



washington **river**
protection solutions



Cartridge Testing Station

Tank Operations Contract
Chemical Protection Program Office Weekly Report
February 23, 2017

Department of Energy Contract NTE 16-TF-0089

1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

CPPO continues supporting the development and review of the *Comprehensive Vapors Action Plan (CVAP)* and the *Hanford Vapors Integrated Safety Management Strategy*.

The CPPO team attended the CVST Chemical Cartridge subcommittee meeting on Tuesday, February 21st where full-face air purifying respirators (FFAPR) was discussed.

This week, CPPO SMEs supported the Modeling DQO subcommittee. Several different modeling applications were discussed. The data required to make use of applications in review include:

- ❖ Source Data (stack, passive breather filter)
- ❖ Concentrations as a function of time
- ❖ Receptor concentrations positioned at worker breathing height at worker location
- ❖ In-farm meteorological information (wind speed , wind direction, temperature, relative humidity)

CPPO SMEs participated in two other DQO subcommittees this week. The ISA 84 methodology subcommittee and the Vapor Sampling meeting. Through the DQO's efforts, WRPS strives to be fully apprised of the specifics to which future data must adhere, ensuring the successful completion of several tank farm projects.

2. CPPO COMMUNICATIONS

The PNNL-Hanford Online Environmental Information Exchange (PHOENIX) Team meeting was held this week where a dry run demonstration was presented of progress on Phase 1 of the project.

Communications with the Workforce

The CVST meeting was held Wednesday, February 22, 2017 from 2 to 4 p.m. at 2704HV/G206. The meetings are open to all employees. The presentation material was prepared by the CPPO Office and covered the Comprehensive Vapors Action Plan, FY15-16 accomplishments and the path forward for FY17-19.

The CVST Chemical Cartridge subcommittee was held on Tuesday, Feb. 21 from 10 to 11 a.m. at 2704HV/D212.

The CVST New Technology subcommittee meeting was held Wednesday, February 22, 2017 from 1 to 2 p.m. at 2740HV/G229.

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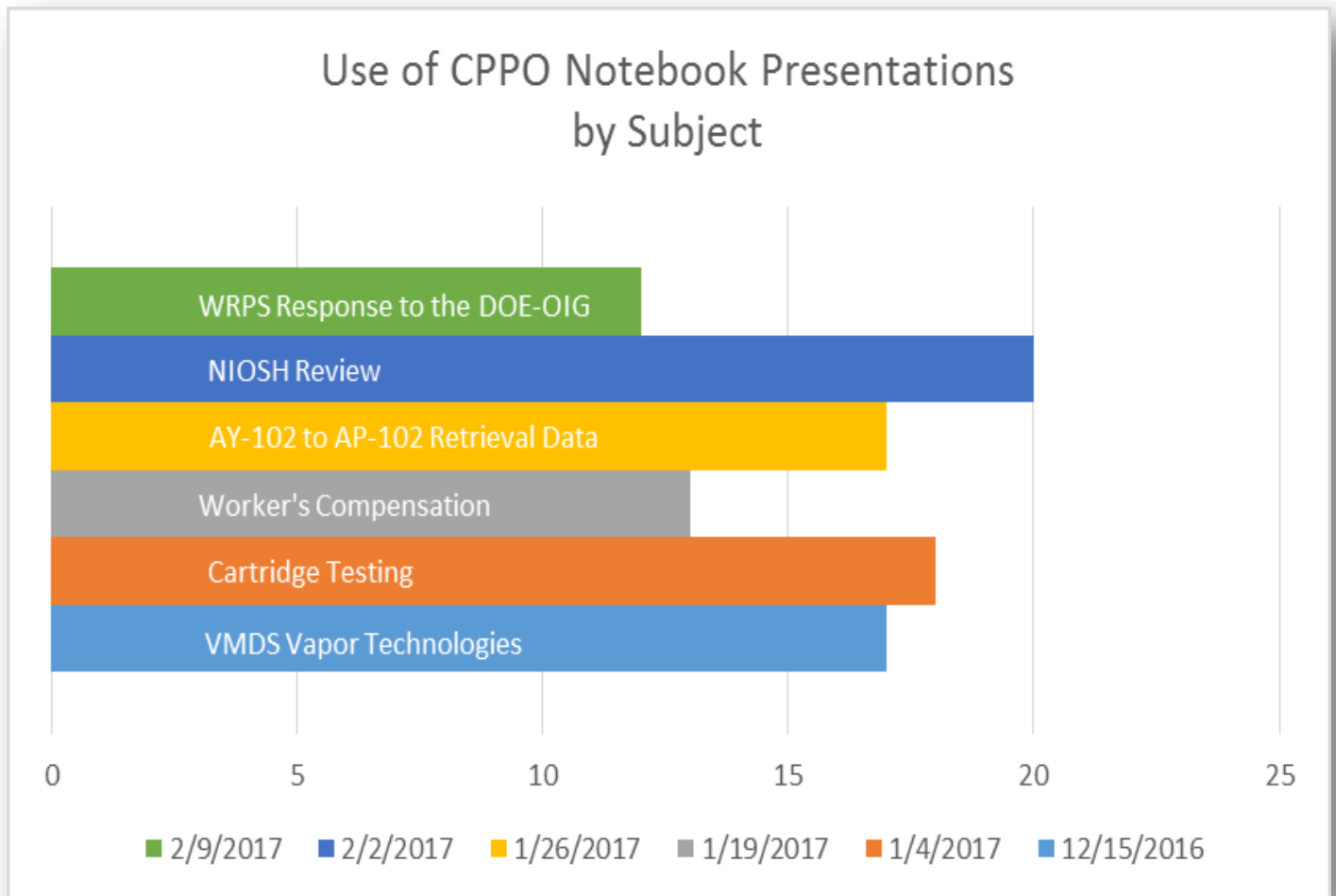
The Hanford Vapors website was updated with a post highlighting the pilot-test of a new event notification system in the AP Tank Farm that will integrate with the tank farm emergency notification systems.

[Event notification system tested at tank farms](#)

3. PERFORMANCE TRACKING

CPPO Notebook Use

The CPPO asks each recipient of the Notebook presentations to tell us if it is his/her intention to use the tool. Through the use of email voting buttons, they reply “yes” or “no.” The responses show that over the past 6 weeks, the Notebook presentations are utilized by an average of 16 managers each week to support vapors related discussions with their teams. It is notable that there were multiple weather related work delays and closings over the course of this time period. This is a lagging indicator as the data show that the material is often shared a few weeks post distribution. The use of Notebook presentation by subject is shown below:



4. TVAT PHASE 1 and PHASE 2 DETAILED STATUS

TVAT Recommendations 1 and 9; Headspace Sampling: A target tank has been chosen for the cartridge test jig comparison, and will begin in late February or early March.

TVAT Recommendations 2, 7, 16; Chemical Plating (Aerosol Study): The Aerosol Study was pushed to FY19 for budgetary reasons.

TVAT Recommendations 3-5; IH Instruments: No update.

TVAT Recommendation 6; IH Personnel Monitor Equipment: C₂Sense is developing a personal ammonia sensor under funding from DOE-EM. Under this contract, DOE requested that WRPS support testing of this device. WRPS is coordinating between C₂Sense and RJ Lee to support prototype testing. The SOW to support prototype testing at RJ Lee's CBAL facility has been approved. The SOW to continue developing the device to the point of commercial production has been submitted to Asset Suite to be approved.

TVAT Recommendation 8; Dispersion Model Review: Meetings were held this last week to further clarify the FY17 modeling project scope. The SOW has been submitted to Asset Suite for approval.

TVAT Recommendation 10; Review/Update Chemical of Potential Concern (COPC) Listing: PNNL remains on track to publish the OEL recommendations for COPCs where regulatory guidance exists by the end of February and high priority COPC OELs by the end of March. The first review of the report is complete. Several issues were raised about reconciling inconsistent regulatory guidance. PNNL is working to resolve these inconsistencies.

TVAT Recommendations 11-13, 15, 17-18; PNNL Health Study Roadmap: A schedule for FY2017 has been developed for the Health Process Project. The project is broken down into seven tasks: 1) Schedule; 2) Establish Tank Operations contractor assessment team; 3) Establish an External Peer Review Health Panel; 4) Implement Routine Analysis and Screening Process for Updating COPCs; 5) Establish Acute/Transient and Chronic Exposure Action Levels; 6) Evaluate Computational Approaches for Predicting Exposure and Delivered Dose; and 7) Database Implementation and Management.

Weekly Accomplishments:

- Task 2: An interim TOC Assessment Committee has been tentatively identified. The first meeting of this committee is currently planned for the week of 2/13.
- Task 3: Currently drafting recommendations.
- Task 4: Continued work on the draft report for the recommended SAP improvements for priority COPCs
- Task 5: Drafting both the OEL(acute) and chronic OEL values; both should be completed this week
- Task 7: Working on task 7005 (Recommendations Tool Development and Testing)
 - Held meetings to obtain feedback on the recommendations tool functionality and discuss the functionality of the COPC determination spreadsheet
 - Completed filling out the PAC and AEGL tables within recommendations tracking data forms
 - Began comparing new content to the content currently in recommendations tracking forms to check for changes/updates
 - Added the functionality for a CAS id; the chemical name is set automatically

TVAT Recommendations 14; Evaluate Medical Surveillance Program: ORP Action. No status.

TVAT Recommendations 19, 20; Toxicology Studies: ORP Action. No status.

TVAT Recommendation 21; Rounds and Routines: The new procedures for IH Rounds and Routines are in workflow for approval. TFC-ESHQ-S_IH-C-62, *IH Rounds and Routines Procedure*, and TF-OPS-IHT-027, *Perform IH Routines*, should be finalized by 3/1/2017.

TVAT Recommendation 22; Acute Bolus Assessment (RJ Lee Group Mobile Lab): The mobile lab has been pulled from field operations to install an ammonia cavity ring down spectrometer and complete the test plan for source apportionment and fugitive emission searches. The Lab will be off-line for the next 3 weeks.

TVAT Recommendation 28; Chemical Vapor Guidance Manual: No update; currently on hold.

TVAT Recommendations 29, 30; Enhanced Training: Enhanced Chemical Hazards Awareness Training (CHAT) training has begun good feedback received from the initial classes.

TVAT Recommendations 32, 36; Bolus Assessment/Medical Stakeholders: ORP Action. No status.

TVAT Recommendation 33; Vapor Monitoring Detection System (VMDS): VMDS Design and Chemical Vapor Quantitative Risk Assessment (Design Agent: Kenexis) –WRPS hosted engineers from Kenexis (January 24-25) who 1) participated in a WRPS cross sectional working group for developing inputs and assumptions aimed at refining the Quantitative Risk Analysis (QRA) of the chemical vapors and sensor placement analysis, 2) presented to management a discussion on the philosophy and process for the QRA and sensor placement analysis. The QRA, when coupled with sensor location, is used to demonstrate the effectiveness of a given VMDS concept. The sensor location(s) are manipulated until the desired VMDS performance is achieved. **Update:** In past weeks, Kenexis has been working on updating the VMDS Design Practice & Philosophy document; it is nearly complete. The draft will be reviewed by the VMDS quorum, which is comprised of a cross-section of WRPS personnel. Kenexis will continue with the project by updating the A Tank Farm Design Basis. The Tank Farm Design Basis will provide a detailed description of the A Tank Farm chemical vapor source terms.

TVAT Recommendation 34; 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.

TVAT Recommendation 35; Cartridge Testing: Cartridge testing summaries are being prepared for release.

TVAT Recommendation 37; IH Improvements Tracking: No update.

TVAT Recommendations 38-39, 41; Management Commitment: No update.

TVAT Recommendation 40; Improve EJTA: No further actions required.

TVAT Recommendation 42; Revise Exposure Letter: No further actions required.

TVAT Recommendation 43; IH Covello Training: **No change in status.** In FY 2016, scheduled multiple risk communication sessions with a nationally recognized risk communication expert, Dr. Vincent Covello. Covello's research on the topic of risk communication was specifically cited in the TVAT report. (According to preliminary

discussions with Paul Gagnon) WRPS is planning another round of training and strategy sessions for select WRPS managers, employees and Industrial Hygiene Technicians and front-line supervisors in FY 2017. Communications & Public Relations has contacted Dr. Covello directly to discuss FY17 Q2 availability. Options will be provided to Industrial Hygiene to coordinate scheduling.

TVAT Recommendation 44; Public Address (PA) System: **No change in status.** The permanent public address system installation design is ninety percent complete. Design work continues on Phases 2A and 2B.

TVAT Recommendation 45; Lab Support/Determination & Development of Similar Exposure Groups (SEGs): No update; currently on hold.

TVAT Recommendations 46, 47; Communications: No update.

5. OTHER VAPOR ACTIVITIES

242-A Ammonia Analyzer Upgrade – 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.

242-A Stack Extension – No update.

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.

Abatement Technologies – As reported last week, an integrated project team was established to study the feasibility of installing a Ventilator Dilution Fan (Strobic Air) on the AW stack. The study was reviewed by ORP whose comments were answered. Minor modification to the feasibility study were made and document continues to move through the approval process. Two abatement technology projects were funded in FY17; they are the Ventilator Dilution Fan (Strobic Air) installation on the AW Stack, and continued development of the NUCON thermal oxidation technology.

- **Ventilator Dilution Fan (Strobic Air Stack Ventilation System):** Tank Farm Projects is leading the design and installation of the ventilation upgrade for the AW stack. A project schedule has been developed and contracting is in process.
- **NUCON International Thermal Oxidation System:** NUCON is developing a novel thermal oxidation process based on the internal combustion engine. Tank vapors are pulled into the engine via the induction system and combusted in the engine cylinders. The tank vapors are destroyed in the combustion process. WRPS is providing support to resolve technology maturation as needed. NUCON is funding the development and proof of concept testing of their thermal oxidizer. WRPS will witness these tests and make recommendations for conducting a pilot scale test on the Hanford site in FY18. WRPS is participating in biweekly project status meetings. NUCON is currently developing a project schedule. They have resolved the issues identified in early testing, but are having difficulty finding some instrumentation to support the proof of concept test. The Proof of Concept tests will be pushed out to mid-April due to instrumentation availability issues.

SCBA Equipment Evaluation – The results of the Phase 2 evaluation are being presented to the Hanford Site Respiratory Committee this week. Pursuant to Phase 3 testing, an order for the Scott NXG7 SCBA cartridge is being processed for approval.

Chemical Vapor Data Quality Objectives (DQO) –CPPO SMEs are participating in several of the sub groups tasked with detailing the data requirements. This week CPPO attended the DQO subcommittee for modeling.

6. VAPORS MITIGATION PROGRAM PLAN - TOP RISKS

CPPO Risk Weekly Update

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

ID/Title	Current Status	Handling Actions	Current Risk Level
VIP-020 222-S Labs Analysis Throughput is Insufficient	222-S Labs is currently experiencing impacts in throughput due to scope transitions to WHL. Funding and personnel transfer issues are contributing the schedule delays.	1. Hire new chemists/engineers to staff lab. 2. Establish alternate laboratories if necessary.	High
VIP-004 Integration with Other Key Projects More Complex than Expected.	Transition to operations/design and install of VMDS systems in tank farms is forecasted to encounter integration risks.	1. Identify key program interfaces. 2. Engage with program/project managers early.	Medium
VIP-024 Equipment design and Current Requirements are Incompatible with Tank Farm Infrastructure	Software and hardware communication issues are expected to continue in the transition to operations of VMDS systems. Tank Farm communication infrastructure may not be able to support expansion of vapor monitoring bandwidth.	1. Identify vapors monitoring infrastructure requires within the tank farms. 2. Start upgrades and equipment installs in order to support vapors monitoring activities.	Medium
VIP-009 Resources not Available when Required.	IH attrition and experienced /qualified positions are difficult to source. Projected need in the future.	1. Identify key technical resources up front and secure availability.	Medium

Table 1. Vapors Mitigation Risk Register – Top Risks