor recovery systems: 95 percent or greater recovery</li> <li>combustion devices: 95 percent or greater reduction or minimum residence time of 0.75 seconds and minimum temperature of 816°C</li> <li>flares: comply with §60.18</li> </ul> <p>Closed-Vent Systems:</p> <ul style="list-style-type: none"> <li>no detectable emissions (less than 500 ppm above background)</li> <li>control devices and closed-vent systems to be operated at all times that emissions may be vented to them</li> </ul> <p>Monitoring:</p> <ul style="list-style-type: none"> <li>control devices: monitor to ensure operated and maintained in conformance with their designs</li> <li>closed-vent systems: initially, annually, and at other times as requested by the Administrator</li> </ul>
Leak Definition	Closed-vent system: 500 ppm or visible indications
Alternative Standards	N/A
Exemptions	<p>Vapor collection or closed-vent systems operated under a vacuum</p> <p>Unsafe or difficult to monitor portions of closed-vent systems require alternate inspection plan</p>
Monitoring Method	<p>Hard piping construction: Method 21 for initial inspection, annual visual inspections</p> <p>Duct work construction: Method 21 for initial and annual inspections</p>
Repair Requirements	<p>First attempt to repair within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>When no leak detected: records that instrument or visual inspection was conducted, date of inspection, and statement that no leaks were detected</p> <p>Information to be kept for all closed-vent systems and control devices:</p> <ul style="list-style-type: none"> <li>detailed schematics, design specifications, and piping and instrumentation diagrams</li> <li>dates and descriptions of any changes in design specifications</li> <li>description of parameter(s) to be monitored to ensure proper operation and maintenance</li> <li>explanation of selected parameter(s)</li> <li>periods of non-operation according to design</li> <li>dates of startups and shutdown</li> <li>list of ID numbers of subject closed-vent systems and control devices</li> <li>list of ID numbers of closed-vent systems and control devices designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for closed-vent systems and control devices designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for closed-vent systems and control devices in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Equipped with compliant seal system that prevents leakage to atmosphere</p> <p>Install sensor to detect failure of seal system</p> <p>Check sensor daily or equip with audible alarm</p> <p>Establish criteria basic standard that indicates failure of seal system or barrier fluid system or both</p>
Leak Definition	Sensor indicates failure of seal or barrier fluid system or both based on established criteria.
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions, operate less than 500 ppm above background</p> <p>Closed-vent system and control device</p>
Exemptions	<p>Equipment in vacuum service</p> <p>Reciprocating compressors that meet certain criteria</p> <p>Reciprocating compressors in wet gas service</p>
Monitoring Method	Sensor alarm or visual check
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 calendar days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all compressors:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject compressors</li> <li>list of ID numbers of compressors designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for compressors designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for compressors in vacuum service</li> </ul> <p>Information and data used to demonstrate that a reciprocating compressor is in wet gas service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of compressors, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>The following information by month in the reporting period: <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of compressors for which leaks were detected</li> <li>number of compressors for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>Report of all performance tests in accordance with §60.8.</li> </ul>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>For each dual mechanical seal system:</p> <ul style="list-style-type: none"> <li>operate the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or</li> <li>connect the barrier fluid degassing reservoir by a closed-vent system to a control device, or</li> <li>equip with a system that purges the barrier fluid into a process stream with zero VHAP emissions to the atmosphere</li> </ul> <p>For all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>the barrier fluid system shall be in heavy liquid service or not in VOC service</li> <li>equip each barrier fluid system with a sensor                             <ul style="list-style-type: none"> <li>check each sensor daily or equip with audible alarm</li> <li>determine criterion that indicates failure of the seal system, the barrier fluid system, or both</li> </ul> </li> <li>perform weekly visual inspections for indications of liquids dripping from the pump seals</li> </ul>
Leak Definition	Indications of liquids dripping from the pump seal; sensor
Alternative Standards	Applies as an alternative standard to: Pumps in Light Liquid Service
Exemptions	N/A
Monitoring Method	Visual, sensor
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>If repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but no later than 6 months after leak detected</p> <p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of pumps with dual mechanical seal systems</li> <li>• list of ID numbers designated for no detectable emissions and signed by owner/operator</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• the following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• report of all performance tests in accordance with §60.8</li> </ul>

## NON DETECTABLE EMISSIONS

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>An instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485</p> <p>Demonstrate compliance initially upon designation and test annually</p>
Leak Definition	500 ppm
Alternative Standards	<p>Applies as an alternate standard to:</p> <ul style="list-style-type: none"> <li>pumps in light liquid service (must have no externally actuated shaft penetrating the pump housing)</li> <li>valves in gas/vapor service or in light liquid service (must have no external actuating mechanism in contact with the process fluid)</li> </ul> <p>Applies as regulated standard for:</p> <ul style="list-style-type: none"> <li>closed vent systems</li> <li>pressure relief devices in gas/vapor service</li> </ul>
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept:</p> <ul style="list-style-type: none"> <li>list of ID numbers of equipment designated for no detectable emission and signed by owner/operator</li> <li>for each compliance test for no detectable emission <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul>
Reporting Requirements	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>dates of process unit shutdowns that occurred within the semi-annual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>



## OPEN-ENDED VALVES OR LINES

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Use cap, blind flange, plug, or second valve to seal open end at all times except when operations require flow through open end</p> <p>Second valve - close valve on process fluid end prior to closing second valve</p> <p>Double block and bleed system may remain open during operations but comply with basic standard at all other times</p>
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all open-ended valves or lines</p> <ul style="list-style-type: none"> <li>list of ID number of subject open-ended valves or lines</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Monitor quarterly and within 5 days after each pressure release</p> <p>For nonfractionating plants monitored by non-plant personnel; after each pressure release monitor next time monitoring personnel are onsite or within 30 days</p>
Leak Definition	10,000 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>Pressure relief device equipment with compliant closed-vent system and control device</p> <p>No detectable emissions</p>
Exemptions	<p>Equipment in vacuum service</p> <p>Equipment in process units in the Alaskan North Slope</p> <p>Equipment in nonfractionating plants with less than 10 million scfd of field gas processing capacity</p>
Monitoring Method	Method 21
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored for 2 months with no leaks</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all pressure relief devices:</p> <ul style="list-style-type: none"> <li>list of ID numbers of pressure relief devices required to comply</li> <li>list of ID numbers of PRD designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for pressure relief devices designated for no detectable emissions <ul style="list-style-type: none"> <li>dates conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for pressure relief devices in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit ID for pressure relief devices</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8.</li> </ul>

PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method
Leak Definition	10,000 ppm
Alternative Standards	Equivalent means of emission limitation
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VOC service.

**PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS**

**APPLICABLE REGULATIONS**

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be affected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all equipment in these categories:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject equipment in these categories</li> <li>list of ID numbers for equipment in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period <ul style="list-style-type: none"> <li>number of pumps and valves for which leaks were detected</li> <li>number of pumps and valves for which leaks were not repaired within 15 calendar days</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monthly leak detection and repair  Weekly visual observation for leaks
Leak Definition	10,000 ppm  Indications of liquids dripping from pump seal
Alternative Standards	Equivalent means of emission limitation  Dual mechanical seal pumps (see Dual Mechanical Seals)  No detectable emissions (see No Detectable Emissions)  Closed-vent system and control device (see Closed-vent Systems and Control Devices)
Exemptions	Pumps in vacuum service  Pumps in process units located in the Alaskan North Slope  Pumps in nonfractionating plants with less than 11 million scfd of field gas processing capacity
Monitoring Method	Method 21; no more the 1 cm from rotating shaft
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown.  Allowed for equipment that is isolated from the process and that does not remain in VOC service  Allowed if repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but not later than 6 months after leak detected

# PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all pumps:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject pumps</li> <li>list of ID numbers of pumps designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for pumps designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul> <p>Information and data used to demonstrate that a pump is not in VOC service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of pumps, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>The following information by month in the reporting period: <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of pumps for which leaks were detected</li> <li>number of pumps for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>Report of all performance tests in accordance with §60.8.</li> </ul>

## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>If valve does not leak for 2 months, may be monitored quarterly</p> <p>If valve leaks, monitor monthly until no leak is detected for 2 consecutive months</p>
Leak Definition	10,000 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions</p> <p>Valves designated unsafe to monitor or difficult to monitor</p> <p>Allowable percentage of valves leaking</p>
Exemptions	<p>Valves in vacuum service</p> <p>Valves in process units in the Alaskan North Slope</p> <p>Valves in nonfractionating plants with less than 10 million scfd of field gas processing capacity</p>
Monitoring Method	Method 21
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair, and purged materials are collected and destroyed or recovered in a control device when repair occurs</p> <p>Allowed beyond process unit shutdown if otherwise sufficient supply of valve assembly replacements are exhausted</p>



## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored for 2 months with no leaks</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all valves:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject valves</li> <li>list of ID numbers of valves designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for valves designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for valves in vacuum service</li> </ul> <p>Information and data used to demonstrate that a valve is not in VOC service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of valves, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period: <ul style="list-style-type: none"> <li>number of valves for which leaks were detected</li> <li>number of valves for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with alternative standards</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Control Devices:</p> <ul style="list-style-type: none"> <li>vapor recovery systems: 95 percent or greater recovery</li> <li>combustion devices: 95 percent or greater reduction or minimum residence time of 0.75 seconds and minimum temperature of 816°C</li> <li>flares: comply with §60.18</li> <li>flow indicator required to ensure vapors are routed to control device</li> </ul> <p>Closed-Vent Systems:</p> <ul style="list-style-type: none"> <li>no detectable emissions (less than 500 ppm above background)</li> <li>control devices and closed-vent systems to be operated at all times that emissions may be vented to them</li> <li>shall be purged to direct vapor to control device</li> </ul> <p>Monitoring:</p> <ul style="list-style-type: none"> <li>control devices: monitor to ensure operated and maintained in conformance with their designs</li> <li>closed-vent systems: initially, semi-annually, and at other times as requested by the Administrator</li> <li>all gauging and sampling devices to be gas tight</li> </ul>
Leak Definition	Closed-vent system: 500 ppm
Alternative Standards	Equivalent means of emission limitation
Exemptions	N/A
Monitoring Method	<p>Method 21</p> <p>Flares: Conduct initial performance test and monitor to comply with §60.18(f)(2)</p>
Repair Requirements	First attempt to repair as soon as practicable; no later than 30 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next refinery or process unit shutdown

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• location of leak</li> <li>• date leak detected</li> <li>• corrective action taken</li> <li>• expected date of successful repair if leak is not repaired within the 30 days</li> <li>• reason for delay if leak not repaired within 30 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all closed-vent systems and control devices:</p> <ul style="list-style-type: none"> <li>• detailed schematics, design specifications, and piping and instrumentation diagrams</li> <li>• dates and descriptions of any changes in design specifications</li> <li>• description of parameter(s) to be monitored to ensure proper operation and maintenance</li> <li>• documentation that control device will achieve required control efficiency during maximum loading conditions</li> <li>• explanation of selected parameter(s)</li> <li>• periods of non-operation according to design</li> <li>• dates of startups and shutdown</li> <li>• for each no detectable emission measurement (retain for 2 years) <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul> </li> </ul> <p>Information for thermal incinerators (retain for 2 years)</p> <ul style="list-style-type: none"> <li>• continuous records of gas stream temperature in the combustion zone</li> <li>• records of all 3-hour periods during which combustion zone temperatures are more than 28°C (50°F) below the design temperature</li> </ul> <p>Information for catalytic incinerators (retain for 2 years)</p> <ul style="list-style-type: none"> <li>• continuous records of gas stream temperatures, upstream and downstream of the catalytic bed</li> <li>• records of all 3-hour periods during which temperatures before the bed are more than 28°C (50°F) below the design temperature</li> <li>• records of all 3-hour periods during which the average temperature differences across the catalytic bed are less than 80 percent of the design temperature differences</li> </ul> <p>Information for carbon absorbers (retain for 2 years)</p> <ul style="list-style-type: none"> <li>• continuous records of VOC concentration at the outlet</li> <li>• records of all 3-hour periods when VOC concentrations are more than 20 percent greater than design levels</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial certification within 60 days of startup that required equipment is in place and has been inspected or tested as required</p> <p>Semi-annual certification that all required inspections have been carried out</p> <p>If a flare is used, initial performance test results within 60 days of startup.</p> <p>Initial and semi-annual reports that summarize all inspections that identify problems that could result in VOC emissions; including information about repairs and corrective action taken.</p> <p>Semi-annual reports of</p> <ul style="list-style-type: none"> <li>• each 3-hour period of thermal incinerator operation during which combustion zone temperatures are more than 28°C (50°F) below design temperature</li> <li>• each 3-hour period of catalytic incinerator operation during which temperatures before the bed were more than 28°C (50°F) below design and all 3-hour periods during which temperatures across the bed are less than 80 percent of design</li> <li>• each 3-hour period of carbon absorber operation during which VOC concentrations are more than 20 percent greater than design</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Control Devices:</p> <ul style="list-style-type: none"> <li>vapor recovery systems: 95 percent or greater recovery</li> <li>combustion devices: 95 percent or greater reduction or minimum residence time of 0.75 seconds and minimum temperature of 816°C</li> <li>flares: comply with §60.18</li> </ul> <p>Closed-Vent Systems:</p> <ul style="list-style-type: none"> <li>no detectable emissions (less than 500 ppm above background)</li> <li>control devices and closed-vent systems to be operated at all times that emissions may be vented to them</li> </ul> <p>Monitoring:</p> <ul style="list-style-type: none"> <li>control devices: monitor to ensure operated and maintained in conformance with their designs</li> <li>closed-vent systems: initially, annually, and at other times as requested by the Administrator</li> </ul>
Leak Definition	Closed-vent system: 500 ppm or visible indications
Alternative Standards	40 CFR 63, Subpart H
Exemptions	<p>Vapor collection or closed-vent systems operated under a vacuum</p> <p>Unsafe or difficult to monitor portions of closed-vent systems require alternate inspection plan</p>
Monitoring Method	<p>Hard piping construction: Method 21 for initial inspection, annual visual inspections</p> <p>Duct work construction: Method 21 for initial and annual inspections</p>
Repair Requirements	<p>First attempt to repair within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>When no leak detected: records that instrument or visual inspection was conducted, date of inspection, and statement that no leaks were detected</p> <p>Information to be kept for all closed-vent systems and control devices:</p> <ul style="list-style-type: none"> <li>detailed schematics, design specifications, and piping and instrumentation diagrams</li> <li>dates and descriptions of any changes in design specifications</li> <li>description of parameter(s) to be monitored to ensure proper operation and maintenance</li> <li>explanation of selected parameter(s)</li> <li>periods of non-operation according to design</li> <li>dates of startups and shutdown</li> <li>list of ID numbers of subject closed-vent systems and control devices</li> <li>list of ID numbers of closed-vent systems and control devices designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for closed-vent systems and control devices designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for closed-vent systems and control devices in vacuum service</li> </ul> <p>Information and data used to demonstrate that equipment is not in organic HAP service or is in HAP service fewer than 300 hours/year</p>

# CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Equipped with compliant seal system that prevents leakage to atmosphere</p> <p>Install sensor to detect failure of seal system</p> <p>Check sensor daily or equip with audible alarm</p> <p>Establish criteria basic standard that indicates failure of seal system or barrier fluid system or both</p>
Leak Definition	Sensor indicates failure of seal or barrier fluid system or both based on established criteria.
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions, operate less than 500 ppm above background</p> <p>Closed-vent system and control device</p> <p>40 CFR 63, Subpart H</p>
Exemptions	<p>Equipment in vacuum service</p> <p>Reciprocating compressors that meet certain criteria</p> <p>Compressors in hydrogen service</p> <p>Reciprocating compressors exempt from seal requirements if recasting the distance pieces or compressor replacement is required</p>
Monitoring Method	Sensor alarm or visual check
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 calendar days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>



## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all compressors:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject compressors</li> <li>list of ID numbers of compressors designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for compressors designated for no detectable emissions: <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for compressors in vacuum service</li> <li>information and data demonstrating hydrogen service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of compressors, excluding those designated for no detectable emissions</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>The following information by month in the reporting period: <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of compressors for which leaks were detected</li> <li>number of compressors for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>Information and data used to demonstrate that a compressor is not in HAP service, is in HAP service fewer than 300 hours/year, or is in hydrogen service.</li> <li>Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>Report of all performance tests in accordance with §60.8.</li> </ul>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>For each dual mechanical seal system:</p> <ul style="list-style-type: none"> <li>operate the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or</li> <li>connect the barrier fluid degassing reservoir by a closed-vent system to a control device, or</li> <li>equip with a system that purges the barrier fluid into a process stream with zero VHAP emissions to the atmosphere</li> </ul> <p>For all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>the barrier fluid system shall be in heavy liquid service or not in VOC service</li> <li>equip each barrier fluid system with a sensor                             <ul style="list-style-type: none"> <li>check each sensor daily or equip with audible alarm</li> <li>determine criterion that indicates failure of the seal system, the barrier fluid system, or both</li> </ul> </li> <li>perform weekly visual inspections for indications of liquids dripping from the pump seals</li> </ul>
Leak Definition	Indications of liquids dripping from the pump seal; sensor
Alternative Standards	Applies as an alternative standard to: Pumps in Light Liquid Service
Exemptions	N/A
Monitoring Method	Visual, sensor
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>If repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but no later than 6 months after leak detected</p> <p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of pumps with dual mechanical seal systems</li> <li>• list of ID numbers designated for no detectable emissions and signed by owner/operator</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• the following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• report of all performance tests in accordance with §60.8</li> </ul>

## NO DETECTABLE EMISSIONS

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>An instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485(c)</p> <p>Demonstrate compliance initially upon designation and test annually</p>
Leak Definition	500 ppm
Alternative Standards	<p>Applies as an alternate standard to:</p> <ul style="list-style-type: none"> <li>pumps in light liquid service (must have no externally actuated shaft penetrating the pump housing)</li> <li>valves in gas/vapor service or in light liquid service (must have no external actuating mechanism in contact with the process fluid)</li> </ul> <p>Applies as regulated standard for:</p> <ul style="list-style-type: none"> <li>closed vent systems</li> <li>pressure relief devices in gas/vapor service</li> </ul>
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept:</p> <ul style="list-style-type: none"> <li>list of ID numbers of equipment designated for no detectable emission and signed by owner/operator</li> <li>for each compliance test for no detectable emission <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul>
Reporting Requirements	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>dates of process unit shutdowns that occurred within the semi-annual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## OPEN-ENDED VALVES OR LINES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Use cap, blind flange, plug, or second valve to seal open end at all times except when operations require flow through open end</p> <p>Second valve - close valve on process fluid end prior to closing second valve</p> <p>Double block and bleed system may remain open during operations but comply with basic standard at all other times</p>
Leak Definition	N/A
Alternative Standards	40 CFR 63, Subpart H
Exemptions	Equipment in vacuum service
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all open-ended valves or lines</p> <ul style="list-style-type: none"> <li>list of ID number of subject open-ended valves or lines</li> </ul> <p>Information and data used to demonstrate that equipment is not in organic HAP service or is in HAP service fewer than 300 hours per year</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	No detectable emissions (less than 500 ppm above background)  After each release return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device
Leak Definition	500 ppm
Alternative Standards	Equivalent means of emission limitation  Pressure relief device equipment with compliant closed-vent system and control device  40 CFR 63, Subpart H
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VOC service
Recordkeeping Requirements	Information to be kept for all pressure relief devices: <ul style="list-style-type: none"> <li>list of ID numbers of pressure relief devices required to comply</li> <li>for each compliance test for pressure relief devices designated for no detectable emissions <ul style="list-style-type: none"> <li>dates conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for pressure relief devices in vacuum service</li> </ul> Information and data used to demonstrate that a pressure relief device is not in organic HAP service or is in HAP service fewer than 300 hours per year

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit ID for pressure relief devices</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8.</li> </ul>

**PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS**

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method
Leak Definition	10,000 ppm
Alternative Standards	Equivalent means of emission limitation  40 CFR 63, Subpart H
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VOC service.
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be affected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p align="right">(Continued on next page)</p>



**PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE  
RELIEF DEVICES IN LIGHT LIQUID OR HEAVY LIQUID  
SERVICE, AND FLANGES AND OTHER CONNECTORS**

**APPLICABLE REGULATIONS**

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Information to be kept for all equipment in these categories:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject equipment in these categories</li> <li>list of ID numbers for equipment in vacuum service</li> </ul> <p>Information and data used to demonstrate that equipment is not in organic HAP service, or is in HAP service fewer than 300 hours/year</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>declare selection of process unit or sourcewide basis for calculating percent leaking equipment</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period <ul style="list-style-type: none"> <li>number of pumps and valves for which leaks were detected</li> <li>number of pumps and valves for which leaks were not repaired within 15 calendar days</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with §60.8</li> </ul>

## PUMPS IN LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>Weekly visual observation for leaks</p>
Leak Definition	<p>10,000 ppm</p> <p>Indications of liquids dripping from pump seal</p>
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>Dual mechanical seal pumps (see Dual Mechanical Seals)</p> <p>No detectable emissions (see No Detectable Emissions)</p> <p>Closed-vent system and control device (see Closed-vent Systems and Control Devices)</p> <p>40 CFR 63, Subpart H</p>
Exemptions	<p>Pumps in vacuum service</p> <p>Reciprocating pumps exempt from §60.482 if recasting of distance piece or pump replacement is required</p>
Monitoring Method	<p>Method 21; no more the 1 cm from rotating shaft</p>
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown.</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p> <p>Allowed if repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but not later than 6 months after leak detected</p>

# PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all pumps:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject pumps</li> <li>list of ID numbers of pumps designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for pumps designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul> <p>Information and data used to demonstrate that a pump is not in HAP service, is in HAP service fewer than 300 hours/year, or is in heavy liquid service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of pumps, excluding those designated for no detectable emissions</li> <li>declare selection of process unit or source-wide basis for calculating percent leaking equipment</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>The following information by month in the reporting period: <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of pumps for which leaks were detected</li> <li>number of pumps for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>Dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>Revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>Report of all performance tests in accordance with §60.8.</li> </ul>

## SAMPLING CONNECTION SYSTEMS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Equipped with closed-purged, closed-loop, or closed-vent system that: returns the fluid to the process, or recycles the purged fluid to a process, or sends it to a complaint control device
Leak Definition	N/A
Alternative Standards	40 CFR 63, Subpart H
Exemptions	Equipment in vacuum service; in-situ sampling systems; and sampling systems without purges.
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all sampling connections</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject sampling connection systems</li> </ul> <p>Information and data used to demonstrate that equipment is not in organic HAP service, or is in HAP service fewer than 300 hours/year.</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>If valve does not leak for 2 months, may be monitored quarterly</p> <p>If valve leaks, monitor monthly until no leak is detected for 2 consecutive months</p> <p>May use qualified monitoring data generated prior to August 15, 1995 to qualify for quarterly monitoring</p>
Leak Definition	10,000 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions</p> <p>Valves designated unsafe to monitor or difficult to monitor</p> <p>Allowable percentage of valves leaking</p> <p>40 CFR Part 63, Subpart H</p>
Exemptions	Valves in vacuum service
Monitoring Method	Method 21
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair, and purged materials are collected and destroyed or recovered in a control device when repair occurs</p> <p>Allowed beyond process unit shutdown if otherwise sufficient supply of valve assembly replacements are exhausted</p>

# VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored for 2 months with no leaks</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all valves:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject valves</li> <li>list of ID numbers of valves designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for valves designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for valves in vacuum service</li> </ul> <p>Information and data used to demonstrate that a valve is not in organic HAP service, is in HAP service fewer than 300 hours/year, or is in heavy liquid service.</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of valves, excluding those designated for no detectable emissions</li> <li>declare selection of process unit or sourcewide basis for calculating percent leaking equipment</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period: <ul style="list-style-type: none"> <li>number of valves for which leaks were detected</li> <li>number of valves for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with alternative standards</li> </ul>

ALL CONNECTORS AND INSTRUMENTATION SYSTEMS;  
PUMPS AND VALVES IN HEAVY LIQUID SERVICE;  
AND PRESSURE RELIEF DEVICES IN LIQUID SERVICE

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method, unless repaired as discussed under "Other" below
Leak Definition	<p>Monitoring</p> <ul style="list-style-type: none"> <li>pumps - 2,000 ppm</li> <li>valves, connectors, instrumentation systems - 1000 ppm</li> <li>pressure relief - 500 ppm</li> </ul> <p>Other</p> <ul style="list-style-type: none"> <li>evidence of potential leak</li> </ul>
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>Enclosed vented process units</p> <p>Connectors in gas/vapor or light liquid service may comply with §63.649 instead</p>
Exemptions	<p>Equipment in vacuum service</p> <p>Equipment operated fewer than 300 hours per year in organic HAP service</p> <p>Reciprocating pumps in heavy liquid service</p>
Monitoring Method	<p>Method 21, 40 CFR Part 60, Appendix A</p> <ul style="list-style-type: none"> <li>no more than 1 cm from rotating shaft</li> <li>response factor criteria (excluding inerts) for average composition of process fluid</li> <li>monitor all equipment while it is "in service"</li> </ul>
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic HAP service</p>

**ALL CONNECTORS AND INSTRUMENTATION SYSTEMS;  
PUMPS AND VALVES IN HEAVY LIQUID SERVICE;  
AND PRESSURE RELIEF DEVICES IN LIQUID SERVICE**

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired, except valves</li> <li>ID may be removed from valve after it has been monitored at least once within first 3 months of repair</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and equipment ID number and operator name, initials, and ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>maximum instrument reading after successful repair or determination the equipment is non-reparable</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all equipment</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject equipment</li> <li>location of equipment on site plan, log entries, etc.</li> <li>identify records by process unit and program implemented</li> <li>documentation and dates of visual inspections</li> </ul> <p>Information and data used to demonstrate that equipment is not in organic HAP service, is in HAP service fewer than 300 hours/year, or is in heavy liquid service.</p>
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>name and address of owner/operator</li> <li>address of facility (physical location)</li> <li>identification of subject processes</li> <li>compliance statement</li> <li>statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of each type of equipment (excluding those in vacuum service)</li> <li>method of compliance (final choice to monitor valves due after Phase III compliance date)</li> </ul> <p style="text-align: right;">(Continued on next page)</p>



ALL CONNECTORS AND INSTRUMENTATION SYSTEMS;  
PUMPS AND VALVES IN HEAVY LIQUID SERVICE;  
AND PRESSURE RELIEF DEVICES IN LIQUID SERVICE

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information by month in the reporting period <ul style="list-style-type: none"> <li>• number of each type of equipment for which leaks were detected</li> <li>• percent of pumps, valves, and connectors leaking</li> <li>• total number of each type of equipment monitored</li> <li>• number of each type of equipment for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

**ALTERNATIVE MEANS OF EMISSION LIMITATIONS:  
ENCLOSED-VENTED PROCESS UNITS**

APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	Process units enclosed in such a manner that all emissions from equipment leaks are vented through a closed-vent system to a control device. The enclosures shall be maintained under negative pressure at all times the process unit is in operation
Recordkeeping Requirements	Owner/operators shall maintain the following records: <ul style="list-style-type: none"> <li>• ID numbers of the process units and the organic HAP's they handle</li> <li>• a schematic of the process unit, enclosure, and closed vent system</li> <li>• 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</li> </ul>
Reporting Requirements	Initial notification: <ul style="list-style-type: none"> <li>• name and address of owner/operator</li> <li>• address of facility (physical location)</li> <li>• identification of subject processes</li> <li>• compliance statement</li> <li>• statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> Notification of compliance status: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• description of the system used to create a negative pressure in the enclosure and the control device used</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p><u>Control Devices</u></p> <p>Vapor recovery systems: 95 percent or greater recovery</p> <p>Combustion devices: 95% or more reduction, or minimum residence time and temperature of 0.50 seconds &amp; 760° C</p> <p>Flares: Comply with §63.11(b)</p> <p><u>Closed-Vent Systems</u></p> <p>Initial and annual inspection requirements:</p> <ul style="list-style-type: none"> <li>• hard piping construction: initial inspection per Method 21, annual visual inspections</li> <li>• duct work construction: initial and annual inspections per Method 21</li> </ul> <p>Control devices and closed-vent systems (CD/CVS): operate whenever emissions may be vented to them</p> <p><u>Monitoring</u></p> <p>Monitor control devices to ensure operated &amp; maintained in conformance with design specifications</p> <p>If contain by-pass lines, monitor closed-vent systems with (1) vent stream flow meters or (2) secure with car-seal or lock-and-key type locks with monthly visual inspection</p> <p>"Unsafe-to-monitor" parts: inspect as frequently as practicable, but no more than annually</p> <p>"Difficult-to-monitor" parts: inspect at least once every 5 years</p>
Leak Definition	<p>500 ppm</p> <p>Visual inspections</p>
Applicability	Applicable as alternative standard for: pumps in light liquid service, compressors, pressure relief devices in gas/vapor service, sampling connection systems, surge control vessels, bottoms receivers, and agitators in gas/vapor and light liquid service
Exemptions	<p>Equipment in vacuum service</p> <p>Equipment in organic HAP service fewer than 300 hours per year</p> <p>Equipment needed for safety purposes exempt from monitoring requirements</p>
Monitoring Method	<p>Method 21</p> <ul style="list-style-type: none"> <li>• Response factor criteria (excluding inerts) for average composition of process fluid</li> <li>• Monitor all equipment while it is "in service"</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after equipment it has been repaired</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and equipment ID number and operator name, initials, and ID number</li> <li>date leak detected</li> <li>date of first attempt to repair leak</li> <li>maximum instrument reading after successful repair or if determined to be non-reparable</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all closed-vent systems and control devices:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject equipment</li> <li>location of equipment on site plan, log entries, etc.</li> <li>list of ID numbers for components equipped with CVS/CD</li> <li>ID of surge control vessels and bottoms receivers equipped with CVS/CD</li> <li>documentation of visual inspections</li> <li>Design specifications (retain for life of equipment) <ul style="list-style-type: none"> <li>design specifications and performance demonstrations to include detailed schematics and piping and instrumentation diagrams</li> <li>dates and descriptions of any changes in the design specifications</li> <li>flare design and results of compliance demonstration</li> <li>description and explanation of control device monitoring parameters</li> </ul> </li> <li>Records of operation (retain for 5 years) <ul style="list-style-type: none"> <li>dates and durations when CVS/CD are not operated as designed (includes lack of flame in flare pilot light)</li> <li>dates and durations of start-ups and shutdowns of control devices</li> </ul> </li> <li>Records of inspections (retain for 5 years) <ul style="list-style-type: none"> <li>if no leaks detected: record date and fact of inspection and statement no leaks detected</li> <li>if leaks detected: information specified previously</li> </ul> </li> </ul> <p>Information and data used to demonstrate that a CVS/CD is not in organic HAP service or is in HAP service fewer than 300 hours/year</p>

# CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>name and address of owner/operator</li> <li>address of facility (physical location)</li> <li>identification of subject processes</li> <li>compliance statement</li> <li>statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of CVS/CD, excluding those in vacuum service</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the facts that explain any delay of repairs</li> <li>the results of all monitoring of closed-vent systems or of control devices</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Equip with compliant seal system that prevents leakage to atmosphere</p> <p>Install sensor to detect failure of seal system</p> <p>Check sensor daily or equip with audible alarm that is checked monthly; if at unmanned plant site, check daily</p> <p>Establish criteria that indicates failure of seal system or barrier fluid system or both</p>
Leak Definition	Sensor indicates failure of seal or barrier fluid system or both based on established criteria
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>Compressors designated to operate at less than 500 ppm</p> <p>Closed-vent system; return to process or to control device (CVS)</p> <p>Enclosed-vented process units</p>
Exemptions	<p>Compressors in vacuum service</p> <p>Compressors in hydrogen service</p> <p>Compressors operated fewer than 300 hours per year in organic HAP services</p> <p>Reciprocating compressors exempt from seal requirements if recasting distance pieces or compressor replacement is required</p>
Monitoring Method	Daily observation of sensors or use of sensor alarm system
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 calendar days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic HAP service</p>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and equipment ID number and operator name, initials, and ID number</li> <li>date leak detected</li> <li>date of first attempt to repair leak</li> <li>maximum instrument reading after successful repair or determination to be non-reparable</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>dates of process unit shutdowns that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all compressors:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject compressors</li> <li>location of compressor on site plan, log entries, etc.</li> <li>list of ID numbers of compressors equipped with CVS</li> <li>list of ID numbers of compressors designated to operate at less than 500 ppm</li> <li>identify records by process unit and program implemented for each pump</li> <li>documentation and dates of visual inspections</li> <li>for each compliance test for compressors designated to operate at less than 500 ppm <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul> <p>Information and data used to demonstrate that a compressor is not in organic HAP service, is in HAP service fewer than 300 hours/year, or is in hydrogen service</p>
Reporting Requirements	<p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of compressors (excluding those in vacuum service)</li> <li>method of compliance</li> </ul> <p>Initial notification:</p> <ul style="list-style-type: none"> <li>name and address of owner/operator</li> <li>address of facility (physical location)</li> <li>identification of subject processes</li> <li>compliance statement</li> <li>statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p style="text-align: right;">(Continued on next page)</p>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information for each monitoring period in the reporting period: <ul style="list-style-type: none"> <li>• number of compressors for which leaks were detected</li> <li>• number of compressors for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• results of monitoring for compressors designated to operate at less than 500 ppm</li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial compliance notice if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>



## CONNECTORS

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS																		
Basic Standard	<p>NOTE: The following applies only to units opting to comply with §63.649.</p> <p>Option 1: Random 200 Connector Alternative</p> <ul style="list-style-type: none"> <li>Initial monitoring of 200 randomly selected connectors within first 12 months</li> <li>Monitor each repaired leak within 3 months</li> <li>Subsequent monitoring required based on percent leaking connectors:</li> </ul> <table> <tr> <th><u>Percent Leaking</u></th><th><u>Frequency</u></th></tr> <tr> <td>≥ 2.0</td><td>semiannual</td></tr> <tr> <td>&lt; 2</td><td>annual</td></tr> <tr> <td>&lt; 1</td><td>every 2 years</td></tr> <tr> <td>&lt; 0.5</td><td>every 4 years</td></tr> </table> <ul style="list-style-type: none"> <li>Identify by area or length of pipe; physical tagging and individual component identification is not required.</li> </ul> <p>Option 2: Connector Inspection Alternative</p> <ul style="list-style-type: none"> <li>For all connectors &gt;2 inches in diameter, monitor if in gas/vapor service and inspect if in light liquid service within 12 months after compliance date. Excludes inaccessible and unsafe-to-monitor connectors.</li> <li>Monitor/inspect each repaired leak within 3 months</li> <li>Subsequent monitoring required based on percent leaking connectors:</li> </ul> <table> <tr> <th><u>Percent Leaking</u></th><th><u>Frequency</u></th></tr> <tr> <td>≥ 2.0</td><td>annual</td></tr> <tr> <td>&lt; 2</td><td>every 2 years</td></tr> <tr> <td>&lt; 1</td><td>every 4 years</td></tr> </table> <p>Equation to calculate percent leaking provided.</p> <p>Cannot combine gas/vapor and light liquid to calculate percent leaking.</p> <p>Identify by area or length of pipe; physical tagging and individual component identification is not required.</p>	<u>Percent Leaking</u>	<u>Frequency</u>	≥ 2.0	semiannual	< 2	annual	< 1	every 2 years	< 0.5	every 4 years	<u>Percent Leaking</u>	<u>Frequency</u>	≥ 2.0	annual	< 2	every 2 years	< 1	every 4 years
<u>Percent Leaking</u>	<u>Frequency</u>																		
≥ 2.0	semiannual																		
< 2	annual																		
< 1	every 2 years																		
< 0.5	every 4 years																		
<u>Percent Leaking</u>	<u>Frequency</u>																		
≥ 2.0	annual																		
< 2	every 2 years																		
< 1	every 4 years																		
Leak Definition	<p>Option 1: 1,000 ppm</p> <p>Option 2: gas/vapor service - 1,000 ppm light liquid service - 3 drips per minute</p>																		
Alternative Standards	Comply with §63.174 of Subpart H, 40 CFR Part 63.																		

## CONNECTORS

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Exemptions	<p>Equipment in vacuum service.</p> <p>Equipment operated fewer than 300 hours per year.</p> <p>Inaccessible connectors (as defined in §63.174).</p> <p>Unsafe-to-monitor connectors (as defined in §63.174).</p>
Monitoring Method	Method 21, 40 CFR Part 60, Appendix A
Repair Requirements	<p>Repair as soon as practicable, but no later than 15 calendar days after detection.</p> <p>First attempt to repair within 5 calendar days of detection.</p>
Delay of Repair	<p>Allowed if repair is technically infeasible by normal repair techniques without a process unit shutdown.</p> <p>Repair to occur before end of next process unit shutdown.</p> <p>Allowed for equipment isolated from the process and that does not remain in organic HAP service.</p> <p>Also allowed if emissions from purged material resulting from immediate repair would be greater than from delay of repair and, when repair is effected, the purged material is collected and destroyed or recovered in a control device.</p>
Recordkeeping Requirements	<p>Document that all connector monitoring and inspections have occurred.</p> <p>Document repair of leaking connectors as applicable.</p>
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>• name and address of owner/operator</li> <li>• address of facility (physical location)</li> <li>• identification of subject processes</li> <li>• compliance statement</li> <li>• statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of connectors, excluding those in vacuum service</li> <li>• method of compliance</li> </ul> <p>(Continued on next page)</p>

## CONNECTORS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information for each monitoring period in the reporting period: <ul style="list-style-type: none"> <li>• number of connectors for which leaks were detected</li> <li>• total number of connectors monitored</li> <li>• the percent leakers for connectors</li> <li>• number of connectors for which leaks were not repaired within 15 days after detection</li> <li>• identification of the number of connectors determined to be non-reparable</li> <li>• explanation of why repairs delayed and why a process unit shutdown was infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>For each dual mechanical seal system:</p> <ul style="list-style-type: none"> <li>operate the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or</li> <li>equip with a barrier fluid degassing reservoir that is connected by a closed-vent system to a control device, or</li> <li>equip with a closed-loop system that purges the barrier fluid into a process stream</li> </ul> <p>For all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>the barrier fluid system is not in light liquid service</li> <li>barrier fluid system is equipped with a sensor <ul style="list-style-type: none"> <li>check each sensor daily or equip with audible alarm</li> <li>determine criterion that indicates failure of the seal system, the barrier fluid system, or both</li> </ul> </li> <li>perform weekly visual inspections for indications of liquid dripping from the pump seals, monitor if indications observed</li> </ul>
Leak Definition	Indications of liquids dripping from the pump seal; sensor criteria; instrument reading of 1000 ppm
Alternative Standards	Applies as an alternative standard to: Pumps in Light Liquid Service and Agitators in Gas/Vapor Service and in Light Liquid Service
Exemptions	NA
Monitoring Method	Visual, sensor
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after leak is detected</p>
Delay of Repair	<p>Allowed if repair requires replacing the existing seal design with a new system that meets improved performance criterion</p> <p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic HAP service</p>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and equipment ID number, and operator name, initials, and ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• maximum instrument reading after successful repair or determined to be non-reparable</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• copies of periodic reports (if database not capable of generating such)</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of dual mechanical seal systems</li> <li>• ID of instrumentation systems</li> </ul>
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>• name and address of owner/operator</li> <li>• address of facility (physical location)</li> <li>• identification of subject processes</li> <li>• compliance statement</li> <li>• statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of pumps (excluding those in vacuum service)</li> <li>• method of compliance</li> <li>• planned schedule for each phase of requirements</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information for each monitoring period in the reporting period: <ul style="list-style-type: none"> <li>• number of pumps for which leaks were detected</li> <li>• percent of pumps leaking</li> <li>• total number of pumps monitored</li> <li>• number of pumps for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial compliance notice if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## OPEN-ENDED VALVES OR LINES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Use cap, blind flange, plug, or second valve to seal open end at all times except when operations require flow through open end</p> <p>Second valve - close valve on process fluid end prior to closing second valve</p> <p>Double block and bleed system may remain open during operations but comply with basic standard at all other times</p>
Leak Definition	N/A
Alternative Standards	Equivalent means of emission limitation
Exemptions	Emergency shutdown system
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all open-ended valves or lines</p> <ul style="list-style-type: none"> <li>list of ID number of subject equipment</li> <li>location on site plan, log entries, etc.</li> </ul> <p>Information and data used to demonstrate that equipment is not in organic HAP service or is in HAP service fewer than 300 hours/year</p>
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>name and address of owner/operator</li> <li>address of facility (physical location)</li> <li>identification of subject processes</li> <li>compliance statement</li> <li>statement of whether a source can achieve compliance by the applicable compliance date</li> </ul>

(Continued on next page)

# OPEN-ENDED VALVES OR LINES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of open-ended valves or lines (excluding those in vacuum service)</li> <li>• method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information for each monitoring period in the reporting period: <ul style="list-style-type: none"> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Without rupture disk: Operate at less than 500 ppm above background</p> <p>Within 5 calendar days after each release, return to operating standard and monitor the pressure relief device (PRD) to confirm</p> <p>With rupture disk: After each release, replace rupture disk within 5 calendar days</p>
Leak Definition	500 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>Pressure relief device equipped with compliant closed-vent system and control device</p>
Exemptions	<p>Pressure relief device in vacuum service</p> <p>Pressure relief device in organic HAP service fewer than 300 hours per year</p>
Monitoring Method	<p>Method 21</p> <ul style="list-style-type: none"> <li>Response factor criteria (excluding inerts) for average composition of process fluid</li> <li>Monitor all equipment while it is "in service"</li> </ul>
Repair Requirements	See basic standard
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic HAP service</p>
Recordkeeping Requirements	<p>Information to be kept for all pressure relief devices:</p> <ul style="list-style-type: none"> <li>list of ID numbers of pressure relief devices, and a list of ID numbers for pressure relief devices equipped with rupture disks</li> <li>location of pressure relief devices on site plan, log entries, etc.</li> <li>list of ID numbers for pressure relief devices in vacuum service</li> <li>list of ID numbers for pressure relief devices equipped with closed-vent system and control device</li> </ul> <p>Information and data used to demonstrate that a pressure relief device is not in organic HAP service or is in HAP service fewer than 300 hours/year</p>



# PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>• name and address of owner/operator</li> <li>• address of facility (physical location)</li> <li>• identification of subject processes</li> <li>• compliance statement</li> <li>• statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of pressure relief devices, excluding those in vacuum service</li> <li>• method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information by monitoring period in the reporting period <ul style="list-style-type: none"> <li>• explanation of why repairs delayed and why a process unit shutdown was infeasible</li> </ul> </li> <li>• results of all monitoring to show compliance with the operating standard of less than 500 ppm</li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>Weekly visual observation for leaks</p> <p>At startup of new sources, comply with 63.163(a)(1)(ii)</p> <p>Phase III:</p> <ul style="list-style-type: none"> <li>• If the greater of 10% or 3 pumps in process area leaks (6 month average), Quality Improvement Program (QIP) required</li> <li>• If less than 10% or 3 pumps, monitor monthly</li> <li>• If less than 3% or 1 pump, monitor quarterly</li> </ul>
Leak Definition	<p>Phase I: 10,000 ppm</p> <p>Phase II: 5,000 ppm</p> <p>Phase III: 2,000 ppm</p> <p>Indications of liquids dripping from pump seal</p>
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>Dual mechanical seal pumps (DMS)</p> <p>Pumps designed with no externally actuated shaft</p> <p>Closed-vent system and control device (CVS)</p> <p>Enclosed-vented process units</p>
Exemptions	<p>Pumps in vacuum service</p> <p>Pumps operated fewer than 300 hours per year in organic HAP service</p> <p>Process units with more than 90% of pumps with DMS or CVS; exempt from monthly calculations of percent leaking pumps</p> <p>Any pump located at unmanned site exempt from weekly visual inspection provided each is inspected as often as practicable and at least monthly</p> <p>Reciprocating pumps exempt from §63.163 if recasting distance piece or pump replacement is required</p>
Monitoring Method	<p>Method 21; no more the 1 cm from rotating shaft</p> <ul style="list-style-type: none"> <li>• response factor criteria (excluding inerts) for average composition of process fluid</li> <li>• monitor all equipment while it is "in service"</li> </ul>

## PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown.</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic HAP service</p> <p>Allowed if repair requires use of: (1) a new system determined under provisions of a QIP, or (2) a DMS that includes a barrier fluid system, or (3) a pump designed with no externally actuated shaft, or (4) a closed-vent system and control device, and repair is completed as soon as practicable but not later than 6 months after leak detected</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and equipment ID number and operator name, initials, and ID number</li> <li>date leak detected</li> <li>date of first attempt to repair leak</li> <li>maximum instrument reading (M21) after successful repair or determination the pump is non-reparable</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all pumps:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject pumps</li> <li>location of pump on site plan, log entries, etc.</li> <li>list of ID numbers of pumps equipped with CVS</li> <li>identify records by process unit and program implemented for each pump</li> <li>documentation and dates of visual inspections</li> </ul> <p>Information and data used to demonstrate that a pump is not in organic HAP service, is in HAP service fewer than 300 hours/year, or is in heavy liquid service</p>

## PUMPS IN LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>• name and address of owner/operator</li> <li>• address of facility (physical location)</li> <li>• identification of subject processes</li> <li>• compliance statement</li> <li>• statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of pumps (excluding those in vacuum service)</li> <li>• method of compliance</li> <li>• planned schedule for each phase of requirements</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information for each monitoring period in the reporting period: <ul style="list-style-type: none"> <li>• number of pumps for which leaks were detected</li> <li>• percent of pumps leaking</li> <li>• total number of pumps monitored</li> <li>• number of pumps for which leaks were not repaired within 15 days after detection</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial compliance notice if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

# QUALITY IMPROVEMENT PROGRAM FOR PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Applicability	<p>A technology review of improvement QIP's are required in Phase III if the greater of either 10% of pumps in a process unit (or source-wide) or 3 pumps in a process unit (or source-wide) leak</p> <p>Once &lt; 10% or &lt; 3 pumps leaking is achieved, comply with basic standard</p> <p>If leak rate again exceeds the greater of either &gt; 10% or 3 pumps leaking, can use QIP again</p>
Data Collection	<p>Pumps:</p> <ul style="list-style-type: none"> <li>• type and manufacturer</li> <li>• seal type and manufacturer</li> <li>• pump design</li> <li>• materials of construction</li> <li>• year installed</li> <li>• barrier fluid or packing material</li> </ul> <p>Service characteristics of the stream:</p> <ul style="list-style-type: none"> <li>• discharge pressure, temperature, flow rate, corrosivity, annual operating hours</li> </ul> <p>Maximum instrument readings</p> <p>Repair methods used and the instrument readings after the repair</p> <p>Inspect all pumps and pump seals that exhibit frequent failure and recommend changes to reduce leak potential</p>
Data Analysis	<p>Analyze data to determine the services, operating and maintenance procedures, and pumps and pump seal designs or technologies that have poorer and those that have better than average performance; the first analysis shall be completed no later than 18 months after the start of the program, shall use a minimum of 6 months of data, shall be done yearly for as long as the process unit is in the QIP program</p>
Trial Evaluation	<p>Required for plants that have not demonstrated superior technologies:</p> <ul style="list-style-type: none"> <li>• the number of pump seal technologies or pumps in the trial program shall be the lesser of 1% or 2 pumps for programs involving single process units and the lesser of 1% or 5 pumps for plant sites or groups of process units; the minimum number of pumps or pump seal technologies in the program shall be 1</li> <li>• the program shall specify and include design documentation, the evaluation stages, frequency of monitoring, the range of operating conditions, and conclusions</li> </ul> <p>The performance trials shall be conducted for a 6-month period beginning no later than 18 months after the beginning of the QIP</p> <p>Conclusions will be drawn no later than 24 months after the beginning of the QIP</p>

# QUALITY IMPROVEMENT PROGRAM FOR PUMPS IN LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Equipment Replacement	Beginning at the start of the third year of the QIP for plants with 400 or more valves or 100 or more employees and at the start of the fourth year for others, the owner/operator shall replace the pumps and pump seals that are not superior technology; pumps or pump seals shall be replaced at the rate of 20% per year and shall continue to be replaced until all are superior technology
Recordkeeping Requirements for All	<p>QIP:</p> <ul style="list-style-type: none"> <li>• reason for any leak repair delay and expected date of successful repair</li> <li>• records of all analyses</li> <li>• records documenting the quality assurance program</li> <li>• records indicating all valves or pumps replaced or modified are in compliance with the 20% or greater annual replacement rate for pumps</li> <li>• information and data showing company has less than 100 employees</li> </ul>
Recordkeeping for QIP - Technology Review and Improvement	<p>Pumps:</p> <ul style="list-style-type: none"> <li>• pump type; manufacturer; seal type and manufacturer; design; materials of construction (if applicable); year installed</li> <li>• service characteristics of the stream</li> <li>• maximum instrument readings</li> <li>• if leak detected, the repair method used and the instrument reading after repair</li> <li>• if data analyzed as part of a larger analysis program; describe any maintenance or QIP intended to improve emission performance</li> </ul> <p>Rolling average percent leaking pumps</p> <p>Documentation of all inspections and recommendations for design or specification changes to reduce leak frequency</p> <p>Beginning and end date while meeting requirements of the QIP</p>
Reporting Requirements	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• initiation of monthly monitoring under Phase III or QIP (if applicable)</li> </ul>

## QUALITY IMPROVEMENT PROGRAM FOR VALVES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Applicability	<p>Optional in Phase III to owners/operations with \$4% leakers without Section 63.649 connector monitoring or \$5% leakers with Section 63.649 connector monitoring</p> <p>Decision required within first year of Phase III</p> <p>If rolling average of percent leakers is &lt;4% (or 5%) for 2 consecutive quarters: 1) comply with QIP, 2) monitor each valve quarterly or 3) comply with both QIP and monitor quarterly</p> <p>If monitoring each valve quarterly cannot use QIP again if leak rate goes above 4% (or 5%); monthly monitoring is required</p>
Demonstration of Further Progress	<p>Collect data and maintain records as follows:</p> <ul style="list-style-type: none"> <li>• maximum instrument reading observed in each monitoring</li> <li>• classification of valve "gas or light liquid service"</li> <li>• repair method used and instrument readings after repair (monitoring required at least once within the first 3 months after the repair is completed)(ID tag on a leaking valve may be removed after the valve successfully passes this monitoring period)</li> </ul> <p>Continue to collect data for as long as the process unit is in QIP</p> <p>Demonstrate progress in reducing the percent leaking valves each quarter by at least:</p> <ul style="list-style-type: none"> <li>• 10 percent (meaning that each quarter there is at least a 10 percent reduction in the percent leaking valves from the preceding monitoring period)</li> <li>• alternative quarterly percent reduction and to less than 4% (or 5%) within 2 years</li> </ul> <p>The provisions for failure to meet the 10% reduction for 2 consecutive rolling averages are:</p> <ul style="list-style-type: none"> <li>• a choice of monthly monitoring, or</li> <li>• implementation of a QIP for technology review</li> </ul>
Technology Review and Improvement	<p>Data collection for as long as in QIP:</p> <ul style="list-style-type: none"> <li>• valve type and manufacturer, valve design, materials of construction, year installed, and packing material</li> <li>• service characteristics of the stream (e.g., operating pressure, temperature, line diameter, corrosivity)</li> <li>• gas/vapor or light liquid service</li> <li>• repair methods used and the instrument readings after the repair</li> </ul> <p>Inspect all valves removed due to leaks to determine cause of failure and recommend design and other changes to reduce leak potential</p> <p>Analyze data to determine the services, operating and maintenance procedures, and valve designs or technologies that have poorer and those that have better than average performance; the first analysis shall be completed no later than 18 months after the start of the program, shall use a minimum of 6 months of data, shall be done yearly for as long as the process unit is in the QIP program</p>

## QUALITY IMPROVEMENT PROGRAM FOR VALVES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Data Collection	<p>Data collection for as long as in QIP:</p> <ul style="list-style-type: none"> <li>valve type and manufacturer, valve design, materials of construction, year installed, and packing material</li> <li>service characteristics of the stream (e.g., operating pressure, temperature, line diameter, corrosivity)</li> <li>gas/vapor or light liquid service</li> <li>repair methods used and the instrument readings after the repair</li> </ul> <p>Inspect all valves removed due to leaks to determine cause of failure and recommend design and other changes to reduce leak potential</p>
Data Analysis	Analyze data to determine the services, operating and maintenance procedures, and valve designs or technologies that have poorer and those that have better than average performance; the first analysis shall be completed no later than 18 months after the start of the program, shall use a minimum of 6 months of data, shall be done yearly for as long as the process unit is in the QIP program
Trial Evaluation	<p>Required for plants that have not demonstrated superior technologies:</p> <ul style="list-style-type: none"> <li>the number of valves in the trial program shall be the lesser of 1% or 20 valves for programs involving single process units and the lesser of 1% or 50 valves for programs involving groups of process units</li> <li>the program shall specify and include design documentation, the evaluation stages, frequency of monitoring, the range of operating conditions, and conclusions</li> </ul> <p>The performance trials shall be conducted for a 6-month period beginning no later than 18 months after the beginning of the QIP</p> <p>Conclusions will be drawn no later than 24 months after the beginning of the QIP</p>
Equipment Replacement	<p>Beginning at the start of the third year of Phase III for plants with 400 or more valves or 100 or more employees and at the start of the fourth year of Phase III for others, each replacement valve shall meet quality assurance and superior emission performance technology standards</p> <p>If superior emission performance technology cannot be identified, replacement valve shall be one with lowest emission performance technologies identified for the specific application</p>
Recordkeeping Requirements	<p>Semiannual Reports</p> <ul style="list-style-type: none"> <li>reason for any leak repair delay and expected date of successful repair</li> <li>records of all analyses</li> <li>records documenting the quality assurance program</li> <li>records indicating all valves or pumps replaced or modified are in compliance with the quality assurance requirements</li> </ul>



## QUALITY IMPROVEMENT PROGRAM FOR VALVES

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Recordkeeping for Demonstration of Further Progress	<p>QIP reasonable further progress:</p> <ul style="list-style-type: none"> <li>owner or operator shall collect the following data and maintain records for each valve in each process unit subject to the QIP: <ul style="list-style-type: none"> <li>maximum instrument reading</li> <li>valve is in gas or light liquid service</li> <li>if leak detected, the repair methods used and instrument reading after repair</li> </ul> </li> <li>percent leaking valves and rolling average percent reduction each year</li> <li>beginning and end dates while meeting the requirements of the QIP</li> </ul>
Recordkeeping for QIP - Technology Review and Improvement	<p>Valves:</p> <ul style="list-style-type: none"> <li>valve type; manufacturer; design; materials of construction; year installed</li> <li>service characteristics of the stream</li> <li>valve is in gas or light liquid service</li> <li>maximum instrument readings</li> <li>if leak detected, the repair method used and the instrument reading after repair</li> <li>if data analyzed as part of a larger analysis program; describe any maintenance or QIP intended to improve emission performance</li> </ul> <p>Percent leaking valves</p> <p>Rolling average percent leaking pumps</p> <p>Documentation of all inspections and recommendations for design or specification changes to reduce leak frequency</p> <p>Beginning and end date while meeting requirements of the QIP</p>
Reporting Requirements	<p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>initiation of monthly monitoring under Phase III or QIP (if applicable)</li> </ul>

## SAMPLING CONNECTION SYSTEMS

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Basic Standard	<p>Equipped with closed-purge system or closed-vent system that either returns the fluid to the process, recycles the purged fluid, or sends it to a compliant control device</p> <p>Gases displaced during filling of samples are not required to be collected or captured</p>
Leak Definition	N/A
Alternative Standards	Equivalent means of emission limitation
Exemptions	<p>Sampling systems in vacuum service</p> <p>In-situ sampling systems and sampling systems without purges</p> <p>Sampling systems in organic HAP service fewer than 300 hours per year</p>
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all sampling connections</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject sampling connection systems</li> <li>location of sampling system on site plan, log entries, etc.</li> <li>list of ID numbers for sampling systems in vacuum service</li> </ul> <p>Information and data used to demonstrate that equipment is not in organic HAP service or is in HAP service fewer than 300 hours/year.</p>

## SAMPLING CONNECTION SYSTEMS

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>• name and address of owner/operator</li> <li>• address of facility (physical location)</li> <li>• identification of subject processes</li> <li>• compliance statement</li> <li>• statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of sampling connection systems, excluding those in vacuum service</li> <li>• method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information for each monitoring period during the 6 month period <ul style="list-style-type: none"> <li>• the facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS												
Basic Standard	<p>Phase I &amp; II: Monitor each valve quarterly</p> <p>Phase III: Monitoring frequency based on percent valves found leaking:</p> <table> <tr> <th><u>Percent Leaking<sup>1</sup></u></th><th><u>Monitoring Frequency</u></th></tr> <tr> <td><u>a</u></td><td><u>b</u></td></tr> <tr> <td>4% (or more)</td><td>5% (or more)</td></tr> <tr> <td>&lt;4%</td><td>&lt;5%</td></tr> <tr> <td>&lt;3%</td><td>&lt;4%</td></tr> <tr> <td>&lt;2%</td><td>&lt;3%</td></tr> </table> <p>Monthly or QIP Quarterly Quarterly or once every 2 quarters Quarterly or once every 4 quarters</p> <p><u>a</u>: connectors not monitored under §63.649 <u>b</u>: connectors monitored per §63.649</p> <p>(If 2% or more of valves leak at plant with &lt; 250 valves in organic HAP service: monitor monthly)</p> <p><sup>1</sup>Percent leaking valves is calculated as a rolling average of two consecutive monitoring periods. Non-reparable valves are only counted once in calculation of percent leaking. Non-reparable valves exceeding 3 percent of total valves in HAP service shall be included in calculation of percent leaking valves</p> <p><sup>2</sup>At startup of new sources, comply with §63.168(a)(1)(ii)</p>	<u>Percent Leaking<sup>1</sup></u>	<u>Monitoring Frequency</u>	<u>a</u>	<u>b</u>	4% (or more)	5% (or more)	<4%	<5%	<3%	<4%	<2%	<3%
<u>Percent Leaking<sup>1</sup></u>	<u>Monitoring Frequency</u>												
<u>a</u>	<u>b</u>												
4% (or more)	5% (or more)												
<4%	<5%												
<3%	<4%												
<2%	<3%												
Leak Definition	<p>Phase I: 10,000 ppm Phase II: 1,000 ppm Phase III: 1,000 ppm</p>												
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>QIP for valves</p> <p>Valves designated unsafe to monitor or difficult to monitor (at new facilities, maximum 3% of valves may be designated as difficult to monitor)</p> <p>At Phase III, valves designated as no detectable emissions may follow rules @ 40 CFR 60.482-7(f). Such valves are exempt from Subpart H monitoring provisions.</p>												
Exemptions	<p>Valves in vacuum service</p> <p>Valves in organic HAP service fewer than 300 hours per year</p>												
Monitoring Method	<p>Method 21</p> <ul style="list-style-type: none"> <li>response factor criteria (excluding inerts) for average composition of process fluid</li> <li>monitor all equipment while it is "in service"</li> </ul>												

## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p> <p>When repaired, monitor at least once within first 3 months of repair</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic HAP service</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair, and purged materials are collected and destroyed or recovered in a control device when repair occurs</p> <p>Allowed beyond process unit shutdown if valve assembly replacement supplies are exhausted</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored at least once within first 3 months of repair</li> </ul> <p>Information to be kept in log for 5 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and equipment ID number and operator name, initials, and ID number</li> <li>date leak detected</li> <li>date of first attempt to repair leak</li> <li>maximum instrument reading after successful repair or if determined to be non-reparable</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all valves:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject valves</li> <li>location of valve on-site plan, log entries, etc.</li> <li>schedule by process unit for monitoring valves</li> <li>list of valves removed if net credits for their removal are expected to be used</li> <li>list of ID numbers for valves in vacuum service</li> </ul> <p>Information and data used to demonstrate that a valve is not in organic HAP service, is in HAP service fewer than 300 hours/year, or is in heavy liquid service</p>

## VALVES IN GAS/VAPOR AND LIGHT LIQUID SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 60 Subpart DDD	40 CFR Part 60, Subpart GGG	40 CFR Part 60, Subpart KKK	40 CFR Part 60, Subpart QQQ	40 CFR Part 63, Subpart CC (existing)	40 CFR Part 63, Subpart CC (existing or new)

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial notification:</p> <ul style="list-style-type: none"> <li>• name and address of owner/operator</li> <li>• address of facility (physical location)</li> <li>• identification of subject processes</li> <li>• compliance statement</li> <li>• statement of whether a source can achieve compliance by the applicable compliance date</li> </ul> <p>Notification of compliance status:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• number of valves, excluding those in vacuum service</li> <li>• method of compliance (decision to calculate percent leaking valves on process unit or sourcewide basis not due until first required monitoring period after Phase I compliance data)</li> <li>• planned schedule for each phase</li> <li>• whether percent valves leaking will be calculated on a process unit basis or source-wide basis</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the following information for each monitoring period in the reporting period: <ul style="list-style-type: none"> <li>• number of valves for which leaks were detected</li> <li>• total number of valves monitored</li> <li>• the percent leakers for valves</li> <li>• number of valves for which leaks were not repaired within 15 days after detection</li> <li>• identification of the number of valves determined to be non-reparable</li> <li>• explanation of why repairs delayed and why a process unit shutdown was infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• initiation of monthly monitoring under Phase III or QIP (if applicable)</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Operating at all times when gases, vapors, or fumes are vented from the waste management unit through the CVS to the control device.</p> <p><u>Control Devices</u></p> <ul style="list-style-type: none"> <li>Designed and operated to reduce total organic content of the inlet vapor stream vented to the control device by at least 95% by weight.</li> <li>For carbon adsorbers, carbon replacement intervals specified [see §264.1033(g) and (h)].</li> <li>Enclosed combustion devices: 95 percent or greater reduction; 20 ppmv total organic compound concentration; or minimum residence time of 0.50 seconds and minimum temperature of 760°C.</li> <li>Boilers and process heaters: Introduce vent stream into flame combustion zone.</li> <li>Flares: Flame present at all times, no visible emissions (except for periods not to exceed a total of 5 minutes during any 2 consecutive hours), basic requirements for heat content and exit velocities.</li> </ul> <p>An applicable control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system: develop documentation including sufficient information to describe the control device operation and identify process parameter(s) that indicate proper operation and maintenance of the control device.</p> <p><u>Closed-Vent Systems (CVS)</u></p> <ul style="list-style-type: none"> <li>Designed for and operated with no detectable emissions.</li> <li>Route gases, vapors, and fumes emitted from the hazardous waste to a control device.</li> <li>If the system contains one or more bypass devices that could be used to divert gases, vapors, or fumes from entering the control device, §264.1087(b)(3) requirements apply.</li> </ul>
Leak Definition	CVS: detectable emissions $\geq 500$ ppm above background
Alternative Standards	N/A
Exemptions	N/A
Monitoring Method	<p>Closed Vent Systems:</p> <ul style="list-style-type: none"> <li>Monitor initially and at least once per year thereafter</li> <li>If system contains by-pass lines, either use vent stream flow meters or a car-seal or lock-and-key type of configuration and visually inspect monthly</li> </ul> <p>Control Devices:</p> <ul style="list-style-type: none"> <li>Continuous monitoring of operations</li> </ul>
Repair Requirements	<p>First attempt to repair within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	N/A

## CONTAINERS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>• date of attempt to repair</li> <li>• repair method applied</li> <li>• date of successful repair</li> <li>• retain for 3 years</li> </ul> <p>All visual inspections of covers</p> <p>For each time waste sample is collected:</p> <ul style="list-style-type: none"> <li>• date and time sample is collected</li> <li>• results of each determination for maximum organic vapor pressure</li> <li>• tank dimensions and capacity</li> </ul> <p>If no air emission controls are used:</p> <ul style="list-style-type: none"> <li>• information for each waste determination</li> <li>• date, time, and location of each waste sample if results are used</li> </ul> <p>Alternative recordkeeping:</p> <ul style="list-style-type: none"> <li>• Owners/operators also subject to 40 CFR Part 60, Subpart VV or 40 CFR Part 61, Subpart V may elect to demonstrate compliance using the documentation required under said Subpart VV or Subpart V to the extent that such documentation duplicated the documentation required under 40 CFR Part 265 [264], Subpart CC.</li> </ul>
Reporting Requirements	<p>NOTE: The following is applicable to 40 CFR Part 264, Subpart CC only.</p> <p>Exempted tanks, surface impoundments, and containers:</p> <ul style="list-style-type: none"> <li>• each occurrence when hazardous waste is placed in unit in noncompliance with §264.1082(c)(1) or (2)</li> </ul> <p>Tanks complying with §264.1084(c):</p> <ul style="list-style-type: none"> <li>• each occurrence of noncompliance</li> <li>• submit within 15 calendar days of time when become aware of noncompliance</li> </ul> <p>Control device:</p> <ul style="list-style-type: none"> <li>• semiannual report when noncompliance has occurred</li> <li>• each period of 24 hour or longer when operating in noncompliance</li> <li>• for flares; when operated with visible emissions</li> </ul> <p>All reports to include:</p> <ul style="list-style-type: none"> <li>• EPA ID number</li> <li>• facility name and address</li> <li>• description of event and cause (not for control devices)</li> <li>• explanation why control device not returned to compliance within 24 hours (control devices only)</li> <li>• dates of the noncompliance</li> <li>• actions taken to correct noncompliance and prevent reoccurrence</li> <li>• signed and dated by authorized representative</li> </ul>



## CONTAINERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Non-treatment Containers:</p> <p>Option 1:</p> <ul style="list-style-type: none"> <li>Compliant cover (see Covers).</li> <li>Monitor first time hazardous waste placed in container.</li> <li>If cannot repair immediately, remove hazardous waste from containers. Do not use container until leak is repaired and container retested.</li> </ul> <p>Option 2</p> <ul style="list-style-type: none"> <li>If capacity is <math>\leq 0.46</math> cubic meters, compliant cover and complies with 49 CFR Part 178 regulations for packaging hazardous waste for transport.</li> </ul> <p>Option 3</p> <ul style="list-style-type: none"> <li>If attached to or part of truck, trailer, or railcar, demonstrate that within preceding 12 months to be organic vapor tight (sustains a pressure change of <math>\leq 750</math> pascals within 5 minutes after pressurization).</li> </ul> <p>Treatment Containers:</p> <ul style="list-style-type: none"> <li>Located in compliant enclosure vented to compliant closed vent system and control device.</li> </ul> <p>Compliant Enclosure:</p> <ul style="list-style-type: none"> <li>Designed and operated with sufficient airflow to capture organic vapors emitted from container and vent them to compliant closed vent system and control device.</li> </ul> <p>Transfer into Containers (<math>&gt;0.46</math> cubic meters capacity):</p> <ul style="list-style-type: none"> <li>Use of conveyance system that uses a tube (or other means) to add waste to the container and cover to remain in place and all container openings to be in closed, sealed position except for opening.</li> </ul>
Leak Definition	See Covers
Alternative Standards	N/A
Exemptions	<p>A container that meets all of the requirements identified in §265.1083(c) [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is <math>&lt;100</math> ppmw.</p> <p>Containers used for biological treatment of hazardous waste in accordance with §265.1083(c)(2)(iv) [§264.1082(c)(2)(iv)].</p>
Monitoring Method	See Covers
Repair Requirements	N/A

## COVERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Delay of Repair	See Covers
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>• date of attempt to repair</li> <li>• repair method applied</li> <li>• date of successful repair</li> <li>• retain for 3 years</li> </ul> <p>All visual inspections of covers</p> <p>If no air emission controls are used:</p> <ul style="list-style-type: none"> <li>• information for each waste determination</li> <li>• date, time, and location of each waste sample if results are used</li> </ul> <p>Alternative recordkeeping:</p> <ul style="list-style-type: none"> <li>• Owners/operators also subject to 40 CFR Part 60, Subpart VV or 40 CFR Part 61, Subpart V may elect to demonstrate compliance using the documentation required under said Subpart VV or Subpart V to the extent that such documentation duplicated the documentation required under 40 CFR Part 265 [264], Subpart CC.</li> </ul>
Reporting Requirements	<p>NOTE: The following is applicable to 40 CFR Part 264, Subpart CC only.</p> <p>Exempted tanks, surface impoundments, and containers:</p> <ul style="list-style-type: none"> <li>• each occurrence when hazardous waste is placed in unit in noncompliance with §264.1082(c)(1) or (2)</li> </ul> <p>Control Device</p> <ul style="list-style-type: none"> <li>• semiannual report when noncompliance has occurred</li> <li>• each period of 24 hour or longer when operating in noncompliance</li> <li>• for flares; when operated with visible emissions</li> </ul> <p>All reports to include:</p> <ul style="list-style-type: none"> <li>• EPA ID number</li> <li>• facility name and address</li> <li>• description of event and cause (not for control devices)</li> <li>• explanation why control device not returned to compliance within 24 hours (control devices only)</li> <li>• dates of the noncompliance</li> <li>• actions taken to correct noncompliance and prevent reoccurrence</li> <li>• signed and dated by authorized representative</li> </ul>

## COVERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Initial and semiannual visual inspection and monitoring for no detectable organic emissions from cover and cover openings when all cover openings are secured in closed, sealed position.</p> <p>"Unsafe-to-inspect" covers: written plan to inspect and monitor cover as frequently as practicable during times when a worker can safely access the cover.</p> <p>"Difficult-to-inspect" covers: written plan and schedule to inspect and monitor at least once per calendar year.</p>
Leak Definition	<p>Seals around rotating shaft: 10,000 ppmv</p> <p>All other seals and cover connections: detectable emissions (i.e., concentrations greater than 500 ppmv plus background level).</p> <p>Visual: a visible hole, gap, tear, or split in cover surface or cover opening.</p>
Alternative Standards	N/A
Exemptions	<p>Tank with internal floating roof or external floating roof that is inspected and monitored in accordance with §265.1091 (§264.1091).</p> <p>Tank is buried partially or entirely underground -- only inspect or monitor portion that is above ground and can be opened to the atmosphere .</p> <p>Containers that meet all requirements specified in either §265.1087(b)(1)(ii) or (iii) [§264.1086(b)(1)(ii) or (iii)]</p> <p>Semiannual inspection/monitoring exemptions:</p> <ul style="list-style-type: none"> <li>cover remained closed and sealed since last visual inspection and monitoring</li> <li>designated as unsafe to inspect and monitor</li> <li>designated as difficult to inspect and monitor if installed and placed in service before December 6, 1994</li> </ul>
Monitoring Method	<p>Instrument: Method 21, 40 CFR Part 60, Appendix A</p> <p>Visual: View entire cover surface and each cover opening in a closed, seal position for evidence of defect that may affect ability to continue to operate with no detectable organic emissions.</p>
Repair Requirements	<p>First attempt to repair: within 5 calendar days of detection.</p> <p>Completed repair: within 15 calendar days of detection.</p>

## COVERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Delay of Repair	<p>For tanks and surface impoundment covers:</p> <p>Allowed beyond 15 days if repair requires first emptying contents and temporary removal of tank or surface impoundment from service results in unscheduled production stoppage of the source generating the hazardous waste being managed.</p> <p>Repair to occur at next time source generating the hazardous waste being managed stops operation for any reason.</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>• date of attempt to repair</li> <li>• repair method applied</li> <li>• date of successful repair</li> <li>• retain for 3 years</li> </ul> <p>All visual inspections of covers</p> <p>For each time waste sample is collected:</p> <ul style="list-style-type: none"> <li>• date and time sample is collected</li> <li>• results of each determination for maximum organic vapor pressure</li> <li>• tank dimensions and capacity</li> </ul> <p>If no air emission controls are used:</p> <ul style="list-style-type: none"> <li>• information for each waste determination</li> <li>• date, time, and location of each waste sample if results are used</li> </ul> <p>Alternative recordkeeping:</p> <ul style="list-style-type: none"> <li>• Owners/operators also subject to 40 CFR Part 60, Subpart VV or 40 CFR Part 61, Subpart V may elect to demonstrate compliance using the documentation required under said Subpart VV or Subpart V to the extent that such documentation duplicated the documentation required under 40 CFR Part 265 [264], Subpart CC.</li> </ul> <p>Unsafe- or Difficult-to-Monitor Covers:</p> <ul style="list-style-type: none"> <li>• list of identification numbers</li> <li>• explanation for designation</li> <li>• planned schedule for monitoring</li> </ul>

# COVERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements	<p>NOTE: The following is applicable to 40 CFR Part 264, Subpart CC only.</p> <p>Exempted tanks, surface impoundments, and containers:</p> <ul style="list-style-type: none"> <li>each occurrence when hazardous waste is placed in unit in noncompliance with §264.1082(c)(1) or (2)</li> </ul> <p>Tanks complying with §264.1084(c):</p> <ul style="list-style-type: none"> <li>each occurrence of noncompliance</li> <li>submit within 15 calendar days of time when become aware of noncompliance</li> </ul> <p>Control Device</p> <ul style="list-style-type: none"> <li>semiannual report when noncompliance has occurred</li> <li>each period of 24 hour or longer when operating in noncompliance</li> <li>for flares; when operated with visible emissions</li> </ul> <p>All reports to include:</p> <ul style="list-style-type: none"> <li>EPA ID number</li> <li>facility name and address</li> <li>description of event and cause (not for control devices)</li> <li>explanation why control device not returned to compliance within 24 hours (control devices only)</li> <li>dates of the noncompliance</li> <li>actions taken to correct noncompliance and prevent reoccurrence</li> <li>signed and dated by authorized representative</li> </ul>

## SURFACE IMPOUNDMENTS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Option 1: Compliant covers (see Covers) that are vented to compliant closed-vent system and control device.</p> <p>Option 2: Floating membrane cover that meets certain requirements including designed to operate with no detectable organic emissions</p>
Leak Definition	See Covers
Alternative Standards	N/A
Exemptions	<p>A surface impoundment that meets all of the requirements identified in §265.1083(c) [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is &lt;100 ppmw.</p> <p>Surface impoundments used for biological treatment of hazardous waste in accordance with §265.1083(c)(2)(iv) [§264.1082(c)(2)(iv)].</p>
Monitoring Method	See Covers
Repair Requirements	See Covers
Delay of Repair	<p>Allowed beyond 15 days if repair requires first emptying contents and temporary removal of tank or surface impoundment from service results in unscheduled production stoppage of the source generating the hazardous waste being managed.</p> <p>Repair to occur at next time source generating the hazardous waste being managed stops operation for any reason.</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>• date of attempt to repair</li> <li>• repair method applied</li> <li>• date of successful repair</li> <li>• retain for 3 years</li> </ul> <p>All visual inspections of covers</p> <p>If no air emission controls are used:</p> <ul style="list-style-type: none"> <li>• information for each waste determination</li> <li>• date, time, and location of each waste sample if results are used</li> </ul> <p>(Continued on next page)</p>

## SURFACE IMPOUNDMENTS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Alternative recordkeeping:</p> <ul style="list-style-type: none"> <li>Owners/operators also subject to 40 CFR Part 60, Subpart VV or 40 CFR Part 61, Subpart V may elect to demonstrate compliance using the documentation required under said Subpart VV or Subpart V to the extent that such documentation duplicated the documentation required under 40 CFR Part 265 [264], Subpart CC.</li> </ul>
Reporting Requirements	<p>NOTE: The following is applicable to 40 CFR Part 264, Subpart CC only.</p> <p>Exempted tanks, surface impoundments, and containers:</p> <ul style="list-style-type: none"> <li>each occurrence when hazardous waste is placed in unit in noncompliance with §264.1082(c)(1) or (2)</li> </ul> <p>Control Device</p> <ul style="list-style-type: none"> <li>semiannual report when noncompliance has occurred</li> <li>each period of 24 hour or longer when operating in noncompliance</li> <li>for flares; when operated with visible emissions</li> </ul> <p>All reports to include:</p> <ul style="list-style-type: none"> <li>EPA ID number</li> <li>facility name and address</li> <li>description of event and cause (not for control devices)</li> <li>explanation why control device not returned to compliance within 24 hours (control devices only)</li> <li>dates of the noncompliance</li> <li>actions taken to correct noncompliance and prevent reoccurrence</li> <li>signed and dated by authorized representative</li> </ul>

## TANKS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS								
Basic Standard	<p>Pressure tanks: no detectable emissions</p> <p>Non-pressure tanks:</p> <p>Option 1: Compliant cover (see Covers) and compliant closed-vent system and control device</p> <p>Option 2: Compliant cover provided certain conditions are met including but not limited to the following maximum organic vapor pressure and size requirements:</p> <table> <tr> <th>Capacity (cubic meters)</th><th>Vapor Pressure (Kilopascals)</th></tr> <tr> <td><math>\geq 151</math></td><td>5.2</td></tr> <tr> <td>\$75 to &lt;151</td><td>27.6</td></tr> <tr> <td>&lt;75</td><td>76.6</td></tr> </table> <p>Conduct initial and quarterly inspections of each fixed roof, seal, access door, and other opening for cracks and gaps and to ensure access doors and other openings are closed and properly gasketed.</p>	Capacity (cubic meters)	Vapor Pressure (Kilopascals)	$\geq 151$	5.2	\$75 to <151	27.6	<75	76.6
Capacity (cubic meters)	Vapor Pressure (Kilopascals)								
$\geq 151$	5.2								
\$75 to <151	27.6								
<75	76.6								
Leak Definition	See Covers								
Alternative Standards	<p>Equipped with fixed roof and internal floating roof meeting §60.112b(a)(1).</p> <p>External floating roofs that comply with §60.112b(a)(2).</p>								
Exemptions	<p>A tank that meets all of the requirements identified in §265.1083(c) [§264.1082(c)] including but not limited to an average VO concentration of the hazardous waste at the point of waste origination is &lt;100 ppmw.</p> <p>Tanks used for biological treatment of hazardous waste in accordance with §265.1083(c) [§264.1082(c)(2)(iv)].</p>								
Monitoring Method	See Covers								
Repair Requirements	See Covers								
Delay of Repair	<p>Allowed beyond 15 days if repair requires first emptying contents and temporary removal of tank or surface impoundment from service results in unscheduled production stoppage of the source generating the hazardous waste being managed.</p> <p>Repair to occur at next time source generating the hazardous waste being managed stops operation for any reason.</p>								



## TANKS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>• date of attempt to repair</li> <li>• repair method applied</li> <li>• date of successful repair</li> <li>• retain for 3 years</li> </ul> <p>All visual inspections of covers</p> <p>For each time waste sample is collected:</p> <ul style="list-style-type: none"> <li>• date and time sample is collected</li> <li>• results of each determination for maximum organic vapor pressure</li> <li>• tank dimensions and capacity</li> </ul> <p>If no air emission controls are used:</p> <ul style="list-style-type: none"> <li>• information for each waste determination</li> <li>• date, time, and location of each waste sample if results are used</li> </ul> <p>Alternative recordkeeping:</p> <ul style="list-style-type: none"> <li>• Owners/operators also subject to 40 CFR Part 60, Subpart VV or 40 CFR Part 61, Subpart V may elect to demonstrate compliance using the documentation required under said Subpart VV or Subpart V to the extent that such documentation duplicated the documentation required under 40 CFR Part 265 [264], Subpart CC.</li> </ul>
Reporting Requirements	<p>NOTE: The following is applicable to 40 CFR Part 264, Subpart CC only.</p> <p>Exempted tanks, surface impoundments, and containers:</p> <ul style="list-style-type: none"> <li>• each occurrence when hazardous waste is placed in unit in noncompliance with §264.1082(c)(1) or (2)</li> </ul> <p>Tanks complying with §264.1084(c):</p> <ul style="list-style-type: none"> <li>• each occurrence of noncompliance</li> <li>• submit within 15 calendar days of time when become aware of noncompliance</li> </ul> <p>Control device:</p> <ul style="list-style-type: none"> <li>• semiannual report when noncompliance has occurred</li> <li>• each period of 24 hour or longer when operating in noncompliance</li> <li>• for flares; when operated with visible emissions</li> </ul> <p>All reports to include:</p> <ul style="list-style-type: none"> <li>• EPA ID number</li> <li>• facility name and address</li> <li>• description of event and cause (not for control devices)</li> <li>• explanation why control device not returned to compliance within 24 hours (control devices only)</li> <li>• dates of the noncompliance</li> <li>• actions taken to correct noncompliance and prevent reoccurrence</li> <li>• signed and dated by authorized representative</li> </ul>

## AGITATORS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Minimize VC emissions by installing agitators with double mechanical seals, or equivalent. If double mechanical seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the agitated vessel; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.
Leak Definition	None specified
Alternative Standards	Equivalent means of emission limitation
Exemptions	None specified
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	None specified
Reporting Requirements	<p>Initial report:</p> <ul style="list-style-type: none"> <li>• Equipment and procedural specifications are being met.</li> <li>• Statement that contains the following: <ul style="list-style-type: none"> <li>• list of equipment installed for compliance</li> <li>• description of the physical and functional characteristics of each piece of equipment</li> <li>• description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li> <li>• statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li> </ul> </li> </ul> <p>Quarterly reports: due March 15, June 15, September 15, and December 15:</p> <ul style="list-style-type: none"> <li>• VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</li> <li>• the number of 3-hour periods determined during the reporting period</li> <li>• if no excess emissions, a statement to that effect</li> </ul> <p>(Continued on next page)</p>

# AGITATORS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Other reports (within 10 days of any discharge):</p> <ul style="list-style-type: none"> <li>• information on the source</li> <li>• nature and cause of the discharge</li> <li>• the date and time of the discharge</li> <li>• the approximate total vinyl chloride loss during the discharge</li> <li>• the method used for determining the loss</li> <li>• the action taken to prevent the discharge</li> <li>• measures adopted to prevent future discharges.</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Continually operating while emissions from the release are present.  Control Devices: <ul style="list-style-type: none"> <li>• Other than flares: limit VC emissions to less than 10 ppm (average over 3-hour period)</li> <li>• Flares: Comply with §60.18.</li> </ul>
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	N/A
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	None specified under Subpart F for closed-vent systems and control devices when complying with Subpart F; see 40 CFR Part 61, Subpart V if complying with that subpart.
Reporting Requirements	<p>Initial report</p> <ul style="list-style-type: none"> <li>• Equipment and procedural specifications are being met.</li> <li>• Statement that contains the following: <ul style="list-style-type: none"> <li>• list of equipment installed for compliance</li> <li>• description of the physical and functional characteristics of each piece of equipment</li> <li>• description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li> <li>• statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li> </ul> </li> </ul> <p>Quarterly reports: due March 15, June 15, September 15, and December 15:</p> <ul style="list-style-type: none"> <li>• VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</li> <li>• the number of 3-hour periods determined during the reporting period</li> <li>• if no excess emissions, a statement to that effect</li> </ul> <p>(Continued on next page)</p>

# CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Other reports (within 10 days of any discharge):</p> <ul style="list-style-type: none"> <li>• information on the source</li> <li>• nature and cause of the discharge</li> <li>• the date and time of the discharge</li> <li>• the approximate total vinyl chloride loss during the discharge</li> <li>• the method used for determining the loss</li> <li>• the action taken to prevent the discharge</li> <li>• measures adopted to prevent future discharges.</li> </ul>

## COMPRESSORS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p><u>Rotating Compressors:</u></p> <p>Minimize VC emissions by installing compressors with double mechanical seals or equivalent. If double mechanical seals are used, minimize vinyl chloride emissions by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p> <p><u>Reciprocating Compressors:</u></p> <p>Minimize VC emissions by installing double outboard seals, or equivalent. If double outboard seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p>
Leak Definition	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Alternative Standards	<p>Comply with Subpart V, 40 CFR Part 61</p> <p>Equivalent means of emission limitation</p>
Exemptions	None specified
Monitoring Method	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Repair Requirements	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Delay of Repair	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Recordkeeping Requirements	None specified under Subpart F for compressors complying with Subpart F; see 40 CFR Part 61, Subpart V if complying with that subpart.

## COMPRESSORS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements	<p>Equipment and procedural specifications are being met.</p> <p>Statement that contains the following:</p> <ul style="list-style-type: none"> <li>• list of equipment installed for compliance</li> <li>• description of the physical and functional characteristics of each piece of equipment</li> <li>• description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li> <li>• statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li> </ul> <p>Quarterly reports: due March 15, June 15, September 15, and December 15:</p> <ul style="list-style-type: none"> <li>• VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</li> <li>• the number of 3-hour periods determined during the reporting period</li> <li>• if no excess emissions, a statement to that effect</li> </ul> <p>Other reports (within 10 days of any discharge):</p> <ul style="list-style-type: none"> <li>• information on the source</li> <li>• nature and cause of the discharge</li> <li>• the date and time of the discharge</li> <li>• the approximate total vinyl chloride loss during the discharge</li> <li>• the method used for determining the loss</li> <li>• the action taken to prevent the discharge</li> <li>• measures adopted to prevent future discharges</li> </ul> <p>See 40 CFR Part 61, Subpart V if complying with that subpart.</p>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>For each dual mechanical seal system:</p> <ul style="list-style-type: none"> <li>operate the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or</li> <li>connect the barrier fluid degassing reservoir by a closed-vent system to a control device, or</li> <li>equip with a system that purges the barrier fluid into a process stream with zero VHAP emissions to the atmosphere</li> </ul> <p>For all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>the barrier fluid system shall be in heavy liquid service or not in VOC service</li> <li>equip each barrier fluid system with a sensor <ul style="list-style-type: none"> <li>check each sensor daily or equip with audible alarm</li> <li>determine criterion that indicates failure of the seal system, the barrier fluid system, or both</li> </ul> </li> <li>perform weekly visual inspections for indications of liquids dripping from the pump seals</li> </ul>
Leak Definition	Indications of liquids dripping from the pump seal; sensor
Alternative Standards	Applies as an alternative standard to: Pumps in Light Liquid Service
Exemptions	N/A
Monitoring Method	Visual, sensor
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>If repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but no later than 6 months after leak detected</p> <p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>



## DUAL MECHANICAL SEAL SYSTEM

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of dual mechanical seal systems</li> <li>• list of ID numbers designated for no detectable emissions and signed by owner/operator</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• the following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## FLANGES AND OTHER CONNECTORS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method
Leak Definition	10,000 ppm
Alternative Standards	Equivalent means of emission limitation
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VHAP service.
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all pressure relief devices, flanges and other connectors:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject pressure relief devices, flanges and other connectors</li> <li>list of ID numbers for equipment in vacuum service</li> </ul> <p>Information and data used to demonstrate that a pressure relief device is not in VHAP service</p>

## FLANGES AND OTHER CONNECTORS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• equipment identification number</li> <li>• process unit number</li> <li>• type of equipment</li> <li>• percent weight VHAP</li> <li>• process fluid state</li> <li>• method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## NO DETECTABLE EMISSIONS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	An instrument reading of less than 500 ppm above background as measured by the methods specified in 60.485(c)  Demonstrate compliance initially upon designation and test annually
Leak Definition	500 ppm
Alternative Standards	Applies as an alternate standard to: <ul style="list-style-type: none"> <li>pumps (must have no externally actuated shaft penetrating the pump housing)</li> <li>valves (must have no external actuating mechanism in contact with the process fluid)</li> <li>compressors</li> </ul> Applies as regulated standard for: <ul style="list-style-type: none"> <li>closed vent systems</li> <li>pressure relief devices in gas/vapor service</li> </ul>
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	Information to be kept: <ul style="list-style-type: none"> <li>list of ID numbers of equipment designated for no detectable emission and signed by owner/operator</li> <li>for each compliance test for no detectable emission <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul>
Reporting Requirements	Subsequent semiannual reports: <ul style="list-style-type: none"> <li>dates of process unit shutdowns that occurred within the semi-annual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests</li> </ul>

## OPEN-ENDED VALVES OR LINES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Use cap, blind flange, plug, or second valve to seal open end at all times except when operations require flow through open end</p> <p>Second valve - close valve on process fluid end prior to closing second valve</p> <p>Double block and bleed system may remain open during operations but comply with basic standard at all other times</p>
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	<p>Equipment in vacuum service</p> <p>OELs located on multiple service process lines that operate in VC service less than 10 percent of the time, provided they are addressed in the process unit/plant area monitoring system.</p> <p>Exemption may be extended to OELS demonstrated to require significant retrofit cost to comply with Subpart V.</p>
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all open-ended valves or lines</p> <ul style="list-style-type: none"> <li>list of ID number of subject open-ended valves or lines</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>equipment identification number</li> <li>process unit number</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PRESSURE RELIEF DEVICES IN VINYL CHLORIDE SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Under Subpart F, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>Discharges: No discharge to the atmosphere.</li> <li>Leaks: No detectable emissions (less than 500 ppm above background).</li> <li>After each release, return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device.</li> </ul> <p>Under Subpart V, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>No detectable emissions (less than 500 ppm above background)</li> <li>After each release return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device</li> </ul>
Leak Definition	<p>Under Subpart F, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>Leaks: "No detectable emissions" - less than 500 ppm above background.</li> </ul> <p>Under Subpart V, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>500 ppm</li> </ul>
Alternative Standards	Equivalent means of emission limitation
Exemptions	<p>Under Subpart F, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>Emergency relief discharges or relief valve discharges ducted to control device continually operating while the emissions from the release are present at the device.</li> <li>"Emergency relief discharge" means a discharge that could not have been avoided by taking measures to prevent the discharge.</li> </ul> <p>Under Subpart V, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>Equipment in vacuum service</li> <li>Pressure relief device equipment with compliant closed-vent system and control device</li> </ul>
Monitoring Method	Method 21
Repair Requirements	<p>Under Subpart F, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>Leaks: Return to condition of "no detectable emissions" as soon as practicable but no later than 5 calendar days after pressure release.</li> </ul> <p>Under Subpart V, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>N/A</li> </ul>

## PRESSURE RELIEF DEVICES IN VINYL CHLORIDE SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Delay of Repair	<p>Under Subpart F, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>N/A</li> </ul> <p>Under Subpart V, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</li> <li>Allowed for equipment that is isolated from the process and that does not remain in VHAP service</li> </ul>
Recordkeeping Requirements	<p>Under Subpart F, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>None specified.</li> </ul> <p>Under Subpart V, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>Information to be kept for all pressure relief devices: <ul style="list-style-type: none"> <li>list of ID numbers of subject pressure relief devices</li> <li>list of ID numbers of pressure relief devices for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for pressure relief devices designated for no detectable emissions: <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for pressure relief devices in vacuum service</li> </ul> </li> <li>Information and data used to demonstrate that a pressure relief device is not in VHAP service</li> </ul>
Reporting Requirements	<p>Under Subpart F, 40 CFR Part 61: Initial report</p> <ul style="list-style-type: none"> <li>Equipment and procedural specifications are being met.</li> <li>Statement that contains the following: <ul style="list-style-type: none"> <li>list of equipment installed for compliance</li> <li>description of the physical and functional characteristics of each piece of equipment</li> <li>description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li> <li>statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li> </ul> </li> </ul> <p>Quarterly reports: due March 15, June 15, September 15, and December 15:</p> <ul style="list-style-type: none"> <li>VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</li> <li>the number of 3-hour periods determined during the reporting period</li> <li>if no excess emissions, a statement to that effect</li> </ul> <p>(Continued on next page)</p>

## PRESSURE RELIEF DEVICES IN VINYL CHLORIDE SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Other reports (within 10 days of any discharge):</p> <ul style="list-style-type: none"> <li>• information on the source</li> <li>• nature and cause of the discharge</li> <li>• the date and time of the discharge</li> <li>• the approximate total vinyl chloride loss during the discharge</li> <li>• the method used for determining the loss</li> <li>• the action taken to prevent the discharge</li> <li>• measures adopted to prevent future discharges.</li> </ul> <p>Under Subpart V, 40 CFR Part 61:</p> <ul style="list-style-type: none"> <li>• Initial semiannual report: <ul style="list-style-type: none"> <li>• equipment identification number</li> <li>• process unit number</li> <li>• type of equipment</li> <li>• percent weight VHAP</li> <li>• process fluid state</li> <li>• method of compliance</li> </ul> </li> <li>• Subsequent semiannual reports: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual</li> <li>• report or subsequent revisions to the initial semiannual report</li> <li>• report of all performance tests and monitoring to determine compliance with no detectable emissions</li> </ul> </li> </ul>



## PROCESS UNIT/PLANT AREAS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Vinyl chloride (VC) monitoring system capable of detecting major leaks and identification of the general area of the plant where the leak is located.</p> <p>System to be operated according to plan developed by plant owner or operator.</p> <p>Location and number of points to be monitored and the frequency of the monitoring based on the number of pieces of equipment in VC service and the size and physical layout of the plant.</p>
Leak Definition	<p>Determined by plant owner or operator.</p> <p>Acceptable definition when compared to background concentrations of vinyl chloride in the areas of the plant to be monitored for leaks.</p> <p>Definition of a leak may vary from area to area.</p> <p>Is to change over time as background concentrations are reduced.</p>
Alternative Standards	N/A
Exemptions	None specified
Monitoring Method	None specified
Repair Requirements	Not specified. Plan is to include action to be taken when a leak is detected.
Delay of Repair	N/A
Recordkeeping Requirements	None specified.

## PROCESS UNIT/PLANT AREAS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial report</p> <ul style="list-style-type: none"> <li>• Equipment and procedural specifications are being met.</li> <li>• Statement that contains the following: <ul style="list-style-type: none"> <li>• list of equipment installed for compliance</li> <li>• description of the physical and functional characteristics of each piece of equipment</li> <li>• description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li> <li>• statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li> </ul> </li> </ul> <p>Quarterly reports: due March 15, June 15, September 15, and December 15:</p> <ul style="list-style-type: none"> <li>• VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</li> <li>• the number of 3-hour periods determined during the reporting period</li> <li>• if no excess emissions, a statement to that effect</li> </ul> <p>Other reports (within 10 days of any discharge):</p> <ul style="list-style-type: none"> <li>• information on the source</li> <li>• nature and cause of the discharge</li> <li>• the date and time of the discharge</li> <li>• the approximate total vinyl chloride loss during the discharge</li> <li>• the method used for determining the loss</li> <li>• the action taken to prevent the discharge</li> <li>• measures adopted to prevent future discharges.</li> </ul>

## PRODUCT ACCUMULATOR VESSELS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Compliant closed-vent system and control device
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	<p>Allowed if repair is technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic VHAP service</p>
Recordkeeping Requirements	<p>Information to be kept for all product accumulator vessels:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject product accumulator vessels</li> <li>list of ID numbers for product accumulator vessels in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>equipment identification number</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PUMPS IN VINYL CHLORIDE SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p><u>Rotating Pumps</u></p> <p>Minimize VC emissions by installing sealless pumps, pumps with double mechanical seals or equivalent. If double mechanical seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p> <p><u>Reciprocating Pumps</u></p> <p>Minimize VC emissions by installing double outboard seals, or equivalent. If double outboard seals are used, minimize VC emissions by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the VC concentration in the exhaust gases does not exceed 10 ppm; or equivalent.</p>
Leak Definition	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>Comply with Subpart V, 40 CFR Part 61</p>
Exemptions	None specified
Monitoring Method	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Repair Requirements	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Delay of Repair	N/A; see 40 CFR Part 61, Subpart V if complying with that subpart.
Recordkeeping Requirements	None specified for under Subpart F for compressors complying with Subpart F; see 40 CFR Part 61, Subpart V if complying with that subpart.
Reporting Requirements	<p>Equipment and procedural specifications are being met.</p> <p>Statement that contains the following:</p> <ul style="list-style-type: none"> <li>• list of equipment installed for compliance</li> <li>• description of the physical and functional characteristics of each piece of equipment</li> <li>• description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li> <li>• statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li> </ul> <p>(Continued on next page)</p>

## PUMPS IN VINYL CHLORIDE SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Quarterly reports: due March 15, June 15, September 15, and December 15:</p> <ul style="list-style-type: none"> <li>VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</li> <li>the number of 3-hour periods determined during the reporting period</li> <li>if no excess emissions, a statement to that effect</li> </ul> <p>Other reports (within 10 days of any discharge):</p> <ul style="list-style-type: none"> <li>information on the source</li> <li>nature and cause of the discharge</li> <li>the date and time of the discharge</li> <li>the approximate total vinyl chloride loss during the discharge</li> <li>the method used for determining the loss</li> <li>the action taken to prevent the discharge</li> <li>measures adopted to prevent future discharges.</li> </ul> <p>See 40 CFR Part 61, Subpart V if complying with that subpart.</p>

## SAMPLING CONNECTION SYSTEMS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Unused portions of samples containing at least 10 percent by weight VC are to be returned to the process or destroyed in a compliant control device. Sampling techniques are to be such that samples containers in VC service are purged into a closed process system.
Leak Definition	N/A
Alternative Standards	Comply with Subpart V, 40 CFR Part 61
Exemptions	N/A
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	None specified under Subpart F for sampling connection systems complying with Subpart F; see 40 CFR Part 61, Subpart V if complying with that subpart.
Reporting Requirements	<p>Equipment and procedural specifications are being met.</p> <p>Statement that contains the following:</p> <ul style="list-style-type: none"> <li>• list of equipment installed for compliance</li> <li>• description of the physical and functional characteristics of each piece of equipment</li> <li>• description of the methods that have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits have been prescribed</li> <li>• statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used</li> </ul> <p>Quarterly reports: due March 15, June 15, September 15, and December 15:</p> <ul style="list-style-type: none"> <li>• VC content of emissions for each 3-hour period during which the average emissions are in excess of the limits specified for any control system to which fugitive emissions are required to be ducted</li> <li>• the number of 3-hour periods determined during the reporting period</li> <li>• if no excess emissions, a statement to that effect</li> </ul> <p>(Continued on next page)</p>

## SAMPLING CONNECTION SYSTEMS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>Other reports (within 10 days of any discharge):</p> <ul style="list-style-type: none"> <li>• information on the source</li> <li>• nature and cause of the discharge</li> <li>• the date and time of the discharge</li> <li>• the approximate total vinyl chloride loss during the discharge</li> <li>• the method used for determining the loss</li> <li>• the action taken to prevent the discharge</li> <li>• measures adopted to prevent future discharges.</li> </ul> <p>See 40 CFR Part 61, Subpart V if complying with that subpart.</p>

## VALVES IN VINYL CHLORIDE SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>If valve does not leak for 2 months, may be monitored quarterly</p> <p>If valve leaks, monitor monthly until no leak is detected for 2 consecutive months</p>
Leak Definition	10,000 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions</p> <p>Valves designated unsafe to monitor or difficult to monitor</p> <p>Allowable percentage of valves leaking or skip period leak detection and repair</p>
Exemptions	Valves in vacuum service
Monitoring Method	Method 21
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VHAP service</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair, and purged materials are collected and destroyed or recovered in a control device when repair occurs</p> <p>Allowed beyond process unit shutdown if otherwise sufficient supply of valve assembly replacements are exhausted</p>



## VALVES IN VINYL CHLORIDE SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored for 2 months with no leaks</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all valves:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject valves</li> <li>list of ID numbers of valves designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for valves designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>List of ID numbers for valves in vacuum service</li> </ul> <p>Information and data used to demonstrate that a valve is not in VHAP service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>valve ID number</li> <li>process unit identification</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period: <ul style="list-style-type: none"> <li>number of valves for which leaks were detected</li> <li>number of valves for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with alternative standards</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Control Devices:</p> <ul style="list-style-type: none"> <li>vapor recovery systems: 95 percent or greater recovery</li> <li>enclosed combustion devices: 95 percent or greater reduction or minimum residence time of 0.50 seconds and minimum temperature of 760°C</li> <li>flares: comply with §60.18</li> </ul> <p>Closed-Vent Systems:</p> <ul style="list-style-type: none"> <li>no detectable emissions (less than 500 ppm above background) and no visual indications</li> <li>control devices and closed-vent systems to be operated at all times that emissions may be vented to them</li> </ul> <p>Monitoring:</p> <ul style="list-style-type: none"> <li>control devices: monitor to ensure operated and maintained in conformance with their designs</li> <li>closed-vent systems: initially, annually, and at other times as requested by the Administrator</li> </ul>
Leak Definition	Closed-vent system: 500 ppm
Alternative Standards	N/A
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	<p>As soon as practicable, but no later than 15 calendar days after detection</p> <p>First attempt to repair within 5 calendar days of detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VHAP service</p>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification marked with the equipment ID number; attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all closed-vent systems and control devices:</p> <ul style="list-style-type: none"> <li>detailed schematics, design specifications, and piping and instrumentation diagrams</li> <li>dates and descriptions of any changes in design specifications</li> <li>description of parameter(s) to be monitored to ensure proper operation and maintenance</li> <li>explanation of selected parameter(s)</li> <li>periods of non-operation according to design</li> <li>dates of startups and shutdown</li> <li>list of ID numbers of subject closed-vent systems and control devices</li> <li>list of ID numbers of closed-vent systems and control devices designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for closed-vent systems and control devices designated for no detectable emissions <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for closed-vent systems and control devices in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>equipment identification number</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests to determine compliance with no detectable emissions</li> </ul>

## DUAL MECHANICAL SEAL SYSTEM

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>For each dual mechanical seal system:</p> <ul style="list-style-type: none"> <li>operate the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or</li> <li>connect the barrier fluid degassing reservoir by a closed-vent system to a control device, or</li> <li>equip with a system that purges the barrier fluid into a process stream with zero VHAP emissions to the atmosphere</li> </ul> <p>For all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>the barrier fluid system shall be in heavy liquid service or not in VOC service</li> <li>equip each barrier fluid system with a sensor <ul style="list-style-type: none"> <li>check each sensor daily or equip with audible alarm</li> <li>determine criterion that indicates failure of the seal system, the barrier fluid system, or both</li> </ul> </li> <li>perform weekly visual inspections for indications of liquids dripping from the pump seals</li> </ul>
Leak Definition	Indications of liquids dripping from the pump seal; sensor
Alternative Standards	Applies as an alternative standard to: Pumps in Light Liquid Service
Exemptions	N/A
Monitoring Method	Visual, sensor
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>If repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but no later than 6 months after leak detected</p> <p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VOC service</p>

## DUAL MECHANICAL SEAL SYSTEM

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all dual mechanical seal systems:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of dual mechanical seal systems</li> <li>• list of ID numbers designated for no detectable emissions and signed by owner/operator</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• the following information by month in the reporting period: <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## EXHAUSTERS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Option 1:</p> <ul style="list-style-type: none"> <li>Monitor quarterly</li> </ul> <p>Option 2:</p> <ul style="list-style-type: none"> <li>Equipped with compliant seal system that prevents leakage to atmosphere</li> <li>Install sensor to detect failure of seal system</li> <li>Check sensor daily or equip with audible alarm</li> <li>Establish criteria basic standard that indicates failure of seal system or barrier fluid system or both</li> </ul>
Leak Definition	<p>Option 1: 10,000 ppm</p> <p>Option 2: Sensor indicates failure of seal or barrier fluid system or both based on established criteria.</p>
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions, operate less than 500 ppm above background</p> <p>Closed-vent system and control device</p>
Exemptions	Equipment in vacuum service
Monitoring Method	<p>Option 1: Method 21</p> <p>Option 2: Sensor alarm or visual check</p>
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 calendar days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VHAP service</p>
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p style="text-align: right;">(Continued on next page)</p>

## EXHAUSTERS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>• instrument and operator ID number and equipment ID number</li> <li>• date leak detected</li> <li>• dates of each attempt to repair leak</li> <li>• repair methods applied in each attempt to repair</li> <li>• "above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>• "repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>• signature of owner/operator whose decision it was that repair could not be affected without a process shutdown</li> <li>• expected date of successful repair if leak is not repaired within the 15 days</li> <li>• dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>• date of successful repair of the leak</li> </ul> <p>Information to be kept for all compressors:</p> <ul style="list-style-type: none"> <li>• list of ID numbers of subject compressors</li> <li>• list of ID numbers of compressors designated for no detectable emissions and signed by owner/operator</li> <li>• for each compliance test for compressors designated for no detectable emissions <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul> </li> <li>• list of ID numbers for compressors in vacuum service</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• equipment identification number</li> <li>• process unit number</li> <li>• type of equipment</li> <li>• percent weight VHAP</li> <li>• process fluid state</li> <li>• method of compliance</li> </ul> <p>Statement that the requirements of this subpart and 40 CFR Part 61, Subpart V have been implemented</p> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification <ul style="list-style-type: none"> <li>• number of exhausters for which leaks were detected</li> <li>• number of exhausters for which leaks were repaired as required</li> </ul> </li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• report of all performance tests and monitoring to determine compliance with no detectable emissions</li> </ul>

## LIGHT-OIL SUMPS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Option 1:</p> <ul style="list-style-type: none"> <li>Enclose and seal the liquid surface in the sump to form a closed system to contain the emissions.</li> </ul> <p>Option 2:</p> <ul style="list-style-type: none"> <li>Install, operate, and maintain a vent on the light-oil sump cover. Equip each vent pipe with a water leg seal, a pressure relief device, or vacuum relief device.</li> </ul> <p>Option 3:</p> <ul style="list-style-type: none"> <li>Install, operate, and maintain an access hatch on each light-oil sump cover. Equip each hatch with a gasket and a cover, seal, or lid that is kept closed except when in use.</li> </ul> <p>Covers may be removed for maintenance but must be replaced with seal at completion of maintenance.</p> <p>If control equipment is used to comply:</p> <ul style="list-style-type: none"> <li>monitor the connections and seals on each control system to determine if it is operating with no detectable emissions.</li> <li>visually inspect each source, including sealing materials, for evidence of visible defects (e.g., tears, gaps).</li> <li>conduct this monitoring and inspection semiannually and at any other time the cover is removed.</li> </ul>
Leak Definition	<p>Monitoring: 500 ppmv above background level</p> <p>Visual: visible defects are observed</p>
Alternative Standards	N/A
Exemptions	N/A
Monitoring Method	Method 21, 40 CFR Part 60, Appendix A
Repair Requirements	<p>As soon as practicable, but no later than 15 days after detection</p> <p>First attempt to repair within 5 calendar days of detection</p>
Delay of Repair	<p>Allowed if repair is technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in organic VHAP service</p>



## LIGHT-OIL SUMPS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Record and maintain the following for two-years:</p> <ul style="list-style-type: none"> <li>• date of the inspection and the name of the inspector</li> <li>• brief description of each visible defect in the source or control equipment and the method and date of repair of the defect</li> <li>• the presence of a leak including the date of attempted and actual repair and the method of repair of the leak</li> <li>• brief description of any system abnormalities found during the annual maintenance inspection, the repair made, the date of attempted repair, and the date of actual repair</li> </ul>
Reporting Requirements	<p>Statement that the requirements of this subpart and 40 CFR Part 61, Subpart V have been implemented</p> <ul style="list-style-type: none"> <li>• type of source</li> <li>• for equipment in benzene service: <ul style="list-style-type: none"> <li>• equipment identification number</li> <li>• process unit identification</li> <li>• percent by weight benzene in the fluid at the equipment</li> <li>• process fluid state in the equipment</li> </ul> </li> <li>• method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• brief description of any visible defects in the source or ductwork</li> <li>• the number of leaks detected</li> <li>• brief description of any system abnormalities found during the annual maintenance inspection that occurred in the reporting period and the repairs made</li> <li>• a signed statement stating whether all the provision of Subpart L have been fulfilled during the semiannual reporting period</li> <li>• revisions to items reported in the initial statement</li> </ul>

## NO DETECTABLE EMISSIONS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	An instrument reading of less than 500 ppm above background as measured by the methods specified in 60.485(c)  Demonstrate compliance initially upon designation and test annually
Leak Definition	500 ppm
Alternative Standards	Applies as an alternate standard to: <ul style="list-style-type: none"> <li>pumps (must have no externally actuated shaft penetrating the pump housing)</li> <li>valves (must have no external actuating mechanism in contact with the process fluid)</li> <li>compressors</li> </ul> Applies as regulated standard for: <ul style="list-style-type: none"> <li>closed vent systems</li> <li>pressure relief devices in gas/vapor service</li> </ul>
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	Information to be kept: <ul style="list-style-type: none"> <li>list of ID numbers of equipment designated for no detectable emission and signed by owner/operator</li> <li>for each compliance test for no detectable emission: <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul>
Reporting Requirements	Subsequent semiannual reports: <ul style="list-style-type: none"> <li>dates of process unit shutdowns that occurred within the semi-annual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests</li> </ul>

## OPEN-ENDED VALVES OR LINES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Use cap, blind flange, plug, or second valve to seal open end at all times except when operations require flow through open end</p> <p>Second valve - close valve on process fluid end prior to closing second valve</p> <p>Double block and bleed system may remain open during operations but comply with basic standard at all other times</p>
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	<p>Information to be kept for all open-ended valves or lines</p> <ul style="list-style-type: none"> <li>equipment ID number of subject open-ended valves or lines</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>equipment identification number</li> <li>process unit number</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	No detectable emissions (less than 500 ppm above background)  After each release return to no detectable emissions within 5 calendar days as indicated by monitoring of the pressure relief device
Leak Definition	500 ppm
Alternative Standards	Equivalent means of emission limitation
Exemptions	Equipment in vacuum service  Pressure relief device equipment with compliant closed-vent system and control device
Monitoring Method	Method 21
Repair Requirements	N/A
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VHAP service
Recordkeeping Requirements	Information to be kept for all pressure relief devices: <ul style="list-style-type: none"> <li>• list of ID numbers of subject pressure relief devices</li> <li>• list of ID numbers of pressure relief devices for no detectable emissions and signed by owner/operator</li> <li>• for each compliance test for pressure relief devices designated for no detectable emissions: <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul> </li> <li>• list of ID numbers for pressure relief devices in vacuum service</li> </ul> Information and data used to demonstrate that a pressure relief device is not in VHAP service

## PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>• equipment identification number</li> <li>• process unit number</li> <li>• type of equipment</li> <li>• percent weight VHAP</li> <li>• process fluid state</li> <li>• method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• process unit identification</li> <li>• the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>• dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>• revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>• report of all performance tests and monitoring to determine compliance with no detectable emissions</li> </ul>

# PRESSURE RELIEF DEVICES IN LIQUID SERVICES, FLANGES AND OTHER CONNECTORS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Monitoring of potential leaks within 5 calendar days of detection if evidence of potential leak is found by visual, audible, olfactory, or other detection method
Leak Definition	10,000 ppm
Alternative Standards	Equivalent means of emission limitation
Exemptions	Equipment in vacuum service
Monitoring Method	Method 21
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VHAP service.
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay if leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p align="right">(Continued on next page)</p>

# PRESSURE RELIEF DEVICES IN LIQUID SERVICES, FLANGES AND OTHER CONNECTORS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>Information to be kept for all pressure relief devices, flanges and other connectors:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject pressure relief devices, flanges and other connectors</li> <li>list of ID numbers for equipment in vacuum service</li> </ul> <p>Information and data used to demonstrate that a pressure relief device is not in VHAP service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>equipment identification number</li> <li>process unit number</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## PROCESS VESSELS, STORAGE TANKS, AND TAR-INTERCEPTING SUMPS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Option 1:</p> <ul style="list-style-type: none"> <li>Duct to a control device designed and operated for no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background and visual inspections.</li> <li>Monitor the connections and seals on each control system to determine if it is operating with no detectable emissions.</li> <li>Visually inspect each source, including sealing materials, and the ductwork of the control system for evidence of visible defects (e.g., tears, gaps).</li> <li>Conduct monitoring and visually inspection semi-annually and at any other time after the control system is repressurized.</li> </ul> <p>Option 2:</p> <ul style="list-style-type: none"> <li>Install, operate, and maintain a pressure relief device, vacuum relief device, access hatch, and sampling port. Equip each hatch and sampling port with gasket and cover, seal, or lid that is closed at all times except when in use.</li> <li>Use of sludge conveyors requires operation of water leg seal on tar decanter roof to ensure enclosure of the major portion of the liquid surface not necessary of its operation.</li> </ul>
Leak Definition	<p>Monitoring: 500 ppmv above background level</p> <p>Visual: visible defects are observed</p>
Alternative Standards	N/A
Exemptions	N/A
Monitoring Method	Method 21
Repair Requirements	<p>As soon as practicable, but no later than 15 days after detection</p> <p>First attempt to repair within 5 calendar days of detection</p>
Delay of Repair	<p>Allowed if repair is technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VHAP service</p>



## PROCESS VESSELS, STORAGE TANKS, AND TAR-INTERCEPTING SUMPS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>Record and maintain the following for two-years:</p> <ul style="list-style-type: none"> <li>• date of the inspection and the name of the inspector</li> <li>• brief description of each visible defect in the source or control equipment and the method and date of repair of the defect</li> <li>• the presence of a leak including the date of attempted and actual repair and the method of repair of the leak</li> <li>• brief description of any system abnormalities found during the annual maintenance inspection, the repair made, the date of attempted repair, and the date of actual repair</li> </ul>
Reporting Requirements	<p>Statement that the requirements of this subpart and 40 CFR Part 61, Subpart V have been implemented</p> <ul style="list-style-type: none"> <li>• type of source</li> <li>• for equipment in benzene service <ul style="list-style-type: none"> <li>• equipment identification number</li> <li>• process unit identification</li> <li>• percent by weight benzene in the fluid at the equipment</li> <li>• process fluid state in the equipment</li> </ul> </li> <li>• method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>• brief description of any visible defects in the source or ductwork</li> <li>• the number of leaks detected</li> <li>• brief description of any system abnormalities found during the annual maintenance inspection that occurred in the reporting period and the repairs made</li> <li>• a signed statement stating whether all the provision of Subpart L have been fulfilled during the semiannual reporting period</li> <li>• revisions to items reported in the initial statement</li> </ul>

## PUMPS IN VHAP SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Monthly leak detection and repair  Weekly visual observation for leaks
Leak Definition	10,000 ppm  Indications of liquids dripping from pump seal
Alternative Standards	Equivalent means of emission limitation  No detectable emissions (see No Detectable Emissions)  Closed-vent system and control device (see Closed-vent Systems and Control Devices)
Exemptions	Dual mechanical seal pumps (see Dual Mechanical Seals)  Pumps in vacuum service  Any pump located at unmanned site exempt from weekly visual inspection provided each is inspected as often as practicable and at least monthly
Monitoring Method	Method 21; no more the 1 cm from rotating shaft
Repair Requirements	First attempt within 5 calendar days of detection  Repair as soon as practicable; no later than 15 days after detection
Delay of Repair	Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown  Allowed for equipment that is isolated from the process and that does not remain in VHAP service  Allowed if repair requires use of a DMS that includes a barrier fluid system and repair is completed as soon as practicable but not later than 6 months after leak detected

## SAMPLING CONNECTION SYSTEMS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all pumps:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject pumps</li> <li>list of ID numbers of pumps designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for pumps designated for no detectable emissions: <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> </ul> <p>Information and data used to demonstrate that a pump is not in VHAP service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>equipment identification number</li> <li>process unit number</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>The following information by month in the reporting period: <ul style="list-style-type: none"> <li>process unit identification</li> <li>number of pumps for which leaks were detected</li> <li>number of pumps for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests and monitoring to determine compliance with no detectable emissions</li> </ul>

## SAMPLING CONNECTION SYSTEMS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Equipped with closed-purge system or closed-vent system that either returns the fluid to the process or recycles the purged fluid at zero VHAP emissions to the atmosphere or sends it to a complaint control device
Leak Definition	N/A
Alternative Standards	N/A
Exemptions	Equipment in vacuum service; in-situ sampling systems
Monitoring Method	N/A
Repair Requirements	N/A
Delay of Repair	N/A
Recordkeeping Requirements	Information to be kept for all sampling connections <ul style="list-style-type: none"> <li>list of ID numbers of subject sampling connection systems</li> </ul>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>equipment identification number</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit ID</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> </ul>

## VALVES IN VHAP SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Monthly leak detection and repair</p> <p>If valve does not leak for 2 months, may be monitored quarterly</p> <p>If valve leaks, monitor monthly until no leak is detected for 2 consecutive months</p>
Leak Definition	10,000 ppm
Alternative Standards	<p>Equivalent means of emission limitation</p> <p>No detectable emissions</p> <p>Valves designated unsafe to monitor or difficult to monitor</p> <p>Allowable percentage of valves leaking or skip period leak detection and repair</p>
Exemptions	Valves in vacuum service
Monitoring Method	Method 21
Repair Requirements	<p>First attempt within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Allowed if technically infeasible without process unit shutdown; required before end of next process unit shutdown</p> <p>Allowed for equipment that is isolated from the process and that does not remain in VHAP service</p> <p>Allowed if emissions of purged material from immediate repair would exceed fugitive emissions from delay of repair, and purged materials are collected and destroyed or recovered in a control device when repair occurs</p> <p>Allowed beyond process unit shutdown if otherwise sufficient supply of valve assembly replacements are exhausted</p>

## VALVES IN VHAP SERVICE

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected:</p> <ul style="list-style-type: none"> <li>a weather-proof and readily visible identification, marked with the equipment ID number, attached to the leaking equipment</li> <li>ID may be removed after it has been repaired and monitored for 2 months with no leaks</li> </ul> <p>Information to be kept in log for 2 years after leak detected:</p> <ul style="list-style-type: none"> <li>instrument and operator ID number and equipment ID number</li> <li>date leak detected</li> <li>dates of each attempt to repair leak</li> <li>repair methods applied in each attempt to repair</li> <li>"above 10,000" if maximum instrument reading after each repair attempt is <math>\geq 10,000</math> ppm</li> <li>"repair delayed" and reason for delay is leak not repaired within 15 calendar days after detection</li> <li>signature of owner/operator whose decision it was that repair could not be effected without a process shutdown</li> <li>expected date of successful repair if leak is not repaired within the 15 days</li> <li>dates of process unit shutdown that occurred while the equipment is unrepaired</li> <li>date of successful repair of the leak</li> </ul> <p>Information to be kept for all valves:</p> <ul style="list-style-type: none"> <li>list of ID numbers of subject valves</li> <li>list of ID numbers of valves designated for no detectable emissions and signed by owner/operator</li> <li>for each compliance test for valves designated for no detectable emissions: <ul style="list-style-type: none"> <li>date conducted</li> <li>background level measured</li> <li>maximum instrument reading</li> </ul> </li> <li>list of ID numbers for valves in vacuum service</li> </ul> <p>Information and data used to demonstrate that a valve is not in VHAP service</p>
Reporting Requirements	<p>Initial semiannual report:</p> <ul style="list-style-type: none"> <li>valve ID number</li> <li>process unit identification</li> <li>type of equipment</li> <li>percent weight VHAP</li> <li>process fluid state</li> <li>method of compliance</li> </ul> <p>Subsequent semiannual reports:</p> <ul style="list-style-type: none"> <li>process unit identification</li> <li>the following information by month in the reporting period: <ul style="list-style-type: none"> <li>number of valves for which leaks were detected</li> <li>number of valves for which leaks were not repaired within 15 days after detection</li> <li>the facts that explain each delay of repair, and where appropriate, why a process unit shutdown was technically infeasible</li> </ul> </li> <li>dates of process unit shutdowns that occurred within the semiannual reporting period</li> <li>revisions to items reported in the initial semiannual report if changes have occurred since the initial semiannual report or subsequent revisions to the initial semiannual report</li> <li>report of all performance tests in accordance with alternative standards</li> </ul>

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Closed Vent Systems:</p> <ul style="list-style-type: none"> <li>to be operated at all times when waste is placed in the waste management unit except when maintenance or repair cannot be completed without a shutdown of the control device</li> <li>no detectable emissions (less than 500 ppmv above background)</li> <li>all gauging and sampling devices are to be airtight except when in operation</li> <li>visual inspect initially and quarterly thereafter including ductwork, piping, and connections for evidence of visible defects</li> </ul> <p>Control devices:</p> <ul style="list-style-type: none"> <li>to be operated at all times when waste is placed in the waste management unit except when maintenance or repair cannot be completed without a shutdown of the control device</li> <li>visual inspect initially and quarterly thereafter including ductwork, piping, and connections for evidence of visible defects</li> <li>Enclosed combustion device: <ul style="list-style-type: none"> <li>\$95 percent reduction by weight of organic emissions</li> <li>total organic concentration #20 ppmv</li> <li>minimum residence time of 0.5 seconds at a minimum temperature of 760EC</li> </ul> </li> <li>Boiler/Process Heater: <ul style="list-style-type: none"> <li>introduce vent stream into flame zone</li> </ul> </li> <li>Vapor recovery: <ul style="list-style-type: none"> <li>\$95 percent reduction by weight of organic emissions</li> <li>\$98 percent reduction by weight of benzene emissions</li> </ul> </li> <li>Flares: <ul style="list-style-type: none"> <li>comply with §60.18</li> </ul> </li> <li>Other Control Devices: <ul style="list-style-type: none"> <li>\$95 percent reduction by weight of organic emissions</li> <li>\$98 percent reduction by weight of benzene emissions</li> <li>develop test data and design information to document efficiency</li> <li>identify critical operating parameters, range of values of these parameters to ensure emission control efficiency, and how these parameters will be monitored</li> </ul> </li> </ul>
Leak Definition	<p>Monitoring: 500 ppm</p> <p>Visual: visual defects</p>
Alternative Standards	N/A
Exemptions	N/A

## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Monitoring Method	<p>Closed Vent Systems:</p> <ul style="list-style-type: none"> <li>• Monitor initially and at least once per year thereafter</li> <li>• If system contains by-pass lines, either use vent stream flow indicators or a car-seal or lock-and-key type of configuration and visually inspect monthly</li> <li>• Visually inspect flow monitoring device at least once per operating day</li> </ul> <p>Control Device</p> <ul style="list-style-type: none"> <li>• Continuous monitoring of operations</li> </ul>
Repair Requirements	<p>First attempt to repair within 5 calendar days of detection</p> <p>Repair as soon as practicable; no later than 15 days after detection</p>
Delay of Repair	<p>Delay of repair allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.</p> <p>Repair to occur before the end of the next facility or unit shutdown.</p>
Recordkeeping Requirements	<p>When leak detected (for each test of detectable emissions):</p> <ul style="list-style-type: none"> <li>• date test performed</li> <li>• background level measures</li> <li>• maximum concentration</li> <li>• waste management unit</li> <li>• control equipment</li> <li>• leak interface location where detectable emissions measured</li> <li>• description of problem and the corrective action taken</li> <li>• date the corrective action completed</li> </ul> <p>For each visual inspection that identifies a problem that could result in benzene emissions:</p> <ul style="list-style-type: none"> <li>• date of inspection</li> <li>• waste management unit inspection</li> <li>• control equipment location inspected</li> <li>• description of problem</li> <li>• corrective action taken</li> <li>• date corrective action completed</li> </ul> <p>For each compliance test for components designated as no detectable emissions:</p> <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul>



## CLOSED-VENT SYSTEMS AND CONTROL DEVICES

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements	<p>Initial report:</p> <ul style="list-style-type: none"> <li>• regulatory status of each waste stream</li> <li>• total annual benzene quantity</li> <li>• each benzene waste stream and whether it will be controlled for benzene</li> <li>• for each benzene waste stream not being controlled for benzene <ul style="list-style-type: none"> <li>• whether water content is greater than 10 percent</li> <li>• type of waste stream</li> <li>• annual waste quantity</li> <li>• range of benzene concentration</li> <li>• average benzene concentration</li> <li>• annual benzene quantity</li> </ul> </li> </ul> <p>Subsequent reports (facilities with &gt; 10 Mg/yr of benzene waste):</p> <ul style="list-style-type: none"> <li>• annual reports including, but not limited to: <ul style="list-style-type: none"> <li>• update of information contained in initial report</li> <li>• all inspections during which detectable emissions are measured or a problem that could result in benzene emissions is identified</li> <li>• information on repair and corrective action taken</li> </ul> </li> <li>• Quarterly: <ul style="list-style-type: none"> <li>• all inspections required have been carried out</li> <li>• for control devices: periods of exceedances</li> </ul> </li> </ul> <p>For facilities with &lt;1 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• updates whenever changes occur that may increase benzene waste to &gt; 1 Mg/yr</li> </ul> <p>For facilities with 1 to 10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• updates whenever changes occur that may increase benzene waste to &gt; 10 Mg/yr</li> </ul> <p>For facilities with &gt;10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• certification that necessary equipment has been installed and initial performance tests have been carried out</li> </ul>

## CONTAINERS

### APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	<p>Compliance cover (see Covers) designed for no detectable emissions</p> <p>Initial and subsequent annual monitoring</p> <p>Maintain cover in closed, sealed position</p> <p>Treatment containers:</p> <ul style="list-style-type: none"> <li>locate in enclosure designed and operated with sufficient airflow to capture organic vapors emitted from container and vent them to compliant closed vent system and control device</li> </ul> <p>Transfer into containers:</p> <ul style="list-style-type: none"> <li>use of conveyance system that use a tube, or other means, to add waste to the container and cover to remain in place</li> <li>all container openings to be in closed, sealed position except for opening</li> </ul>
Leak Definition	Broken seal or gasket
Alternative Standards	<ul style="list-style-type: none"> <li>Tanks with fixed roof and internal floating roof meeting §60.112b(a)(1).</li> <li>External floating roofs that comply with §60.112b(a)(2).</li> <li>Alternative means of emission limitation (§60.114(b).</li> </ul>
Exemptions	N/A
Monitoring Method	Visual, sensor
Repair Requirements	Repair as soon as practicable; no later than 15 days after identification
Delay of Repair	<p>Delay of repair allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.</p> <p>Repair to occur before the end of the next facility or unit shutdown.</p>

## CONTAINERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected (for each test of detectable emissions):</p> <ul style="list-style-type: none"> <li>• date test performed</li> <li>• background level measures</li> <li>• maximum concentration</li> <li>• waste management unit</li> <li>• control equipment</li> <li>• leak interface location where detectable emissions measured</li> <li>• description of problem and the corrective action taken</li> <li>• date the corrective action completed</li> </ul> <p>For each visual inspection that identifies a problem that could result in benzene emissions:</p> <ul style="list-style-type: none"> <li>• date of inspection</li> <li>• waste management unit inspection</li> <li>• control equipment location inspected</li> <li>• description of problem</li> <li>• corrective action taken</li> <li>• date corrective action completed</li> </ul> <p>For each compliance test for components designated as no detectable emissions:</p> <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul>
Reporting Requirements	<p>Initial report:</p> <ul style="list-style-type: none"> <li>• regulatory status of each waste stream</li> <li>• total annual benzene quantity</li> <li>• each benzene waste stream and whether it will be controlled for benzene</li> <li>• for each benzene waste stream not being controlled for benzene <ul style="list-style-type: none"> <li>• whether water content is greater than 10 percent</li> <li>• type of waste stream</li> <li>• annual waste quantity</li> <li>• range of benzene concentration</li> <li>• average benzene concentration</li> <li>• annual benzene quantity</li> </ul> </li> </ul> <p>Subsequent reports (facilities with &gt; 10 Mg/yr of benzene waste):</p> <ul style="list-style-type: none"> <li>• annual reports including, but not limited to: <ul style="list-style-type: none"> <li>• update of information contained in initial report</li> <li>• all inspections during which detectable emissions are measured or a problem that could result in benzene emissions is identified</li> <li>• information on repair and corrective action taken</li> </ul> </li> <li>• Quarterly <ul style="list-style-type: none"> <li>• all inspections required have been carried out</li> <li>• for control devices: periods of exceedances</li> </ul> </li> </ul> <p>(Continued on next page)</p>

# CONTAINERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>For facilities with &lt;1 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>updates whenever changes occur that may increase benzene waste to &gt; 1 Mg/yr</li> </ul> <p>For facilities with 1 to 10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>updates whenever changes occur that may increase benzene waste to &gt; 10 Mg/yr</li> </ul> <p>For facilities with &gt;10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>certification that necessary equipment has been installed and initial performance tests have been carried out</li> </ul>

## COVERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Initial and subsequent annual monitoring for no detectable organic emissions from cover and all openings  Maintain each opening in a closed, sealed position at all times except when necessary to use opening
Leak Definition	Detectable emissions  Broken seal or gasket
Alternative Standards	N/A
Exemptions	N/A
Monitoring Method	Instrument: Method 21, 40 CFR Part 60, Appendix A  Visual: View entire cover surface and each cover opening in a closed, seal position for evidence of defect that may affect ability to continue to operate with no detectable organic emissions.
Repair Requirements	Repair as soon as practicable; no later than 15 calendar days after identification (45 days for tanks)
Delay of Repair	Delay of repair allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.  Repair to occur before the end of the next facility or unit shutdown.
Recordkeeping Requirements	When leak detected (for each test of detectable emissions): <ul style="list-style-type: none"> <li>• date test performed</li> <li>• background level measures</li> <li>• maximum concentration</li> <li>• waste management unit</li> <li>• control equipment</li> <li>• leak interface location where detectable emissions measured</li> <li>• description of problem and the corrective action taken</li> <li>• date the corrective action completed</li> </ul> For each visual inspection that identifies a problem that could result in benzene emissions: <ul style="list-style-type: none"> <li>• date of inspection</li> <li>• waste management unit inspection</li> <li>• control equipment location inspected</li> <li>• description of problem</li> <li>• corrective action taken</li> <li>• date corrective action completed</li> </ul> (Continued on next page)

## COVERS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>For each compliance test for components designated as no detectable emissions:</p> <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul>
Reporting Requirements	<p>Initial report:</p> <ul style="list-style-type: none"> <li>• regulatory status of each waste stream</li> <li>• total annual benzene quantity</li> <li>• each benzene waste stream and whether it will be controlled for benzene</li> <li>• for each benzene waste stream not being controlled for benzene: <ul style="list-style-type: none"> <li>• whether water content is greater than 10 percent</li> <li>• type of waste stream</li> <li>• annual waste quantity</li> <li>• range of benzene concentration</li> <li>• average benzene concentration</li> <li>• annual benzene quantity</li> </ul> </li> </ul> <p>Subsequent reports (facilities with &gt; 10 Mg/yr of benzene waste):</p> <ul style="list-style-type: none"> <li>• annual reports including, but not limited to: <ul style="list-style-type: none"> <li>• update of information contained in initial report</li> <li>• all inspections during which detectable emissions are measured or a problem that could result in benzene emissions is identified</li> <li>• information on repair and corrective action taken</li> </ul> </li> <li>• Quarterly: <ul style="list-style-type: none"> <li>• all inspections required have been carried out</li> <li>• for control devices: periods of exceedances</li> </ul> </li> </ul> <p>For facilities with &lt;1 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• updates whenever changes occur that may increase benzene waste to &gt; 1 Mg/yr</li> </ul> <p>For facilities with 1 to 10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• updates whenever changes occur that may increase benzene waste to &gt; 10 Mg/yr</li> </ul> <p>For facilities with &gt;10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• certification that necessary equipment has been installed and initial performance tests have been carried out</li> </ul>

## SURFACE IMPOUNDMENTS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Basic Standard	Compliant covers (see Covers) that are vented to compliant closed-vent system and control device.  Initial and quarterly inspections for cracks or gaps
Leak Definition	Broken seal or gasket.
Alternative Standards	N/A
Exemptions	N/A
Monitoring Method	N/A
Repair Requirements	As soon as practicable, but not later than 15 calendar days after identification.
Delay of Repair	Delay of repair allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.  Repair to occur before the end of the next facility or unit shutdown.
Recordkeeping Requirements	<p>When leak detected (for each test of detectable emissions):</p> <ul style="list-style-type: none"> <li>• date test performed</li> <li>• background level measures</li> <li>• maximum concentration</li> <li>• waste management unit</li> <li>• control equipment</li> <li>• leak interface location where detectable emissions measured</li> <li>• description of problem and the corrective action taken</li> <li>• date the corrective action completed</li> </ul> <p>For each visual inspection that identifies a problem that could result in benzene emissions:</p> <ul style="list-style-type: none"> <li>• date of inspection</li> <li>• waste management unit inspection</li> <li>• control equipment location inspected</li> <li>• description of problem</li> <li>• corrective action taken</li> <li>• date corrective action completed</li> </ul> <p>(Continued on next page)</p>

## SURFACE IMPOUNDMENTS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61 Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements (continued)	<p>For each compliance test for components designated as no detectable emissions:</p> <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul>
Reporting Requirements	<p>Initial report:</p> <ul style="list-style-type: none"> <li>• regulatory status of each waste stream</li> <li>• total annual benzene quantity</li> <li>• each benzene waste stream and whether it will be controlled for benzene</li> <li>• for each benzene waste stream not being controlled for benzene: <ul style="list-style-type: none"> <li>• whether water content is greater than 10 percent</li> <li>• type of waste stream</li> <li>• annual waste quantity</li> <li>• range of benzene concentration</li> <li>• average benzene concentration</li> <li>• annual benzene quantity</li> </ul> </li> </ul> <p>Subsequent reports (facilities with &gt; 10 Mg/yr of benzene waste):</p> <ul style="list-style-type: none"> <li>• annual reports including, but not limited to: <ul style="list-style-type: none"> <li>• update of information contained in initial report</li> <li>• all inspections during which detectable emissions are measured or a problem that could result in benzene emissions is identified</li> <li>• information on repair and corrective action taken</li> </ul> </li> <li>• Quarterly: <ul style="list-style-type: none"> <li>• all inspections required have been carried out</li> <li>• for control devices: periods of exceedances</li> </ul> </li> </ul> <p>For facilities with &lt;1 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• updates whenever changes occur that may increase benzene waste to &gt; 1 Mg/yr</li> </ul> <p>For facilities with 1 to 10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• updates whenever changes occur that may increase benzene waste to &gt; 10 Mg/yr</li> </ul> <p>For facilities with &gt;10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• certification that necessary equipment has been installed and initial performance tests have been carried out</li> </ul>



## TANKS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS								
Basic Standard	<p>Option 1: Compliant fixed roof (see Covers) and compliant closed-vent system and control device</p> <p>Option 2: Compliant fixed roof provided certain conditions are met including but not limited to the following maximum organic vapor pressure and size requirements:</p> <table> <tr> <td>Capacity (cubic meters)</td><td>Vapor Pressure (Kilopascals)</td></tr> <tr> <td>Not specified</td><td>5.2</td></tr> <tr> <td>\$75 to &lt;151</td><td>27.6</td></tr> <tr> <td>&lt;75</td><td>76.6</td></tr> </table> <p>Conduct initial and quarterly inspections of each fixed roof, seal, access door, and other opening for cracks and gaps and to ensure access doors and other openings are closed and properly gasketed.</p>	Capacity (cubic meters)	Vapor Pressure (Kilopascals)	Not specified	5.2	\$75 to <151	27.6	<75	76.6
Capacity (cubic meters)	Vapor Pressure (Kilopascals)								
Not specified	5.2								
\$75 to <151	27.6								
<75	76.6								
Leak Definition	<p>Broken seal or gasket.</p> <p>Detectable emissions measured.</p>								
Alternative Standards	<ul style="list-style-type: none"> <li>Tanks with fixed roof and internal floating roof meeting §60.112b(a)(1).</li> <li>External floating roofs that comply with §60.112b(a)(2).</li> <li>Alternative means of emission limitation (§60.114(b)).</li> </ul>								
Exemptions	N/A								
Monitoring Method	Method 21, 40 CFR Part 60, Appendix A								
Repair Requirements	Repair as soon as practicable; no later than 45 calendar days after detection								
Delay of Repair	<p>Delay of repair allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.</p> <p>Repair to occur before the end of the next facility or unit shutdown.</p>								

## TANKS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Recordkeeping Requirements	<p>When leak detected (for each test of detectable emissions):</p> <ul style="list-style-type: none"> <li>• date test performed</li> <li>• background level measures</li> <li>• maximum concentration</li> <li>• waste management unit</li> <li>• control equipment</li> <li>• leak interface location where detectable emissions measured</li> <li>• description of problem and the corrective action taken</li> <li>• date the corrective action completed</li> </ul> <p>For each visual inspection that identifies a problem that could result in benzene emissions:</p> <ul style="list-style-type: none"> <li>• date of inspection</li> <li>• waste management unit inspection</li> <li>• control equipment location inspected</li> <li>• description of problem</li> <li>• corrective action taken</li> <li>• date corrective action completed</li> </ul> <p>For each compliance test for components designated as no detectable emissions:</p> <ul style="list-style-type: none"> <li>• date conducted</li> <li>• background level measured</li> <li>• maximum instrument reading</li> </ul>
Reporting Requirements	<p>Initial report:</p> <ul style="list-style-type: none"> <li>• regulatory status of each waste stream</li> <li>• total annual benzene quantity</li> <li>• each benzene waste stream and whether it will be controlled for benzene</li> <li>• for each benzene waste stream not being controlled for benzene: <ul style="list-style-type: none"> <li>• whether water content is greater than 10 percent</li> <li>• type of waste stream</li> <li>• annual waste quantity</li> <li>• range of benzene concentration</li> <li>• average benzene concentration</li> <li>• annual benzene quantity</li> </ul> </li> </ul> <p>Subsequent reports (facilities with &gt; 10 Mg/yr of benzene waste):</p> <ul style="list-style-type: none"> <li>• annual reports including, but not limited to: <ul style="list-style-type: none"> <li>• update of information contained in initial report</li> <li>• all inspections during which detectable emissions are measured or a problem that could result in benzene emissions is identified</li> <li>• information on repair and corrective action taken</li> </ul> </li> <li>• Quarterly <ul style="list-style-type: none"> <li>• all inspections required have been carried out</li> <li>• for control devices: periods of exceedances</li> </ul> </li> </ul> <p>For facilities with &lt;1 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>• updates whenever changes occur that may increase benzene waste to &gt; 1 Mg/yr</li> </ul> <p>(Continued to next page)</p>

# TANKS

## APPLICABLE REGULATIONS

40 CFR Part 264, Subpart CC	40 CFR Part 265, Subpart CC	40 CFR Part 61, Subpart F	40 CFR Part 61, Subpart L	40 CFR Part 61, Subpart FF

ITEM	REQUIREMENTS
Reporting Requirements (continued)	<p>For facilities with 1 to 10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>updates whenever changes occur that may increase benzene waste to &gt; 10 Mg/yr</li> </ul> <p>For facilities with &gt;10 Mg/yr of benzene waste:</p> <ul style="list-style-type: none"> <li>certification that necessary equipment has been installed and initial performance tests have been carried out.</li> </ul>