MISSOURI DEPARTMENT OF NATURAL RESOURCES
HAZARDOUS WASTE PROGRAM

AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS INSPECTION CHECKLIST

Subpart BB

NAME	EPA ID NUMBER
CITY	MO ID NUMBER

PERMITTED TSD			COMMENTS
Y N NA 1. ☐ ☐ ☐	Facility is a Permitted TSD. **IF NOT, DO NOT USE THIS CHECKLIST**. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1050(a).	1	
2. ☐ ☐ ☐	Facility has equipment (valve, pump, compressor, pressure relief device, sampling connection system, flange, open-ended valve or line) that contacts hazardous waste greater than 10 percent organics and this equipment is used more than 300 hours per year. **IF NOT, FACILITY IS EXEMPT.** – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1050(f).	1	
3. ☐ ☐ ☐	The facility has marked each piece of applicable equipment so it can readily be identified. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1050(d).	1	

PUMPS IN LIGHT LIQUID SERVICE			COMMENTS
1. ☐ ☐ ☐	Each pump in light liquid service shall be monitored monthly for leak detection – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(a)(1).	1	
2. ☐ ☐ ☐	Each pump in light liquid service shall be checked by visual inspection each calendar week for leaks – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(a)(2).	1	
3. ☐ ☐ ☐	A leak is defined as liquids dripping from the pump seal or an instrument reading of 10,000 ppm or greater is measured – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(b)(1)&(2).	1	
4. ☐ ☐ ☐	When a leak is detected it is repaired as soon as practicable, but not later than 15 days, except as provided in 264.1059. A first attempt at repair is made within 5 days – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(c)(1)&(2).	1	
5. ☐ ☐ ☐	Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt provided that it meets the following requirements:- 1. The dual mechanical system is equipped or operated as specified in – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(d)(1). 2. The barrier fluid system must not be a hazardous waste with organic concentrations 10 percent or greater by weight – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(d)(2). 3. Each barrier fluid system must be equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(d)(3). 4. Each pump is visually inspected weekly . – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(d)(4). 5. Each sensor must be checked daily or equipped with an audible alarm that is checked monthly to ensure it is functioning properly . – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(d)(5). 6. When a leak is detected it is repaired as soon as practicable, but not later than 15 days, except as provided in 264.1059. A first attempt at repair is made within 5 days – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(d)(6)(ii).	1	
6. ☐ ☐ ☐	A pump is exempt if it is designated as having no detectable emissions (less than 500 ppm above background) and has no externally actuated shaft penetrating the pump housing and is tested annually for compliance – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052 (e).	1	
7. ☐ ☐ ☐	A pump is also exempt if it is equipped with a closed-vent system capable of capturing or transporting leakage to a control device – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1052(f).	1	

COMPRESSORS			COMMENTS
1. ☐☐☐	Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of total organic emissions to the atmosphere – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053(a)	1	
2. ☐☐☐	Each compressor seal system shall be: (1) Operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure, or (2) Equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of 264.1060,or (3) Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053 (b)(1)or (2) or(3)	1	
3. ☐☐☐	The barrier fluid must not be a hazardous waste with organic concentrations 10 percent or greater by weight – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053 (c)	1	
4. ☐☐☐	Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system or both – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053 (d)	1	
5. ☐☐☐	Each sensor shall be checked daily or shall be equipped with an audible alarm that must be checked monthly, unless the compressor is located within the boundary of an unmanned plant site, in which case it must be checked daily – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053(e)(1)	1	
6. ☐☐☐	The owner or operator must determine a criterion that indicates failure of the seal system, the barrier fluid system, or both – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053(e)(2)	1	
7. ☐☐☐	A leak is detected based on the criterion selected, if the sensor indicates the failure of the seal system or barrier fluid system. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053(f)	1	
8. ☐☐☐	When a leak is detected, it must be repaired as soon as practicable, but not later than 15 days. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053(g)(1)	1	
9. ☐☐☐	The first attempt at repair (e.g. tightening the packing gland) shall be made within five calendar days. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053 (g)(2)	1	
10. ☐☐☐	A compressor is exempt from the requirements of 40CFR 264.1053(a) and (b) if it is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053(h).	1	
11. ☐☐☐	A compressor that is designated for no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and is tested initially upon designation, annually and at other times requested by the Regional Administrator is exempt from the above requirements – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1053(i)	1	
PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE			**COMMENTS**
1. ☐☐☐	Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, that is, an instrument reading less than 500 ppm above background – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1054(a)	1	
2. ☐☐☐	After each pressure release, the device shall be returned to a condition of no detectable emissions within five calendar days – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1054(b)(1)	1	
3. ☐☐☐	No later than five calendar days after the pressure release, the pressure relief device shall be monitored to confirm no detectable emissions – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1054(b)(2)	1	
4. ☐☐☐	A pressure relief device is exempt if it is equipped with a closed-vent system – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1054(c)	1	

SAMPLING CONNECTION SYSTEMS			COMMENTS
1. ☐☐☐	Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1055(a)	1	
2. ☐☐☐	These systems shall meet one of the following requirements: (1) Return the purged process fluid directly to the process line; (2) Collect and recycle the purged process fluid; or (3) Be designed and operated to capture and transport all the purged process fluid to a waste management unit that complies with the requirements of §264.1084 through §264.1086 or a control device that complies with the requirements §264.1060 of this subpart – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1055(b)(1), (2) or(3).	1	
OPEN-ENDED VALVES OR LINES			**COMMENTS**
1. ☐☐☐	Each open-ended line or valve shall be equipped with a cap, blind flange, plug or second valve – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1056(a)(1)	1	
2. ☐☐☐	The cap, blind flange, plug or second valve shall seal the open end at all times except during operations requiring hazardous waste stream flow through the open-ended valve or line – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1056(a)(2)	1	
3. ☐☐☐	Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the hazardous waste stream end is closed before the second valve is closed – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1056(b)	1	
4. ☐☐☐	When a double block and bleed system is used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph 1. of this section at all other times – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1056(c)	1	
VALVES IN GAS/VAPOR OR LIGHT LIQUID SERVICE			**COMMENTS**
1. ☐☐☐	Each valve is gas/vapor or light liquid service shall be monitored monthly to detect leaks – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(a)	1	
2. ☐☐☐	If an instrument reading of 10,000 ppm or greater is measured, a leak is detected – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(b)	1	
3. ☐☐☐	Any valve for which a leak has not been detected for two successive months may be monitored the first month of every succeeding quarter; beginning with the next quarter, until a leak is detected – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(c)(1)	1	
4. ☐☐☐	If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(c)(2)	1	
5. ☐☐☐	When a leak is detected, it must be repaired as soon as practicable, but not later than 15 days – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(d)(1)	1	
6. ☐☐☐	The first attempt at repair shall be made within 5 calendar days. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(d)(2)	1	
7. ☐☐☐	First attempts at repair include, but are not limited to: (1) Tightening the bonnet bolts. (2) Replacement of bonnet bolts. (3) Tightening of packing gland nuts. (4) Injection of lubricant into lubricated packing – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(e)	1	
8. ☐☐☐	Any valve that is designated as having no detectable emissions is exempt from monitoring if the valve: (1) Has no external actuating mechanism in contact with the hazardous waste stream. (2) Is operated with emissions less than 500 ppm above background. (3) Is tested for compliance initially upon designation, annually and at the request of the Regional Administrator – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(f)	1	

9. ☐☐☐	Any valve designated as "unsafe-to-monitor" is exempt provided that the valve is monitored during "safe-to-monitor" periods – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(g)	1	
10. ☐☐☐	Any valve designated as "difficult-to-monitor" is exempt provided that the valve is monitored at least once per calendar year – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1057(h)	1	
PUMPS, VALVES, FLANGES, OTHER CONNECTORS			**COMMENTS**
1. ☐☐☐	Pumps and valves in heavy liquid service, pressure relief devices in light or heavy liquid service, and flanges and other connectors shall be monitored within five days if evidence of a potential leak is found by visual, audible, olfactory or other detection methods – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1058(a)	1	
2. ☐☐☐	A leak is detected if an instrument reading of 10,000 ppm or greater is measured – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1058(b)	1	
3. ☐☐☐	When a leak is detected, it must be repaired as soon as practicable, but not later than 15 days – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1058(c)(1)	1	
4. ☐☐☐	First attempts at repair are made within five days and include, but are not limited to; (1) Tightening the bonnet bolts. (2) Replacement of bonnet bolts. (3) Tightening of packing gland nuts. (4) Injection of lubricant into lubricated packing – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1058(c)(2)&(d)	1	
5. ☐☐☐	Any connector that is inaccessible or is ceramic or ceramic-lined is exempt from monitoring and record keeping requirements – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1058(e)	1	
DELAYS OF REPAIR			**COMMENTS**
1. ☐☐☐	Delays of repair of equipment which leaks have been detected will be allowed if the repair is technically infeasible without a hazardous waste management unit shutdown. In such a case, the repair of this equipment shall occur before the end of the next hazardous waste management shutdown – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1059(a)	1	
2. ☐☐☐	Delays of repair for equipment for which leaks have been detected will be allowed for equipment that is isolated from the hazardous waste management unit and does not continue to contain or contact hazardous waste with organic concentrations at least 10 percent by weight – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1059(b)	1	
3. ☐☐☐	Delay of repair for valves will be allowed if:- (1) The owner or operator determines that emissions of purged material resulting from immediate repair are greater than the emissions likely to result from delay of repair. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1059(c)(1) (2) When repairs are made, the purged material is collected and destroyed or recovered in a control device – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1059(c)(2)	1	
4. ☐☐☐	Delay of repair for pumps will be allowed if:- (1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1059(d)(1) (2) Repair is completed as soon as practicable, but not later than six months after the leak was detected. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1059(d)(2)	1	
5. ☐☐☐	Delay of repair beyond a hazardous waste management unit shutdown will be allowed for a valve if valve assembly replacement is necessary and supplies have been depleted and are not on hand. Delay is permitted if the next shutdown is within six months and valve assembly stocks will be on hand – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1059(e)	1	
CLOSED VENT SYSTEMS AND CONTROL DEVICES			**COMMENTS**
1. ☐☐☐	Comply with provisions of 10 CSR 25-7.264 incorporating 40 CFR 264.1033. See Process vents inspection checklist .	1	

ALTERNATIVE STANDARDS (PERCENT VALVE LEAKS)			COMMENTS
1. ☐☐☐	An owner or operator may wish to comply with an alternative standard that allows no greater than two percent of the valves to leak. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1061(a)	1	
2. ☐☐☐	A performance test shall be conducted initially upon designation, annually, and when requested by the Regional Administrator. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1061(b)(1)	1	
3. ☐☐☐	If a valve leak is detected (instrument reading ≥ 10,000ppm) it shall be repaired. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1061(b)(2)	1	
4. ☐☐☐	For the Performance Test, valves within the hazardous waste management unit are monitored within one week period. The leak percentage will be the number of valves that leak divided by the total number of valves in the hazardous waste management unit. It must be no greater than two percent. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1061(c)	1	
ALTERNATIVE STANDARDS (SKIP PERIOD LDAR)			**COMMENTS**
1. ☐☐☐	After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two percent, the owner or operator may elect to skip one of the quarterly leak detection periods (i.e., monitor once every six months). – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1062(b)(2)	1	
2. ☐☐☐	After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2 percent, the owner or operator may elect to skip three of the quarterly leak detection periods (i.e. monitor once per year). – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1062(b)(3)	1	
3. ☐☐☐	If the percentage of leaking valves is greater than 2 percent, the owner or operator must revert back to monthly leak detection inspections until such time at they qualify for skip periods again. – 10 CSR 25-7.264(1) incorporating 40 CFR 264.1062(b)(4)	1	
TESTING METHODS AND PROCEDURES			**COMMENTS**
1. ☐☐☐	Refer to 40 CFR 264.1063	1	
RECORDKEEPING REQUIREMENTS			**COMMENTS**
1. ☐☐☐	Refer to 40 CFR 264.1064	1	