



# LARGE QUANTITY GENERATOR INSPECTION - SUBCH. BB REQUIREMENTS FOR EQUIPMENT LEAKS

This Inspection Form, used in conjunction with the LARGE QUANTITY GENERATOR INSPECTION REPORT, is for the inspection of facilities with equipment subject ch. NR 665 subch. BB requirements.

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## Section 1: Standards for Pumps in Light Liquid Service

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| A. Pumps in light liquid service are used at the facility. If NO, go to Section 2.   |  |               |
| B. The facility has marked each pump subject to subch. BB standards in a way that distinguishes it readily from other pieces of equipment. (NR 665.1050(3)).   |  | 662.034(1)(a) |
| C. All pumps are equipped with a closed-vent system capable of capturing and transporting leakage from seals to a control device. If YES, go to section 2 and complete the inspection form, "LQG Subch. BB Standards for Closed Vent Systems and Control Devices". (NR 665.1052(6)).   |  | 662.034(1)(a) |
| D. Each pump is equipped with a dual mechanical seal system and barrier fluid system that meets ANY of the following requirements: (NR 665.1052(4))<br>1. The dual mechanical seal system operates with the barrier fluid at a pressure that is always greater than the pump stuffing box pressure.<br>2. The dual mechanical seal system is equipped with a barrier fluid degassing reservoir connected by a closed-vent system to a control device.<br>3. The dual mechanical seal system is equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.  |  | 662.034(1)(a) |
| E. Each pump is equipped with a dual mechanical seal system and barrier fluid system that meets ALL of the following requirements: If Questions 1.D. and 1.E are YES, go to Section 2. (NR 665.1052(4))<br>1. The barrier fluid system is not a hazardous waste with organic concentrations of $\geq 10\%$ by weight.<br>2. Each barrier fluid system is equipped with a sensor to detect failure of the seal system, the barrier fluid system or both.<br>3. Each pump is checked by visual inspection each calendar week for liquids dripping from the pump seal.<br>4. Each sensor for detecting failure is checked daily or equipped with an audible alarm that is checked monthly to ensure it is functioning properly.<br>5. A criterion to indicate failure of the seal system, the barrier fluid system, or both has been determined based on design considerations and operating experience.<br>6. When a leak is detected (liquid dripping from the pump seal or a sensor indicates failure of the seal system or barrier fluid system), the first attempt at repair is made within 5 days of it being detected.<br>7. The leak is repaired as soon as practicable, but no later than within 15 days of detecting the leak, except when the repair is technically infeasible without equipment shutdown. |  | 662.034(1)(a) |
| F. A pump designated in the operating log as operating with no detectable emissions (instrument reading $< 500$ ppm above background) meets ALL of the following: (NR 665.1052(5))<br>1. The pump has no externally actuated shaft penetrating the pump housing.<br>2. The pump is tested initially upon designation and annually thereafter to assure it operates with no detectable emissions ( $< 500$ ppm above background).   |  | 662.034(1)(a) |



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## Section 1: Standards for Pumps in Light Liquid Service

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| G. Equipment measuring nondetectable emissions meet ALL of the following: If Questions 1.F. and 1.G. are YES, go to Section 2. (NR 665.1052(5))<br>1. Monitoring complies with Method 21 in appendix A, 40 CFR part 60.<br>2. The detection instrument meets the performance criteria of Method 21.<br>3. The detection instrument is calibrated before each day of use.<br>4. Calibration gases consist of zero air (<10 ppm hydrocarbon in air) and a mixture of <10,000 ppm methane or n-hexane in air.<br>5. The background level is determined according to Method 21 in appendix A of 40 CFR part 60.<br>6. The instrument probe is traversed around all potential leak interfaces as closely as possible.<br>7. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm. |  | 662.034(1)(a) |
| H. Each pump is monitored monthly according to ALL of the following: (NR 665.1052(1)(a), NR 665.1063(2))<br>1. Monitoring complies with Method 21 in appendix A of 40 CFR part 60.<br>2. The detection instrument meets the performance criteria of Method 21.<br>3. The detection instrument is calibrated before each day of use.<br>4. Calibration gases consist of zero air (<10 ppm hydrocarbon in air) and a mixture of <10,000 ppm methane or n-hexane in air.<br>5. The instrument probe is traversed around all potential leak interfaces as closely as possible.  |  | 662.034(1)(a) |
| I. Each pump is visually inspected every calendar week for liquids dripping from the pump seal. (NR 665.1052(1)(b)).  |  | 662.034(1)(a) |
| J. When a leak is detected (an instrument reading of $\geq 10,000$ ppm or liquids dripping from the pump seal), a weatherproof and readily visible identification is attached to the leaking pump which indicates the equipment ID number, the date evidence of a potential leak was found, and the date the leak was detected. ( NR 665.1064(3))   |  | 662.034(1)(a) |
| K. The identification is removed after the pump is repaired. (NR 665.1064(3))   |  | 662.034(1)(a) |
| L. If a leak is detected, the first attempt at repair (tightening the packing gland) is made within 5 calendar days of detecting the leak. (NR 665.1052(3))   |  | 662.034(1)(a) |
| M. Repair is completed as soon as practicable, but no later than 15 calendar days after detecting the leak, except when the repair is technically infeasible without equipment shutdown. (NR 665.1052(3))   |  | 662.034(1)(a) |
| N. If repair is technically infeasible without equipment shutdown, the pump is repaired before the end of the next hazardous waste management shutdown. (NR 665.1059(1))  |  | 662.034(1)(a) |
| O. While repair is delayed, the pump is isolated from the hazardous waste management unit and the pump does not contain or contact hazardous waste with organic concentrations $\geq 10\%$ by weight. (NR 665.1059(2))  |  | 662.034(1)(a) |
| P. If repair of the pump is delayed, the repair requires use of a dual mechanical seal system that includes a barrier fluid system or the repair is completed as soon as practicable, but within 6 months of detecting the leak. (NR 665.1059(4))   |  | 662.034(1)(a) |

## Section 2: Standards for Compressors

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| A. A compressor is used at the facility. If NO, go to Section 3. |  |  |
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## Section 2: Standards for Compressors

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| B. The facility has marked each compressor subject to subch. BB standards in a way that distinguishes it readily from other pieces of equipment. (NR 665.1050(3))   |  | 662.034(1)(a) |
| C. The compressor operates with an instrument reading <500 ppm above background and is designated in the operating log for no detectable emissions. (NR 665.1053(9))  |  | 662.034(1)(a) |
| D. The equipment measuring nondetectable emissions meets ALL of the following: (NR 665.1053(9))<br>1. Monitoring complies with Method 21 in appendix A, 40 CFR part 60.<br>2. The detection instrument meets the performance criteria of Method 21.<br>3. The detection instrument is calibrated before each day of use.<br>4. Calibration gases consist of zero air (<10 ppm hydrocarbon in air) and a mixture of <10,000 ppm methane or n-hexane in air.<br>5. The background level is determined according to Method 21 in appendix A of 40 CFR part 60.<br>6. The instrument probe is traversed around all potential leak interfaces as closely as possible.<br>7. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm. |  | 662.034(1)(a) |
| E. Testing of emissions is done initially upon designation, annually thereafter and at other times specified by the department. If 2. C, 2. D and 2. E. are YES, go to Section 3. NR 665.1053(9)  |  | 662.034(1)(a) |
| F. All compressors are equipped with a closed-vent system that captures and transports leakage from the compressor seal to a control device. If YES, go to 2. L. and complete the inspection form, "LQG Subch. BB Standards for Closed Vent Systems and Control Devices". (NR 665.1053(8))  |  | 662.034(1)(a) |
| G. The compressor is equipped with a seal system, including a barrier fluid system, which prevents leakage of total organic emissions to the atmosphere. (NR 665.1053(1))   |  | 662.034(1)(a) |
| H. The compressor seal system is ANY of the following: (NR 665.1053(2))<br>1. Operated with the barrier fluid at a pressure that is always greater than the compressor stuffing box pressure.<br>2. Equipped with a barrier fluid system that is connected by a closed vent system to a control device.<br>Note: Complete the inspection form, "Standards for Closed Vent Systems and Control Devices for subch. AA and BB".<br>3. Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.   |  | 662.034(1)(a) |
| I. If the barrier fluid is a hazardous waste, organic concentrations are <10%. (NR 665.1053(3))   |  | 662.034(1)(a) |
| J. Each barrier fluid system is equipped with a sensor that detects failure of the seal system, barrier fluid system or both. (NR 665.1053(4))  |  | 662.034(1)(a) |
| K. Each sensor for the barrier fluid system is checked daily and is equipped with an audible alarm that is checked monthly, unless the compressor is located within the boundary of an unmanned plant site. (NR 665.1053(5)(a))   |  | 662.034(1)(a) |
| L. When a leak is detected in a compressor, a weatherproof and readily visible identification is attached to the leaking compressor which contains the equipment ID number, the date evidence of a potential leak was found, and the date the leak was detected. (NR 665.1064(3))   |  | 662.034(1)(a) |
| M. The identification on the compressor is removed after repair. (NR 665.1064(3))   |  | 662.034(1)(a) |



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### Section 2: Standards for Compressors

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|---|---------------|
| N. When a leak is detected, first attempt at repair (e.g., tightening the packing gland) is made within 5 calendar days of detecting the leak. (NR 665.1053(7))   | 662.034(1)(a) |
| O. Repair is completed as soon as practicable, but no later than 15 calendar days after detecting the leak, except when the repair is technically infeasible without equipment shutdown. (NR 665.1053(7))                             | 662.034(1)(a) |
| P. If the repair is technically infeasible without equipment shutdown, the equipment is repaired before the end of the next hazardous waste management unit shutdown. (NR 665.1059(1))  | 662.034(1)(a) |
| Q. While repair is delayed, the compressor is isolated from the hazardous waste management unit and the compressor does not contain or contact hazardous waste with organic concentrations of $\geq 10\%$ by weight. (NR 665.1059(2)) | 662.034(1)(a) |

### Section 3: Standards for Pressure Relief Devices in Gas or Vapor Service

|  |               |
|--|---------------|
| A. Pressure relief devices are used at the facility. If NO, go to Section 4.   | 662.034(1)(a) |
| B. The facility has marked each pressure relief device subject to subch. BB standards in a way that distinguishes it readily from other pieces of equipment. (NR 665.1050(3))  | 662.034(1)(a) |
| C. All pressure relief devices are equipped with a closed-vent system capable of capturing and transporting leakage to a control device. If YES, go to Section 4 and complete the inspection form, "LQG Subch. BB Standards for Closed Vent Systems and Control Devices". (NR 665.1054(3))   | 662.034(1)(a) |
| D. Each pressure relief device is operated with no detectable emissions (instrument readings $< 500$ ppm above background) except during pressure releases. (NR 665.1054(1))   | 662.034(1)(a) |
| E. The equipment measuring nondetectable emissions meets ALL of the following: (NR 665.1054(1), NR 665.1063(3))<br>1. Monitoring complies with Method 21 in appendix A of 40 CFR part 60.<br>2. The detection instrument meets the performance criteria of Method 21.<br>3. The detection instrument is calibrated before each day of use.<br>4. Calibration gases consist of zero air ( $< 10$ ppm hydrocarbon in air) and a mixture of $< 10,000$ ppm methane or n-hexane in air.<br>5. The background level is determined according to Method 21 in appendix A of 40 CFR part 60.<br>6. The instrument probe is traversed around all potential leak interfaces as closely as possible.<br>7. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm. | 662.034(1)(a) |
| F. After each pressure release, the pressure relief device is returned to a condition of no detectable emissions (instrument reading $< 500$ ppm above background) as soon as practicable, but no later than 5 calendar days after each pressure release, except when the repair is technically infeasible without equipment shutdown. (NR 665.1054(2)(a))   | 662.034(1)(a) |
| G. If the repair is technically infeasible without equipment shutdown, the pressure release device is repaired before the end of the next hazardous waste management unit shutdown. (NR 665.1059(1))   | 662.034(1)(a) |
| H. If repair has been delayed, the pressure relief device is isolated from the hazardous waste management unit and does not continue to contain or contact hazardous waste with organic concentrations of $\geq 10\%$ by weight. (NR 665.1059(2))  | 662.034(1)(a) |



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## Section 3: Standards for Pressure Relief Devices in Gas or Vapor Service

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| I. Within 5 calendar days of each pressure release, the pressure relief device is monitored using Method 21 in appendix A of 40 CFR part 60 to confirm the device has been returned to a condition of no detectable emissions (instrument readings <500 ppm above background). (NR 665.1054(2)(b)) | <input type="checkbox"/> | 662.034(1)(a) |
|  |                          |               |

## Section 4: Standards for Sampling Connection Systems

|   |                          |               |
|---|--------------------------|---------------|
| A. The facility uses a sampling connection system. If NO, go to Section 5.  | <input type="checkbox"/> |               |
|   |                          |               |
| B. The facility has marked each sampling connection system subject to subch. BB standards in a way that distinguishes it readily from other pieces of equipment. (NR 665.1050(3))   | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |
| C. An in-situ sampling system or sampling system without purging is used. If YES, go to Section 5. (NR 665.1055(3))   | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |
| D. Each sampling connection system is equipped with a closed-purge, closed-loop, or closed-vent system that collects the sample purge and returns it to the process or routes it to a treatment system. (NR 665.1055(1))  | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |
| E. Purged process fluid is managed by ANY of the following: (NR 665.1055(2))<br>1. Returned directly to the process line.<br>2. Collected and recycled.<br>3. Captured and transported to a control device or a waste management unit in compliance with subch. CC requirements.<br><br>Note: If transported to a control device, complete the inspection form, "Standards for Closed Vent Systems and Control Devices for subch. AA and BB". | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |

## Section 5: Standards for Open-Ended Valves or Lines

|   |                          |               |
|---|--------------------------|---------------|
| A. Open-ended valves or lines are in service at the facility. If NO, go to Section 6.   | <input type="checkbox"/> |               |
|   |                          |               |
| B. The facility has marked each open-ended valve or line subject to subch. BB standards in a way that distinguishes it readily from other pieces of equipment. (NR 665.1050(3))                 | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |
| C. Each open-ended valve or line is equipped with a cap, blind flange, plug or second valve. (NR 665.1056(1)(a))  | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |
| D. The cap, blind flange, plug or second valve seal the open-end at all times, except when operations require hazardous waste to flow through the open-ended valve or line. (NR 665.1056(1)(b)) | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |
| E. If the open-ended valve or line is equipped with a second valve, the valve on the hazardous waste stream end is closed before the second valve is closed. (NR 665.1056(2))                   | <input type="checkbox"/> | 662.034(1)(a) |
|   |                          |               |
| F. If a double block and bleed system is used, the bleed valve or line only remains open when the line between the block valves is vented. (NR 665.1056(3))                                     | <input type="checkbox"/> | 662.034(1)(a) |
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## Section 6: Standards for Valves in Gas or Vapor Service or in Light Liquid Service

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| A. Valves in gas or vapor service or in light liquid service are used. If NO, go to Section 7.   |  |               |
| B. The facility has marked each valve subject to subch. BB standards in a way that distinguishes it readily from other pieces of equipment. (NR 665.1050(3))   |  | 662.034(1)(a) |
| C. Valves with no detectable emissions (instrument reading <500 ppm above background) comply with ALL of the following: (NR 665.1057(6))<br>1. The valves have no external actuating mechanism in contact with the hazardous waste stream.<br>2. Testing of emissions is done initially upon designation, annually thereafter and at other times specified by the department.<br>3. The valves are designated in the operating log for no detectable emissions.  |  | 662.034(1)(a) |
| D. The equipment measuring nondetectable emissions meets ALL of the following: If Questions 6. C. and 6.D. are YES for all valves subject to subch. BB, go to Question 6. P. (NR 665.1057(6))<br>1. Monitoring complies with Method 21 in appendix A, 40 CFR part 60.<br>2. The detection instrument meets performance criteria of Method 21.<br>3. The detection instrument is calibrated before each day of use.<br>4. Calibration gases consist of zero air (<10 ppm hydrocarbon in air) and a mixture of <10,000 ppm methane or n-hexane in air.<br>5. The background level is determined according to Method 21 in appendix A of 40 CFR part 60.<br>6. An instrument probe is traversed around all potential leak interfaces as closely as possible.<br>7. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm. |  | 662.034(1)(a) |
| E. For each valve designated as unsafe-to-monitor, a determination was made that monitoring personnel would be exposed to an immediate danger as a consequence of monitoring by Method 21. (NR 665.1057(7))  |  | 662.034(1)(a) |
| F. The facility follows a written plan that requires monitoring of each unsafe valve as frequently as practicable during safe-to-monitor times. If Questions 6. E. and 6.F. are YES for all other valves subject to subch. BB, go to Question 6. P. (NR 665.1057(7))   |  | 662.034(1)(a) |
| G. Each valve designated as difficult-to-monitor meets ANY of the following: If YES, go to Question 6. P. (NR 665.1057(8))<br>1. The valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.<br>2. The valve is part of a hazardous waste management unit in operation before June 1, 1995.<br>3. A written plan is followed that requires monitoring of the valve at least once per calendar year.   |  | 662.034(1)(a) |
| H. Each valve is monitored monthly to detect leaks according to ALL of the following: (NR 665.1057(1), NR 665.1063(2))<br>1. Monitoring complies with Method 21 in appendix A of 40 CFR part 60.<br>2. The detection instrument meets the performance criteria of Method 21.<br>3. The detection instrument is calibrated before each day of use.<br>4. Calibration gases consist of zero air (<10 ppm hydrocarbon in air) and a mixture of <10,000 ppm methane or n-hexane in air.<br>5. The instrument probe is traversed around all potential leak interfaces as closely as possible.<br><br>Note: The monthly monitoring requirement does not apply to valves subject to alternative standards.  |  | 662.034(1)(a) |



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### Section 6: Standards for Valves in Gas or Vapor Service or in Light Liquid Service

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| I. If a leak (instrument reading $\geq 10,000$ ppm) has not been detected for 2 successive months, the valve is monitored during the first month of the next quarter until a leak is detected. (NR 665.1057(3)(a))<br><br>Note: Does not apply to valves subject to alternative standards.   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| J. If a leak is detected, the valve is monitored monthly until a leak is not detected for 2 successive months. (NR 665.1057(3)(b))<br><br>Note: Does not apply to valves subject to the alternative standards.   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| K. First attempt at repair is made within 5 calendar days of detecting the leak. (NR 665.1057(4))  | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| L. Repair is made as soon as practicable, but no later than 15 calendar days after detecting the leak, except when the repair is technically infeasible without equipment shutdown. (NR 665.1057(4))   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| M. If a leak is detected, the first attempt at repair includes best practices such as, but not limited to, tightening or replacing bonnet bolts, tightening packing gland nuts, or injecting lubricant into lubricated packing. (NR 665.1057(5))   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| N. If the repair is technically infeasible without equipment shutdown, the valve is repaired before the end of the next hazardous waste management unit shutdown. (NR 665.1059(1))   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| O. If repair has been delayed, the valve is isolated from the hazardous waste management unit and the valve does not contain or contact hazardous waste with organic concentrations of $\geq 10\%$ by weight. (NR 665.1059(2))   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| P. If valve repair has been delayed, the emissions of purged material resulting from immediate repair are greater than the emissions likely to result from delay of repair. (NR 665.1059(3))   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| Q. During delayed repair, the purged material is collected and destroyed or recovered in a control device. (NR 665.1059(3))<br><br>Note: Complete the inspection form, "Standards for Closed Vent Systems and Control Devices for subch. AA and BB".   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| R. If repair of the valves has been delayed beyond a hazardous waste management unit shutdown, BOTH of the following are met: (NR 665.1056(5))<br>1. The valve assembly supplies were sufficiently stocked, but depleted at the time of the shutdown.<br>2. Repair is not delayed beyond the next hazardous waste management unit shutdown unless it occurred within 6 months of the first shutdown. | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| S. When a leak in a valve is detected by an instrument reading of $\geq 10,000$ ppm, a weatherproof and readily visible identification is attached to the leaking valve which states ALL of the following: (NR 665.1064(3))<br>1. The equipment ID number.<br>2. The date evidence of a potential leak was found.<br>3. The date the leak was detected.  | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |
| T. The identification on the valve is removed after the valve has been monitored for two successive months and found to be leak-free. (NR 665.1064(3))   | <div style="border: 1px solid black; padding: 2px;">662.034(1)(a)</div> <div style="border: 1px solid black; height: 15px; margin-top: 2px;"></div> |



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## Section 7: Standards for Pumps, Valves, Pressure Relief Devices and Connectors

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| <p>A. ANY of the following equipment is used at the facility: If NO, go to Section 8.</p> <ol style="list-style-type: none"> <li>1. Pumps or valves in heavy liquid service.</li> <li>2. Pressure relief devices in light liquid or heavy liquid service.</li> <li>3. Flanges.</li> <li>4. Other connectors.</li> </ol>   |  |               |
| <p>B. The facility has marked each piece of equipment subject to subch. BB standards in a way that distinguishes it readily from other pieces of equipment. (NR 665.1050(3))</p>  |  | 662.034(1)(a) |
| <p>C. If evidence of a potential leak is found by visual, audible, olfactory or some other detection method, monitoring is conducted according to ALL of the following within 5 days: (NR 665.1058)</p> <ol style="list-style-type: none"> <li>1. Monitoring complies with Method 21 in appendix A of 40 CFR part 60.</li> <li>2. The detection instrument meets the performance criteria of Method 21.</li> <li>3. The detection instrument is calibrated before each day of use.</li> <li>4. Calibration gases consist of zero air (&lt;10 ppm hydrocarbon in air) and a mixture of &lt;10,000 ppm methane or n-hexane in air.</li> <li>5. The instrument probe is traversed around all potential leak interfaces as closely as possible.</li> </ol> <p>Note: This requirement does not apply when the connector is inaccessible or it is ceramic or ceramic-lined.</p> |  | 662.034(1)(a) |
| <p>D. When a leak is detected in a pump or valve by an instrument reading of <math>\geq 10,000</math> ppm, ALL of the following actions are taken: (NR 665.1064(3))</p> <ol style="list-style-type: none"> <li>1. A weatherproof and readily visible identification marked with the equipment ID number, date evidence of a potential leak was found and the date the leak was detected is attached to the leaking equipment.</li> <li>2. The identification on the pump may be removed after repair.</li> <li>3. The identification on a valve can be removed after it has been monitored for two successive months and found to be leak-free.</li> </ol>  |  | 662.034(1)(a) |
| <p>E. If a leak is detected, a first attempt at repair is made in 5 calendar days of detecting the leak. (NR 665.1058(3))</p>   |  | 662.034(1)(a) |
| <p>F. Repair is made as soon as practicable, but no later than 15 calendar days after detecting the leak, except when the repair is technically infeasible without equipment shutdown. (NR 665.1057(4))</p>   |  | 662.034(1)(a) |
| <p>G. If a leak is detected, the first attempt at repair includes best practices such as, but not limited to tightening or replacing bonnet bolts; tightening packing gland nuts; or, injecting lubricant into lubricated packing. (NR 665.1058(4))</p>   |  | 662.034(1)(a) |
| <p>H. If the repair is technically infeasible without equipment shutdown, the valve or pump is repaired before the end of the next hazardous waste management unit shutdown. (NR 665.1059(1))</p>   |  | 662.034(1)(a) |
| <p>I. If repair has been delayed, the valve or pump is isolated from the hazardous waste management unit and does not contain or contact hazardous waste having organic concentrations <math>\geq 10\%</math> by weight. (NR 665.1059(2))</p>   |  | 662.034(1)(a) |
| <p>J. The valve repair has been delayed because the emissions of purged material resulting from immediate repair are greater than the emissions likely to result from delay of repair. (NR 665.1059(3))</p>   |  | 662.034(1)(a) |
| <p>K. After delayed repair, the purged material is collected and destroyed or recovered in a control device.</p>  |  | 662.034(1)(a) |
| <p>Note: Complete the inspection form, "LQG Subch. BB Standards for Closed Vent Systems and Control Devices". (NR 665.1059(3))</p>  |  |               |



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## Section 7: Standards for Pumps, Valves, Pressure Relief Devices and Connectors

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| L. If pump repair has been delayed, the repair requires use of a dual mechanical seal system that includes a barrier fluid system. (NR 665.1059(4))  |  | 662.034(1)(a) |
| M. Repair is completed as soon as practicable, but within 6 months of detecting the leak. (NR 665.1059(4))   |  | 662.034(1)(a) |
| N. If valve repair has been delayed beyond a hazardous waste management unit shutdown, the valve assembly supplies were sufficiently stocked, but depleted at the time of the shutdown. (NR 665.1059(5)) |  | 662.034(1)(a) |
| O. Repair is not delayed beyond the next hazardous waste management unit shutdown, unless it occurred within 6 months of the first shutdown. (NR 665.1059(5))  |  | 662.034(1)(a) |

## Section 8: Alternative Standards for Valves in Gas or Vapor Service or in Light Liquid Service

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| A. The owner or operator elected to comply with the alternative standard of allowing 2% or less of the valves to leak. If NO, go to Section 9. (NR 665.1061(1))   |  |               |
| B. The owner or operator notified the department that they have elected to comply with the alternative standard. (NR 665.1061(2)(a))  |  | 662.034(1)(a) |
| C. Except for valves that have no detectable emissions or valves that are designated as unsafe-to-monitor or difficult-to-monitor, a performance test was conducted by monitoring each valve in gas, vapor or light liquid service according to ALL of the following: (NR 665.1061(3)(a), NR 665.1063(2))<br>1. Monitoring complies with Method 21 in appendix A of 40 CFR part 60.<br>2. The detection instrument meets the performance criteria of Method 21.<br>3. The detection instrument is calibrated before each day of use.<br>4. Calibration gases consist of zero air (<10 ppm hydrocarbon in air) and a mixture of <10,000 ppm methane or n-hexane in air.<br>5. The instrument probe is traversed around all potential leak interfaces as closely as possible. |  | 662.034(1)(a) |
| D. The leak percentage was determined by dividing the number of valves for which leaks are detected (instrument reading of >=10,000 ppm) by the total number of valves within the hazardous waste management unit during the performance test. (NR 665.1061(3)(c))<br><br>Note: Only valves with detectable emissions or valves that are not designated as unsafe-to-monitor or difficult-to-monitor should be included in the calculations.  |  | 662.034(1)(a) |
| E. The performance test is conducted initially upon designation, annually and at other times requested by the department. (NR 665.1061(2)(b))   |  | 662.034(1)(a) |
| F. If a leak is detected, the first attempt at repair is made within 5 calendar days of detecting the leak. (NR 665.1061(2)(c), NR 665.1057)  |  | 662.034(1)(a) |
| G. First attempt at repair includes best practices such as, but not limited to tightening or replacing bonnet bolts, tightening packing gland nuts, and injecting lubricant into lubricated packing. (NR 665.1061(2)(c), NR 665.1057)   |  | 662.034(1)(a) |
| H. Repair is made as soon as practicable, but no later than 15 calendar days after detecting the leak, except when the repair is technically infeasible without equipment shutdown. (NR 665.1061(2)(c), NR 665.1057)  |  | 662.034(1)(a) |



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## Section 8: Alternative Standards for Valves in Gas or Vapor Service or in Light Liquid Service

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| I. If the owner or operator no longer complies with the alternative standards, they notified the department in writing that they will comply with the subch. BB standards for valves. (NR 665.1061(4)) |  | 662.034(1)(a) |
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## Section 9: Alternative Standards for Valves in Gas or Vapor Service or in Light Liquid Service

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| A. The owner or operator elected to comply with alternative leak detection and repair standards for all valves in a hazardous waste management unit. If NO, go to Section 10. (NR 665.1062(1)(a)) |  |  |
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| B. The owner or operator notified the department that they have elected to comply with the alternative standards. (NR 665.1062(1)(b)) |  | 662.034(1)(a) |
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| C. The facility monitors for leaks according to EITHER of the following schedules: (NR 665.1062(2))<br>1. Valves are monitored for leaks once every 6 months after 2 consecutive quarterly leak detection periods have 2% or less of the valves leaking.<br>2. Valves are monitored for leaks once every year after 5 consecutive quarterly leak detection periods have 2% or less of the valves leaking.<br><br>Note: Only applies to valves with detectable emissions or valves that are not designated as unsafe-to-monitor or difficult-to-monitor. |  | 662.034(1)(a) |
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| D. If the percentage of leaking valves is 2% or greater, the facility returns to more frequent monitoring as described below: (NR 665.1062(2)(d))<br>1. Monthly monitoring is resumed.<br>2. When a leak is not detected for 2 successive months, the valve is monitored quarterly.<br>3. The facility has resumed monitoring every 6 months or every year according to the alternative standards.<br><br>Note: Applies to valves with detectable emissions or valves that are not designated as unsafe-to-monitor or difficult-to-monitor in the calculations. |  | 662.034(1)(a) |
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## Section 10: Test Methods and Procedures

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| A. The generator determines whether each piece of equipment contains or contacts a hazardous waste with an organic concentration of $\geq 10\%$ by weight using ANY of the following: (NR 665.1063(4))<br>1. ASTM method D2267-88, E169-87 or E260-85.<br>2. SW-846 meethod 9060 or 8260.<br>3. Applying knowledge of the nature of the hazardous waste stream or the process by which it was produced. |  | 662.034(1)(a) |
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| B. If the owner or operator initially made a determination that a piece of equipment contained or contacted hazardous waste with organic concentrations of $\geq 10\%$ , that determination is revised only after analysis by the ASTM or SW-846 methods stated in Question 10.A. (NR 665.1063(5)) |  | 662.034(1)(a) |
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| C. Samples used to determine the percent organic content are representative of the highest total organic content hazardous waste expected to be contained or in contact with the equipment. (NR 665.1063(7)) |  | 662.034(1)(a) |
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| D. To determine if pumps or valves are in light liquid service, the vapor pressures of constituents are obtained by standard reference texts or ASTM method D2879-86. (NR 665.1063(8)) |  | 662.034(1)(a) |
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## Section 11: Recordkeeping and Reporting

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| <p>A. If more than one hazardous waste management unit is subject to subch. BB, records for the different units are kept in one record keeping system in a way that each hazardous waste management unit record is identified. (NR 665.1064(1)(b))</p> <p>Note: Connectors that are inaccessible or ceramic are exempt from all recordkeeping and reporting requirements, per NR 664.1058(5).</p>   | <p>662.034(1)(a)</p> |
| <p>B. ALL of the following information is recorded into the facility operating record for each piece of equipment subject to subch. BB: (NR 665.1064(2)(a))</p> <ol style="list-style-type: none"> <li>1. Equipment ID number and hazardous waste management unit ID.</li> <li>2. Approximate locations within the facility, such as on a facility plot plan.</li> <li>3. Type of equipment (e.g. pump or valve).</li> <li>4. Percent-by-weight total organics in the hazardous waste stream at the equipment.</li> <li>5. State of the hazardous waste at the equipment (e.g. gas, vapor, liquid).</li> <li>6. Method of compliance with the standard (e.g., monthly leak detection and repair).</li> </ol>  | <p>662.034(1)(a)</p> |
| <p>C. When a leak is detected in a pump, compressor or valve, ALL of the following information is recorded in an inspection log. ( NR 665.1064(4))</p> <ol style="list-style-type: none"> <li>1. Instrument and operator ID numbers and the equipment ID number.</li> <li>2. Date evidence of a potential leak was found.</li> <li>3. Date the leak was detected.</li> <li>4. Dates of each attempt to repair the leak.</li> <li>5. Repair methods used in each repair attempt.</li> <li>6. "Above 10,000" if that is the maximum instrument reading measured after the repair attempt</li> <li>7. "Repair delayed" and the reason for the delay if the leak is not repaired within 15 calendar days from discovery of the leak.</li> <li>8. Documentation supporting the delay of repair of a valve.</li> <li>9. The signature of the owner or operator who decides the repair could not be effected without a hazardous waste management unit shutdown.</li> <li>10. The expected date of successful repair if the leak is not repaired within 15 calendar days.</li> <li>11. The date of successful repair of the leak.</li> </ol> | <p>662.034(1)(a)</p> |
| <p>D. Information regarding leaks in pumps, compressors or valves is kept for at least 3 years. (NR 665.1064(12))</p>   | <p>662.034(1)(a)</p> |
| <p>E. ALL of the following information for all equipment subject to subch. BB is kept in the operating log: (NR 665.1064(7))</p> <ol style="list-style-type: none"> <li>1. List of ID #'s for all equipment, except welded fittings, subject to subch. BB.</li> <li>2. List of ID #'s for pumps in light liquid service, compressors, or valves in gas or vapor service or in light liquid service designated for no detectable emissions (instrument reading of &lt;500 ppm above background).</li> <li>3. Designation of the equipment as having no detectable emissions is signed by the owner or operator.</li> <li>4. List of equipment ID #'s for pressure relief devices operated with no detectable emissions.</li> <li>6. Dates of each compliance test for no detectable emissions.</li> <li>7. Background level measured during each compliance test.</li> <li>8. Maximum instrument reading measured at the equipment during each compliance test.</li> </ol>   | <p>662.034(1)(a)</p> |
| <p>F. For valves designated as unsafe-to-monitor or difficult-to-monitor, the following information is recorded in the operating log: (NR 665.1064(8))</p> <ol style="list-style-type: none"> <li>1. List of ID #'s.</li> <li>2. Explanation for each valve stating why the valve is unsafe to monitor or difficult to monitor.</li> <li>3. Plan for monitoring each valve.</li> </ol>  | <p>662.034(1)(a)</p> |
| <p>G. For valves complying with the alternative standards for skip period leak detection and repair, the monitoring schedule and percent of valves found leaking during each monitoring period are recorded in the operating record. (NR 665.1064(9))</p>   | <p>662.034(1)(a)</p> |



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## Section 11: Recordkeeping and Reporting

H. For pumps and compressors, ALL of the following information is recorded in the operating record: (NR 665.1064(10))

1. The criteria that indicates failure of the seal system, the barrier fluid system or both.
2. An explanation of the design criteria.
3. Any changes to these criteria and the reasons for the changes.

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|  | 662.034(1)(a) |
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