

*This model rule was developed by the Mid-Atlantic Regional Air Management Association (MARAMA) as part of a regional effort to assist states in developing State Implementation Plans for ozone, fine particles, and regional haze.*

*The MARAMA Technical Oversight Committee chose to use the most stringent limits (either from recent Consent Decrees or rules in other jurisdictions) for illustrative purposes to show how a rule could be structured. MARAMA member States may pursue these model rules as necessary and appropriate during state-specific rulemakings or other implementation methods to establish emission reduction percentages, emission rates, or technologies to meet their particular attainment needs and control strategies.*

NOTE: "XXXX" is a place holder for State-specific section numbers, title numbers, or State names.

## **Model Rule for Enhanced Monitoring of Equipment Leaks at Petroleum Refineries**

PART Env-A xxxx Additional Control Measures for Petroleum Refinery Equipment Leaks

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**Env-A xxxx.01 Applicability.** This part (subpart) applies on or after January 1, XXXX to components at petroleum refineries.

**Env-A xxxx.02 Definitions.** The following words, terms, and abbreviations used in this part (subchapter) shall have the following meanings:

*Note: Each state's policies and rules regarding regulatory definitions vary. Listed here are critical definitions with suggested, broadly defined language that will need to be changed to be consistent with an individual state's rules.*

- (a) *Enhanced Leak Detection and Repair Program (LDAR)* includes measures that are more stringent than LDAR program requirements under Title 40 of the Code of Federal Regulations, Part 60, Subpart GGG; Part 61, Subparts J and V; Part 63, subparts F, H, and CC.

**Env-A xxxx.03 General Enhanced LDAR Standards.**

- (a) **Written Refinery-Wide LDAR Program.** Each owner or operator subject to the provisions of this subpart shall develop and maintain a written facility-wide program for leak detection and repair (LDAR) compliance within XXX days of rule promulgation. Each facility-wide LDAR program shall include, at a minimum:
  - (1) An overall facility-wide leak rate goal that will be achieved on a process unit-by-process unit basis;

- (2) Identification of all valves and pumps that have the potential to leak volatile organic compounds or hazardous organic pollutants in accordance with 40 CFR Part 60 Subpart GGG and 40 CFR Part 63 Subpart CC within process areas that are owned and maintained by each facility;
  - (3) Procedures for identifying leaking pumps and valves within process areas that are owned and maintained by each facility;
  - (4) Procedures for identifying leaking components;
  - (5) Procedures for identifying and including new valves and pumps in the LDAR program; and
  - (6) Standards for new equipment that it intends to install to minimize leaks or replace chronic leakers.
  - (7) A designation of the “LDAR Personnel” and the “LDAR Coordinator” who are responsible for implementing the enhanced LDAR program at the Refinery; and
  - (8) Procedures designed to ensure that components subject to LDAR requirements that are added to the Refinery during scheduled maintenance and construction activities are integrated into the enhanced LDAR program.
- (b) **Training.** Each owner or operator subject to the provisions of this subpart shall develop and implement a training program for personnel assigned to LDAR responsibilities consisting of:
- (1) For new LDAR personnel, the owner or operator shall provide and require LDAR training prior to each employee beginning work in the LDAR group.
  - (2) For all LDAR personnel, the owner or operator shall provide and require completion of annual LDAR training.
  - (3) For all other applicable facility operations personnel, the owner or operator shall provide and require annual review courses including relevant aspects of LDAR monitoring.
- (c) **LDAR Personnel.** Each owner or operator shall establish a program that will hold LDAR personnel accountable for LDAR performance and provide incentives for leak rate improvements. Each owner or operator shall maintain a position within each facility (or under each contract) responsible for LDAR coordination, with the authority to implement improvements.
- (d) **QA/QC of LDAR Data.** Each owner or operator shall develop and implement (and require its LDAR contractors to develop and implement) a quality assurance/quality control (“QA/QC”) review of all data before turning it over to the facility and to provide the facility with daily reports of its monitoring activity.
- (e) **LDAR Audits.** Each owner or operator shall implement the following audit programs which focus on comparative monitoring, records review, tagging, data management, and observation of the actual LDAR technicians’ calibration and monitoring techniques:
- (1) A third party audit of the LDAR program shall be performed at least once every four years. The first third party audit shall be conducted no later than two years from the date of rule promulgation.
  - (2) An internal audit of the LDAR program shall be performed at least once every four years, starting two years after the initial third party audit required by xxx.03(e)(1), by personnel familiar with the LDAR program
  - (3) To ensure that audits occur every two years, third party and internal audits shall be separated by two years.
- (f) **Internal Leak Definition for Valves and Pumps.** Each owner or operator shall use the following internal leak definitions, unless permit(s) or other regulations require use of lower leak definitions:
- (1) 200 ppm for all valves

- (2) 2,000 ppm for all pumps
  - (3) Any liquids dripping from a component
- (g) **Delay of Repairs and Required Repairs.** For any valve that the owner or operator is required under the applicable regulations to place on the “delay of repair” list for repair, each owner or operator shall:
- (1) Require sign-off by the unit supervisor that the component is technically infeasible to repair without process unit shutdown before the component is eligible for inclusion on the “delay of repair” list;
  - (2) Establish a leak level of 10,000 ppm at which it will undertake extraordinary efforts to fix the leak of greater than 10,000 ppm, rather than put the component on the “delay of repair” list, unless there is a safety or major environmental concern posed by repairing the leak in this manner. For valves, extraordinary efforts/repairs shall be defined as non-routine repair methods, such as the drill and tap;
  - (3) Include valves and pumps that are placed on the “delay of repair” list in its regular LDAR monitoring, and make extraordinary efforts to repair the component if the leak reaches 10,000 ppm; and
  - (4) Undertake extraordinary efforts to repair valves and pumps that have been on the “delay of repair” list for a period of three years and leaking at a rate of 10,000 ppm, unless there is a safety or major environmental concern posed by repairing the leak in this manner.
- (h) **Chronic Leaker Program.** Each owner or operator shall replace, repack, or perform similarly effective repairs on all “chronic leaker” non-control valves during the next process unit turnaround. A component shall be classified as a “chronic leaker” if it leaks above 5000 ppm twice in any consecutive four (4) Calendar Quarters, unless the component has not leaked in the six (6) consecutive Calendar Quarters prior to the relevant process unit turnaround.
- (i) **LDAR Monitoring Frequency.** Each owner or operator shall monitor pumps at the lower leak definition established by Env-A xxxx.03(f) on a monthly basis, unless more frequent monitoring is required by a federal, state, or local regulation. Each owner or operator shall monitor valves at the lower leak definition established by Env-A xxxx.03(f) on a quarterly basis, unless more frequent monitoring is required by a federal, state, or local regulation.
- (j) **First Attempt at Repair on Valves.** Each owner or operator shall make a “first attempt at repair” within one (1) calendar day on any valve that has a reading greater than 200 ppm of VOCs and that LDAR personnel are authorized to repair. Each owner or operator shall remonitor all valves no later than the next calendar day where LDAR personnel made a “first attempt at repair.” If the re-monitored leak reading is greater than the applicable leak definition Env-A xxxx.03(f), the owner or operator may delay further repairs up to five (5) days after initial identification in order to assess the persistence of the leak by re-monitoring again. If the re-monitored leak reading is below the applicable leak definition, no further action will be necessary.
- (k) **Calibration/Calibration Drift Assessment.** . Each owner or operator shall conduct calibrations of LDAR monitoring equipment at each Refinery in accordance with 40 C.F.R. Part 60, EPA Reference Test Method 21. Each owner or operator shall conduct calibration drift assessments of LDAR monitoring equipment at the end of each monitoring shift, at a minimum. Each owner or operator shall conduct the calibration drift assessment using, at a minimum, a calibration gas corresponding to the applicable leak threshold. If any calibration drift assessment after the initial calibration shows a negative drift of more than 10% from the previous calibration, the owner or operator shall remonitor all valves that were monitored since the last calibration that had a reading greater than 100 ppm and shall remonitor all pumps that were monitored since the last calibration that had a reading greater than 500 ppm. Each owner or operator shall maintain records of all instrument calibrations for a period of one year after performing the calibrations.

- (l) **Enhanced Inspection of External Floating Roof Storage Tanks.** Each owner or operator shall perform routine inspections four (4) times per year in order to ensure compliance with {Insert applicable state storage tank requirements}. The inspection shall include a visual inspection of the secondary seal gap and slotted guidepoles when inspecting external floating roof tanks.

**Env-A xxxx.04 Recordkeeping Requirements.**

- (a) Each owner or operator shall create (if not already created) and maintain an electronic database for storage and reporting of data collected pursuant to this rule.
- (b) Each owner or operator shall use dataloggers and/or electronic data storage for LDAR monitoring required under this rule.
- (c) Paper logs can be kept in instances where necessary or more feasible (i.e. small rounds, remonitoring, or when dataloggers are not available or broken) and shall record, at a minimum, the identification of the technician undertaking the monitoring, the date, daily start and end times for the monitoring conducted, each monitoring reading, and the identification of the monitoring equipment. The owner or operator shall transfer any manually recorded monitoring data to the electronic database required by Paragraph 86.a within seven (7) days of monitoring.
- (d) Each owner or operator shall ensure that collected monitoring data includes a time/date stamp for all monitoring events.

**Env-A xxxx.05 Reporting Requirements.**

- (a) No later than XX days from the date of rule promulgation, each owner or operator shall submit a report to the State certifying that paragraphs xxxx.03 have been implemented. No later than YY days from the date of rule promulgation, each owner or operator shall submit a report to the State certifying that paragraph xxxx.03(a) has been completed. This report shall also include a description of the accountability/incentive programs that are developed pursuant to paragraph xxxx.03(c).
- (b) Within thirty days after implementing the training programs pursuant to paragraph xxxx.03(b) above, each owner or operator shall submit to the State a certification that the training has been implemented. Such certification shall include a description of the different training programs implemented.
- (c) Each owner or operator shall submit annual reports to the State with the results of the audits conducted pursuant to paragraph xxxx.03(e). These reports shall include a description of changes the owner or operator plans to implement based on the results of the audits. The initial annual report shall be due by January 31 of the year following the first calendar year during which such facility has conducted monitoring for at least three calendar quarters pursuant to this paragraph. Subsequent annual reports shall be due on January 31 of each subsequent year.
- (d) Each owner or operator shall submit quarterly monitoring reports to the State with the results of the LDAR monitoring performed. This report shall include a list of the process units monitored during the quarter, whether each process unit is complying with quarterly monitoring or the sustainable skip period program, the number of valves and pumps monitored in each unit, the number of valves and pumps found leaking, and the projected date of the next monitoring event. This report shall also include a list of all valves and pumps currently on the delay or repair list and the date each component was put on such list.