LEAK DETECTION AND REPAIR ("LDAR") PLAN

LDAR Program Overview

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1.1 Written LDAR Program

This written LDAR program specifies the regulatory requirements and facility-specific procedures for recordkeeping certifications, monitoring, and repairs. The program also delineates the roles of each person on the LDAR team as well as documents all the required procedures to be completed and data to be gathered, thus establishing accountability. The plan identifies all process units subject to federal, state, and local LDAR regulations and can be updated as necessary to ensure accuracy and continuing compliance.

Elements:

A. Leak Rate Goal
   1. Plant
      a. Annual goal of 10% max of LDAR Equipment having any leaks
      b. Daily goal of 4 LDAR equipment leak issues open maximum
   2. LDAR Series
      a. 200 series goal of 25% of total LDAR leaks
      b. 300 series goal of 25% of total LDAR leaks
      c. 400 series goal of 40% of total LDAR leaks
      d. 900 series goal of 10% of total LDAR leaks

B. A list of all equipment that has the potential to leak VOCs and VHAPs
(Attached Excel Spreadsheet)

C. Procedures for identifying leaking equipment
   1. Visual Inspection
      a. Daily Inspection
         i. Conducted daily by second shift team leader
         ii. Report completed by team leader and signed by team leader
         iii. Report reviewed by plant manager
         iv. Action steps taken by plant manager (work order)
      b. Monthly Inspection
         i. Conducted monthly by plant manager
         ii. report completed and signed by plant manager
         iii. report reviewed by operations manager
         iv. action steps taken by plant manager (work order)
      c. Quarterly Inspection
         i. Conducted monthly by operations manager
         ii. Report completed and signed by operations manager
         iii. Report reviewed by CEO
         iv. Action steps taken by operations manager (work order)
   2. Electronic Inspection
      a. Monthly Inspection
         i. Conducted monthly by plant LDAR specialist
         ii. Report completed and signed by LDAR specialist
         iii. Report reviewed by plant manager
         iv. Action steps taken by plant manager
      b. Quarterly Inspection
         i. Conducted quarterly by plant LDAR specialist with operations manager
         ii. Report completed and signed by LDAR specialist
         iii. Report reviewed by operations manager
         iv. Action steps taken by plant manager (work order)

D. Procedures for repairing and keeping track of leaking equipment
   1. Repairing leaking equipment
      a. An initial determination will be made if a detected leak needs immediate repair or requires the affected equipment to be locked out, if so, the team leader will take the appropriate action to lock out the equipment, make the first attempt repair and generate work order documents. If a leak does not require immediate attention it will be handled by the plant manager with work orders and a scheduled approach for repair
      b. First attempt repair will be conducted by team leaders if possible
      c. First attempt repairs outside team leaders expertise will be conducted by service personnel arranged for by plant manager
      d. Plant managers are responsible for making timely repairs to leaks within 5 days of detection
      e. Any leak not able to be repaired within 5 days will be referred to the operations manager for corrective action
   2. Tracking leaking equipment
      a. Work orders will be prepared for each leaking equipment that has the equipment ID, the date the leak was detected, a description of the situation, the estimated repair time, any parts needed and who is assigned to make the repair
      b. Work orders are managed by the plant manager and are due for first attempt repair within 5 days of detection

c. A paper work order will be kept in the plant and an electronic copy will be filed on the server for permanent storage
d. An electronic spreadsheet summary of paper work orders will be kept as a log of work orders and stored on the server
e. The work order log will be reviewed weekly by the operations manager

E. A process for evaluating new and replacement equipment to promote the consideration of installing equipment that will minimize leaks
   1. Evaluating in-service equipment
      a. Any equipment demonstrating a chronic propensity for leaks will be reviewed for replacement
      b. Any equipment where more than 6 leaks per year will be considered for replacement
   2. Evaluating new equipment
      a. A group of personnel will evaluate new equipment with consideration for LDAR requirements, this group will consist of the LDAR specialist, the assistant and plant managers and the operations manager
      b. New equipment will have an installation plan to properly insure the minimization of potential leaks

F. A list of "LDAR Personnel" and a description of their roles and responsibilities
   1. CEO reviews the LDAR program and reporting for each plant annually
   2. Operations manager reviews and administrates the LDAR program for all plants including quarterly inspections and reports
   3. Plant managers manage the daily and monthly implementation of the LDAR program and is responsible for repairing any leaks detected
   4. Team leaders are responsible for daily inspections and first attempt repairs when possible
   5. Each plant will have a Team Leader or assistant plant manager designated as the LDAR specialist who is responsible for the training of plant personnel on LDAR issues and primarily responsible for the electronic detection of leaks

G. Procedures to ensure that components added to each facility during maintenance and construction are evaluated to determine if they are subject to LDAR requirements, and that affected components are integrated into the LDAR program
   1. The plant manager and the LDAR specialist will maintain a detailed list of all equipment and identification numbers for such and the determination of LDAR applicability and their inclusion into the LDAR program

H. Within thirty days after developing the written facility-wide LDAR program, submit a copy of the Program to EPA and to the appropriate state agency

1.2 Training

A training program will provide LDAR personnel the technical understanding to make the written LDAR program work. It also will educate members of the LDAR team on their individual responsibilities.

Elements:

A. Initial training and annual LDAR refresher training for all facility employees assigned LDAR compliance responsibilities and all employees that are team leaders or above
B. Other operations and maintenance personnel with responsibilities related to LDAR, will be provided initial training program that includes instruction on aspects of LDAR that are relevant to their duties
C. The plants will maintain training records for all personnel

1.3 LDAR Audits

Internal audits of a facility LDAR program are a critical component of the program. The audits check that the correct equipment is being monitored, procedures are being followed, leaks are being fixed, and the required records are being kept. In short, the audits ensure that the LDAR program is being conducted correctly and problems are identified and corrected.

Elements:

A. Review records on a regular cycle to ensure that all required LDAR-related records, logs, and databases are being maintained and are up to date
    1. The operations manager will review all LDAR records in the quarterly inspection
B. Ensure and document that the correct equipment is included in the LDAR program and that equipment identified as leaking is physically tagged with the equipment ID number
    1. The plant manager and the LDAR specialist are responsible for the tag on each piece of equipment
    2. A detected leak is marked with a colored tape marker until repaired and locked out if necessary
C. Observe the calibration and monitoring techniques used by LDAR technicians, in particular to ensure the entire interface is checked and the probe is held at the interface, not away from the interface
    1. The LDAR specialist will be responsible for all electronic testing and calibration
D. If areas of noncompliance are discovered, initiate a plan to resolve and document those issues
    1. If any area of noncompliance is determined by the operations manager on the quarterly inspections a corrective action plan will be written
E. Implement, as soon as practicable, steps necessary to correct causes of noncompliance, and prevent, to the extent practicable, a recurrence of the cause of the noncompliance
    1. If noncompliance is discovered it will be included in the annual performance review of the plant manager and LDAR specialist
F. Retain the audit reports and maintain a written record of the corrective actions taken in response to any deficiencies identified
    1. All LDAR reports, inspection and corrective action plans will be retained on the company server

1.4 Internal Leak Definitions

Varying leak definitions can apply to different process units and components. To counter these potential problems, create the LDAR program using an internal leak definition for valves and pumps in light liquid or gas vapor service. The internal leak definition would be equivalent to or lower than the applicable definitions in the permit and the applicable federal, state, and local regulations. The internal leak definition would apply to valves and pumps (and possibly connectors) in light liquid or gas vapor service.

Elements:

A. Any visual leak from LDAR designated equipment
B. A 500-ppm leak definition for VOCs for all valves in light liquid and/or gas vapor service, excluding pressure relief devices
C. A 2,000-ppm leak definition for pumps in light liquid and/or gas/vapor service
D. Record, track, repair, and monitor leaks in excess of the internal leak definition

1.5 Frequent Monitoring

The LDAR program will include frequent monitoring even when outside regulations may be less stringent. Experience has shown that poor monitoring rather than good performance has allowed facilities to take advantage of the less frequent monitoring provisions. To ensure that leaks are still being identified in a timely manner and that previously unidentified leaks are not worsening over time, implement a plan for more frequent monitoring for components that contribute most to equipment leak emissions.

Elements:

A. Monitor pumps on a daily basis
B. Monitor valves on a daily basis
C. Monitor sample ports and gauges on a daily basis
D. Hard to monitor equipment mothly

1.6 Repairing Leaking Components

In order to stop detected leaks while they are still small, most rules require a first attempt at repair within 5 days of the leak detection and a final repair within 15 days. Any component that cannot be repaired within those time frames must be placed on a "Delay of Repair" list to be repaired during the next shutdown cycle.

Elements:

A. First attempt repairs are required within 5 days
B. If a final repair is not made within 15 days the repair will be added to the delayed list and forwarded to the operations manager for action
C. A list of repairs that are delayed for a shutdown will be indicated on the delayed repair list

1.7 Delay of Repair Compliance Assurance

Any component that cannot be repaired during the specified repair interval must be placed on a "Delay of Repair" list to be repaired during the next shutdown cycle. Delay of repair compliance assurance procedures ensure that the appropriate equipment is justifiably on the "Delay of Repair" list and that facilities have a plan to fix these components.

Elements:

A. The plant manager will determine if a repair can be made without a shutdown and make an indication on the work order and the log
B. The operations manager will review the delayed repairs weekly to ensure they are not being postponed inappropriately

1.8 Electronic Monitoring and Storage

The LDAR program includes electronic storage of LDAR data will help evaluate the performance of monitoring personnel, improve accuracy, provide an effective means for QA/QC, and retrieve records in a timely manner for review purposes.

Elements:

A. Use best efforts to transfer data on a daily basis to the computer server
B. For all monitoring events include a time and date stamp, operator identification, and instrument identification on the daily, monthly and quarterly reports
C. Paperwork orders will be used and scanned for input to the database
D. Records will be reviewed by the LDAR team to identify "problem" components for preventative maintenance or for replacement with "leak-less" technology on a quarterly basis

1.9 QA/QC of LDAR Data

Perform QA/QC audits ensure that Method 21 procedures are being followed and LDAR personnel are monitoring the correct components in the proper manner. Develop and implement a procedure to ensure QA/QC review of all data generated by LDAR monitoring technicians on a daily basis or at the conclusion of each monitoring episode.

Elements:

A. Daily review/sign-off by monitoring technicians of the data they collected to ensure accuracy and validity will be completed by the plant manager
B. Periodic review of the daily monitoring reports generated in conjunction with recordkeeping and reporting requirements will be completed by the operations manager
C. Quarterly QA/QC of the facility's data will be made by the operations manager including:
    1. Number of components monitored
    2. Time between monitoring events
    3. Abnormal data patterns

1.10 Calibration/ Calibration Drift Assessment

Always calibrate LDAR monitoring equipment using an appropriate calibration gas, in accordance with 40 CFR Part 60, EPA Reference Test Method 21.

Elements:

A. Calibration drift assessments of LDAR monitoring equipment will be made weekly by the LDAR specialist
B. The calibration drift assessment will be made using, at a minimum, approximately 500 ppm of calibration gas
C. If any calibration drift assessment after the initial calibration shows a negative drift of more than 10% from the previous calibration, re-monitor all valves that were monitored since the last calibration with a reading of greater than 900 ppm and all pumps that were monitored since the last calibration with a reading of greater than 900 ppm