





1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

The CPPO introduced a new Weekly Report format last week. The audience has been silent thus far, but we trust we will receive feedback.

Last week's Weekly Notebook was CPPO Vapors Communications Effectiveness Survey.

CPPO has found that one of the best ways to assist in effective communication for WRPS is to support the people responsible for creating communications. CPPO offers weekly workshops on technical writing and best practices. All are welcome.

The CPPO team and HAMTC Safety representatives meet every Tuesday at 8:00 am in the CPPO turnaround office (2750/A230). On March 14, discussions centered on HOT OAT in AX Farm, AZ Exhauster, and House Bill 1723.

2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters **KPP 1.** Communications

4 Chemical Protection Communication

CPPO was asked to provide an audio option for the CPPO Notebook. Last week's CPPO Notebook included an audio voice-over by the SME, as will future notebooks. **Key Performance**

The CPPO Communications Survey was sent to a random sample of WRPS employees last week. The survey is designed to measure the effectiveness of the vapors communications efforts within WRPS and to determine if the workforce is interested in the information that is being provided. Completed surveys have begun to trickle into the CPPO. Survey participants are asked to return their surveys by March 27, 2017.

Parameter 1

Establish a comprehensive vapor management communication plan, engagement processes, and effectiveness measurements.

Last week the *Third Party Qualified Independent Review: Hanford Tank Farm Respirator* Cartridge Testing Report No 2: Review of: Use of Full Face Air Purifying Respirators in AP Tank Farms for Low-Hazard Tasks. TOC-IH-58345. Rev. 0, January 30, 2017, report was posted to the Hanford Vapors website. Also posted to the website was the report summary in which it is stated "After considering engineering controls, administrative controls, properly fitted respiratory protection, and a conservative cartridge change out schedule, CPWR concurred with WRPS's proposal to use the full face air purifying respirators (FFAPR) equipped with either the Scott 7422-SC1 (Chemical multipurpose) or the Scott 7422-SD1 (Chemical- multipurpose/P100) cartridges" (TOC-WP-17-0928, Summary of 3rd Party Review Revised, para. 2).





On March 16, an all employee message announced that waste water was again being pumped from the Liquid Effluent Retention Facility (LERF) Basin 43, and had resumed on Wednesday evening thanks to the effort of several WRPS organizations and crane and rigging support from Mission Support Alliance. Last weekend, crews successfully replaced a failed transfer pump, and this week they completed troubleshooting and final testing. This Monday, LERF successfully reached its 2,000,000 gallon inventory reduction milestone.

Hanford Vapors Website Updates

A new <u>Vapors Weekly Update – March 16</u> is now available on the Hanford vapors website.

Management and Workforce Engagement

The March 8 CVST meeting focused on the AP cartridge rollout and questions from the workforce, including how WRPS came to its conclusions and the processes involved with the evaluations. The concerns raised by the workforce regarding beryllium, and the steps being taken to assess the issue at Hanford, were discussed. In additions, the schedule for retrieval operations was discussed.

<mark>↓</mark> <u>PHOENIX</u>

Last week, the team began incorporating comments from the software rollout which is being tested internally. New items are being added to the system's functionality, including a new welcome page with links to educational materials, the weekly VMDS report, and new templates which users will be able to customize to suit their needs. Additionally, the PNNL team members developing the Phoenix explorer software met with project managers from the CPPO, VMDS, SWIHD, Vapor Data Analysis Team, and Mobile Lab projects. This meeting served to introduce the teams to each other, and establish a starting point for integrating each of the different data streams into the Phoenix database.

<u>CPPO Oversight and Tracking</u>

The CPPO office tracks all vapor related problem evaluation requests (PERs), and is tasked with communicating PERS resolutions. The 117 TVAT actions are captured in PER-2014-602. The 3 OIG actions are captured in PER-2016-2433, 4, and 5. Sixty-one TVAT actions were completed during Phase I; their completions are documented in the PER system. It is the project's intention to add the remaining recommendations from NIOSH, EA-32, CTEH, and VMEP to the PER system as soon as they are developed and time-phased for closure. The graph in **Figure 1** shows the difference between the numbers of corrective actions that have been completed and the corrective actions that are due.





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Figure 1. Vapor Corrective Action Tracking





KPPs 2 and 3. IH Technical Basis and IH Program

Develop New or Revised COPCs/OELs

Discussions with the project team from WRPS and PNNL working on the Health Process Planning project continued this week. PNNL submitted a draft of the OEL recommendations for COPCs where regulatory guidance exists. PNNL presented the results of the toxicology review of high priority COPCs to the WRPS assessment team this week. PNNL expects to submit a draft of this report by the end of March.

🖊 Health Process Plan

Update: PNNL Health Study Roadmap: A schedule for FY2017 has been developed for the Health Process Project. Accomplishments:

- Task 1: Schedule
- Task 2: Establish Tank Operations Assessment Team. An interim TOC Assessment Committee has been identified. A charter for the Assessment Committee is being developed.

Key Performance Parameter 2

Maintain Industrial Hygiene Chemical Vapor Technical Basis and the chemicals of potential concern (COPC). Institutionalize a disciplined and rigorous process for updates to include new scientific findings and enhanced understandings of potential exposures.

- Task 3: Establish an External Peer Review Health Panel. Submitted the Draft External Review Recommendations. A meeting with Sr. management to finalize the membership in the Assessment Committee was held on March 14.
- Task 4: Implement Routine Analysis and Screening Process for Updating COPCs. • Rich Lucke attended PittCon Analytical Chemistry Conference to evaluate the latest instrumentation for analysis of tank vapor samples.
- Task 5: Establish Acute/Transient and Chronic Exposure Action Levels.
 - Initial reviews of acute/chronic and high priority chemicals have been completed. These are in various stages of review/edits and will be available for submission to WRPS shortly.
- Task 6: Evaluate Computational Approaches for Predicting Exposure and **Delivered Dose**.
- Task 7: Database Implementation and Management.
 - Making updates to the site and troubleshooting bugs.
 - Finishing the report generator.





Database Implementation and Management

No change in status. In FY 2016, PNNL developed a database to review and update the COPC list and associated OELs. This database contains information such as vapor concentrations in tank headspaces, IH measurements, current exposure guidelines, chemical and physical properties, toxicology summaries, as well as the reports and publications supporting the data. In FY 2017-18, PNNL will continue to update and maintain this database to support the annual review and update of COPCs/OELs/STELs.

Leading Indicators

No change in status. For the next few months, the Leading Indicators team will be focused on supporting the integrated vapors data collection DQO process. This DQO drives data collection that will be used as the basis to validate and update the Leading Indicator Process.

Parity Implementation with Established Programs

Update: Enhanced Chemical Hazards Awareness Training (CHAT) training has begun and positive feedback has been received from the initial classes.

Key Performance Parameter 3

Maintain Industrial Hygiene Program and institutionalize vapor program requirements, best practices and program parity, and complete necessary training to support full implementation at the beginning of FY 2018.

The Chemical worker tier training is being developed on schedule. Its anticipated rollout is this summer. The tiers are listed below and each consolidates the knowledge gained from previous tiers and other training (such as respirator or HAZWOPER):

- Chemical Worker Tier 1: General Employee Chemical Training
- Chemical Worker Tier 2: Facility Specific Chemical Training
- Chemical Worker Tier 3: Chemical Worker Training

IHT training, qualification, and requalification programs are in the early stages of development. IH Professional Development and Communications Training is being scheduled as it comes available.

KPP 4. Engineering Controls

↓ <u>Exhausters</u>

Update: The 242-A Evaporator vessel vent stack extension design has been completed and the construction contract has been awarded.

Strobic Air Dilution Fan

Update: Tank Farm Projects will lead the design and installation of the ventilation upgrade for the AW stack. A project schedule has been developed and contracting is in process. The SOW for the Strobic Air contract has been written and is in process.

Key Performance Parameter 4

Complete engineering control concept demonstrations for Strobic Air Tri-Stack® and NUCON® International, Inc. thermal combustion in support of unrestricted work boundaries.





<u>MUCON Thermal Oxidation Proof-of-Concept Test</u>

Update: A statement of work (SOW) has been developed engaging TerraGraphics for the pilot scale test of the NUCON system in FY18. The SOW is in Asset Suite.

KPP 5. Administrative Controls and Monitoring

4 <u>Permanent Installation of VMDS Equipment in A and AP Farms</u>

Update: This week, the CPPO, CTO, IH, and engineering met to discuss the design strategy for future improvements to the VMDS and dispersion modeling systems being evaluated for installation in the farms. The focus this week was on the setting of Vapor Control Zones, Unrestricted Boundaries, and OEL control levels. These discussions serve to educate everyone on the requirements within which each group must work.

<u>Stack and Boundary Monitors</u>

No change in status. Phase 1 of the Ammonia Analyzer has been initiated, and a contract is being established with Cerex to develop the software.

Establishing Safe Unrestricted Boundaries

Update: Dispersion Model Review: The SOW was submitted to Asset Suite and was approved. PNNL is expected to respond to the RFP on March 20. In FY

2017, APGEMS will be upgraded to increase the model wind field resolution for tank farm applications and model plumes from multiple sources simultaneously. This work will resolve an identified gap in the FY 2016 air dispersion modelling assessment.

Update: Vapor Control Zones/Vapor Reduction Zones (VCZs/VRZs): The final review was completed on the revised procedure TFC-ESHQ-S_C-48, *Managing Tank Chemical Vapors*, in support of VCZ/VRZ review. The procedure is in work-flow for approval and it is expected to be issued by March 31, 2017.

<u>Public Address System</u>

No change in status: The Event Notification Public Address (PA) system in AP farm was scheduled to be permanently installed by the end of February. However, after extensive design review, it has been determined this is better approached as a package concept. The new completion date for the permanent Event Notification PA system is scheduled for June of this year.

Key Performance Parameter 5

Define unrestricted work boundaries and implement monitoring on active stack ventilation and unrestricted work boundaries in the A farms to provide defense-indepth.



KPP 6. Tank Operations Stewardship

Pilot SST Stewardship Program

This section will updated the first Weekly Report of each month. The scope of KPP-6 is to apply defense-indepth safety controls to ensure worker protection. The SST Stewardship Program will identify and evaluate procedures requiring entry into SSTs and determine whether those requirements can be eliminated or reduced. The first step towards establishing the Tank Farm of the Future for SSTs is to use remote monitoring in lieu of farm entry to obtain tank waste levels and temperatures. WRPS will initiate design of the first remote monitored SST in July 2017, with equipment installation occurring in FY 2018.



Key Performance Parameter 6

Institutionalize a tank operations stewardship program that minimizes required tank farm personnel entries; and establishes parameters for locating ancillary personnel and offices.

In response to a NIOSH recommendation, WRPS is establishing guidelines to determine appropriate work locations for personnel in the tank farm areas. These guidelines consider International Society of Automation (ISA)-84 risk modeling, air dispersion modeling, hazard reduction determinations, and other appropriate inputs.

Tank Farm personnel will begin training in the new central control room in April. Training focuses on the alarm panel, including the Double Shell Tank (DST) leak detection and temperature monitoring sensors. The training materials are being assembled. Production Operators are the first candidates for training.





KPP 7. Hierarchy of Controls

<u>Active Cartridge Testing and SCBA Alternatives</u>

No change in status. WRPS began using the full-face Air Purifying Respirators (FFAPR) on Tuesday, March 14, 2017. Workers in the AP tank farm outside of a Vapor Control Zone (VCZ) have the option of wearing an FFAPR equipped with the Scott 7422-SC1 (Chemical - multipurpose) or the Scott 7422-SD1 (Chemical - multipurpose/P100) cartridge instead of SCBA while non-waste-disturbing and non-tank-intrusive activities are taking place. As always, workers will continue to have the option to use SCBA or other available supplied-air systems if they choose, so long as the equipment does not produce additional safety hazards. There was positive feedback from workers who used the FFAPRs. Some workers expressed the hope that implementation will be rolled out more quickly in the coming weeks and FFAPR use will be available to all workers entering AP tank farm outside of VCZ areas.

No Update: SCBA Equipment Evaluation. The results of the Phase 2 evaluation were presented to the Hanford Site Respiratory Committee. Pursuant to Phase 3 testing, an order for the Scott NXG7 SCBA cartridge is being processed for approval.

Key Performance Parameter 7

Provide options to promote the hierarchy of controls for chemical vapor respiratory protection beyond current use self-contained breathing apparatus.

<u>Mobile Laboratory</u>

Update: The mobile lab has been pulled from field

operations to install an ammonia cavity ring spectrometer and complete the test plan for source apportionment and fugitive emission searches. The lab will be off-line for yet another week. The test plan has been submitted and is in review.

The Mobile Lab installed a Picarro G2103 Analyzer to detect ammonia (NH3) in the environment. The unit can perform continuous, real-time measurements without interference, and the sensitivity is parts-per-billion. The unit was able to detect plumes at feed lots while driving around the neighboring communities. While driving on-site last Wednesday, the average reading was 2-3 ppb, which is lower than the national ambient background measurement.

The Mobile Lab is also testing new analysis techniques which involve running air samples through a Gas Chromatograph (GC) then through the Proton Transfer Reaction Mass Spectrometer (PTR-MS). This technique increases the lab's ability to detect hard-to-see chemicals.





<u>Personal Vapor Monitor</u>

Update: C₂Sense, Inc. presented a proposal to finish developing the personal ammonia monitor. The technical evaluation of the proposal is complete and a contract should be in place by April 1, 2017. C₂Sense is developing a personal ammonia sensor under funding from DOE-EM. Under this contract, DOE requested that WRPS support testing the device. WRPS is coordinating between C2Sense, Inc. and RJ Lee Group to support prototype testing.

KPP 8. Medical Support

<u>The scope of KPP-8</u> is to support RL medical program enhancements in conjunction with other Hanford Site organizations.



Key Performance Parameter 8

Support medical program enhancements in conjunction with responsible Hanford Site organizations and establish update to WRPS process/procedures.





3. OTHER VAPOR ACTIVITIES

Chemical Vapor Data Quality Objectives (DQO) – CPPO SMEs are participating members of the Integrated Sampling Strategy Project Team. The Integrated Sampling Strategy Project Team formed nine Data Quality Objective (DQO) sub teams. This week's updates are:

4 Technology Maturation

Presented their step three (data needs) findings to the integrated sampling strategy project team for review.

4 Technical Basis

The group has moved to the next steps which will further describe the limitations and constraints on the data requirements that will allow the team to determine how to collect the data required for the IH Tech Basis revision.

4 Fugitive Emissions

Presented step three with revisions to the Integrated Strategy Project Team for review. The presentation was well received. Work has begun on step four. Meetings are being scheduled to accommodate its update and review.

4 Leading Indicators

For the next few months, the Leading Indicators team will be focused on supporting the integrated vapors data collection DQO process. This DQO drives data collection that will be used as the basis to validate and update the Leading Indicator Process.

🖊 Aerosols

Presented their step three (data needs) findings to the integrated sampling strategy project team for review.

🖊 Abatement Design Study

Presented their step three (data needs) findings to the integrated sampling strategy project team for review.

4 Environmental Compliance

No update.

🖊 ISA84

No update.

4 Vapor Plume Modeling

Last week, members of the CPPO team attended the Integrated Sampling Strategy DQO meeting, the focus of which was the boundaries and constraints on data collection for the VMDS and dispersion modeling projects. The discussion is expected to continue for several weeks.





4. VAPORS MITIGATION PROGRAM PLAN - TOP RISKS

<u>CPPO Risk Weekly Update</u>

The subset of the Vapors Mitigation Risk Register this week is shown below in **Table 1**.

CVAP ID Number	Current Status	Handling Actions	Current Risk Level
024 Equipment design and Current Requirements are Incompatible with Tank Farm Infrastructure	Software (Kinexsys) and hardware communication issues are causing delays in VMDS schedule. Tank Farm communication infrastructure may not be able to support expansion of vapor monitoring bandwidth.	 Identify vapors monitoring infrastructure requires within the tank farms. Start upgrades and equipment installs in order to support vapors monitoring activities. 	Medium
009 Resources not Available when Required.	RJ Lee Group Resources are unavailable to complete reporting. Head Space Sampling may be delayed by beryllium testing.	 Identify key technical resources up front and secure availability. 	Medium
026 3rd Party Evaluation and/or Subcontractor Testing Cause Delays	Chemical Cartridge Testing 3 rd Party Reviews by CWPR may be delayed.	 Engage 3rd Party and/or Subcontractor leadership in communicating status. 	Medium
022 Procurement process is less than adequate	Procurements of 242-A Stack extension materials were delayed due to unacceptable delivery method upon receipt.	1. Identify and track project designated high priority procurements for equipment and services.	Medium

Table 1. Vapors Mitigation Risk Register