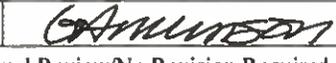


14 - MERCURY VAPOR MONITORING SYSTEM

Title: Mercury Vapor Monitoring System **Doc. No.** 2015-MMTS-14

Approval Signatures and Date

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NOTE: This document will be reviewed at least annually to ensure its suitability.

Revision History

Rev. No.	Change description	Author
1	Change description Crosswalk Between NDEP CAPP Review Comments (dated 2014-12-09, 2015-01-30 and 2015-02-26) and Mercury Storage and Transfer Program Document Contents March 10, 2015	Burton Packard and Renee Rodriguez

NOTE: Hard copies of this document may not be the current version. Refer to the "IAmTheKey" to verify the current version.

Reference Documents

Document number	Document title
QP.EMS.HG.0006	Mechanical Integrity Procedure (Tier 1)
	Mercury Monitoring System MMS-16: Operating Manual, Version 2.0
Chapter 12, SOC.OHS.SP.0002	Lockout/Tag Out
Chapter 10, SOC.OHS.SP.0002	Hot Work Permit
Procedure 2015-MMTS-13	Data Acquisition and Inventory Management
QP.EMS.HG.0007	Management of Change (Tier 1)

14.1 PURPOSE

This procedure addresses operation of the mercury vapor monitoring system in the MMTS at HWAD. The purpose of this procedure is to ensure that the mercury monitoring equipment associated with the MMTS is designed, installed, maintained, and operated correctly. Proper operation of the mercury monitoring system ensures that operating personnel in the MMTS are not exposed to mercury vapor in excess of the limits recommended by the American Conference of Governmental Industrial Hygienists and it evaluates the effectiveness of the OG treatment system for removing mercury vapor from the OG stream.

14.2 SCOPE

This procedure applies to staff and contractors that inspect, test, or maintain the mercury monitoring equipment within the MMTS.

14.3 PROCEDURE

The primary mercury vapor monitoring system is an automated system that sequentially monitors fixed locations in the MMTS and records the measurements for historical information. Personnel may use portable mercury monitoring instruments (e.g., the Jerome J505 Mercury Vapor Analyzer) to supplement the automated measurement system and/or to monitor the facility in the event that the automated system is not functioning properly.

The Facility Manager shall verify that the system is functioning at the start of each workday.

14.3.1. Equipment Needed

- Automated MMS with computer – 16 sensors/data recorders for mercury concentration in air with high vapor alarm(s)
- Hood face velocity sensors
- Interface of the automated MMS with the MMTS facility's data acquisition system.
- Portable mercury monitoring instruments (as required).

14.3.2. Inspection and Testing

- Facility Manager identifies CAPP-regulated mercury monitoring system equipment subject to this procedure and identifies the schedule for the conduct of inspections and tests based on manufacturer's information or good engineering practices, or more frequently, if determined to be necessary by previous experience in operating the equipment.

Note: Prior to daily operations, operating tests should be conducted on the MMS. On a rotating basis [four (4) sensors per day], the sensors should be exposed directly to a known,

small concentration of mercury vapor and the expected response confirmed. During the operating tests, the worker should be wearing appropriate PPE. If the expected response does not occur, operations should be discontinued until the Facility Manager has established that the problem has been corrected or that sufficient redundant monitoring is available to allow safe operations. This is an operating test, not a calibration test. By the end of each workweek, all 16 sensors will have been tested.

- Staff (or contractors) performs inspections and tests of the CAPP-regulated equipment. Safe work practices, such as the HWAD Lockout/Tagout and Hot Work supporting procedures, apply to equipment identified in this procedure.
- Staff will startup, operate, and shutdown mercury monitoring instrumentation in accordance with the instructions found in the MMS operating manual.
- Staff will have mercury monitoring instruments calibrated on the frequency recommended by the manufacturers, Mercury Instruments (see Attachment 1) and Arizona Instrument.
- Staff (or contractors) document the following on the appropriate inspection/testing forms:
 - The date of the inspection or test
 - The name of the person who performed the inspection or test
 - The serial number or other identifier of the equipment on which the inspection or test was performed
 - A description of the inspection or test performed
 - The results of the inspection or test

If there is a deficiency, staff (or contractor) will notify the MMTS Facility Manager for issues needing resolution; the Facility Manager considers the need for Management of Change.

14.3.3. Maintenance

- Staff (or contractors) correct any deficiencies in the equipment that are outside the acceptable limits which are described in the MMTS process safety information before using the equipment again.

NOTE: Deficiencies posing immediate threat to safety, health, or the environment, as identified in this procedure, are corrected immediately. Otherwise, deficiencies are evaluated and prioritized by the Facility Manager and corrected accordingly.

- The MMS has sample point filters that should be changed regularly based on cleanliness of the operation—change out may occur anytime from once every two weeks to once a year (see MMS-16 operating manual).

- Prior to maintenance on the MMS, the Facility Manager or designee follows the shutdown steps in Section 13.5 on pages 13-17 and 13-18. The Facility Manager or designee starts up the MMS by following the steps in Section 13.5 on page 13-19.

14.3.4. Quality Assurance/Quality Control

- Changes, new equipment, instruments and controls are checked by the Facility Manager or designee before implementation/installation to ensure suitability with the process by following the Process Safety Information, Process Hazard Analysis, Management of Change, and Pre-Startup Safety Review procedures.
- The Facility Manager or designee ensures that maintenance materials, spare parts, and equipment are suitable for the process for which they will be used.
- Part Replacement and Quality Control

Part replacement will occur as needed or required by operation maintenance procedures. All parts removal/replacement shall be performed in accordance with instructions cited in the manufacturer's operation and maintenance manual (see MMS-16 operating manual) or Best Engineering Practices. If there are competing instructions or recommendations, the most conservative (personnel safety protective) instructions will be followed.

Check spare parts storage for replacement part availability. If the part/component is available, confirm part model number with review by the shop Supervisor. Once the part has been verified, then proceed with replacement.

If parts/components are not available from spare parts supply, the part/component will be ordered as follows:

- Replacement parts/components shall be replacement in kind.
- If a replacement in kind part/component is not available, the proposed replacement part /component shall be subject to review by the Mechanical Integrity Team as described in the Tier 1 Procedure to ensure that it is suitable for the process in which it will be used. This process shall be subject to Management of Change, Process Safety Information, Pre-Startup Safety Review and, if warranted, a Process Hazard Analysis.
- Check the part model number and compare it with the as-built drawings and the Maximo or equivalent parts listing.
- Order the part/component; ordering of the part/component shall be in writing to the Maintenance Section.
- During the process of ordering the part/component, a second check shall be performed against Maximo or equivalent to ensure accuracy of the part/component.

- The Purchase Request will be submitted to Manager of Quality Control for analysis in the Government Industry Data Exchange Program to ensure vendor acceptability prior to submission of Purchase Request to the Purchasing Agent.

When the ordered part/component is received, verify the correct part model number against the part order form. Shop Supervisor will also confirm the correct part model number has been received prior to use and replacement of the defective part/component.

- Any staff member discovering a nonconforming item or material (including suspect/counterfeit items) notifies their manager to initiate resolution of that nonconformance. The manager notifies the Environmental Services Manager and the Quality Assurance Manager of the nonconformance.
- The nonconformance resolution process, overseen by the Quality Assurance Manager, provides for the identification, control, and resolution of problems associated with items, activities, or conditions that do not conform to requirements. The process also provides a means for preventing the inadvertent installation or use of nonconforming items, materials, or services.

Install the part/component by ensuring all required lock out/tag out requirements have been completed, or that the system(s) are at a zero energy state.

- Install part/component in accordance with manufacturer's instructions or recommendations.
- After installation the shop Supervisor will verify the part/component has been installed per manufacturer recommendation or specification. Both the Operator and the Supervisor shall sign the work order form verifying the correct part/component was used and installed correctly. The work order form will be returned to the Manager of Maintenance, Planning, and Housing for data entry into Maximo or equivalent.
- After verification that the part/component has been installed correctly, the lock out/ tag out devices shall be removed and the system energized if required.
- Verify replacement part is functional and operates in accordance with operating manual or best engineering practices.

14.4 METRICS

Weekly, monthly, biannual and/or annual inspections, tests and maintenance will be tracked and the results documented. Deficiencies found will be trended and that information will be used to evaluate the need for more frequent inspections or tests.

14.5 RECORDS

- Facility Manager, staff and/or contractor training records.
- Inspection, testing and maintenance records for each piece of regulated equipment are maintained for a period of at least five years after the inspection/test/maintenance activity.

Instrumentation calibration records are maintained for a period of at least five years after the activity.

Management of Change records