



washington **river**
protection solutions



Strobic Air Ventilators

Tank Operations Contract
Chemical **Protection Program Office Weekly Report**
February 16, 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*. Once the CVAP is finalized, the CPPO weekly report will be restructured to reflect the comprehensive vapors mitigation approach as envisioned in the CVAP.

The CPPO team is a multi-disciplined team, including technical subject matter experts, with proven abilities for effective communication. CPPO Subject Matter Experts (SME) participated in the Integrated Sampling Strategy Data Quality Objective (DQO) kickoff meeting. CPPO SMEs are participating in several of the sub groups tasked with detailing the data requirements, including the Fugitive Emissions/Source DQO Sub team, and the Vapors Sampling DQO input for leading indicators sub team. 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.

CPPO is an active participant in the Health Planning Process (HPP) work group for the identification of chronic and acute Occupational Exposure Limits (OEL) for tank farm work activities. The group focused on the Acute Exposure Guidelines (AEG) and the Emergency Response Planning Guideline (ERPG) levels as related to emergency response activities. The group's overall opinion was that AEGs and ERPGs may be too high for implementation at the tank farms. The group is also looking at the feasibility of implementing the Short-term Exposure Limits (STELs) and ceiling limits used by OSHA and the American Conference of Governmental Industrial Hygienists (ACGIH) for the acute limits. The group is planning to meet again for further discussion on this topic. If the AEG and ERPG are not used for acute exposures, the group is considering referencing them for comparison purposes only.

2. CPPO COMMUNICATIONS

Communications with the Workforce

The Chemical Protection Integration Manager met with the construction team at the end of the shift, and training teams at HAMMER are to provide information and answer questions regarding Hanford vapors and the Chemical Protection Plan moving forward.

The next CVST meeting is on Feb. 22nd from 2 to 4 p.m. at 2704HV/G206. The meetings are open to all employees. Past presentation are available on the [CVST Portal](#) under [Presentations](#).

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

The CPPO team met with the HAMTC Safety representatives on Tuesday, Feb. 14th to identify questions or topics of interest to the work force and prepare related materials to be distributed.

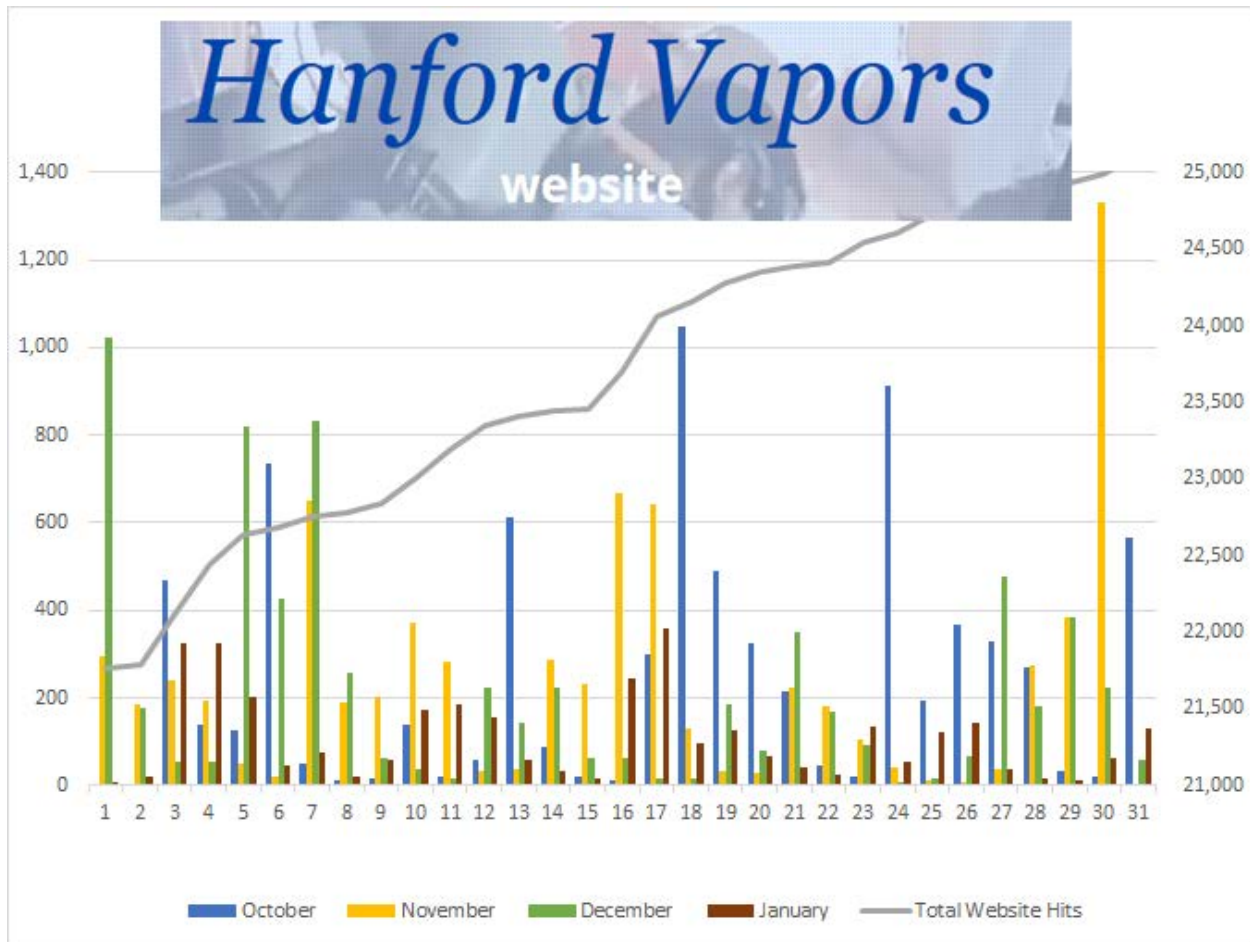
HanfordVapors.com Posts

Under [Reference Materials](#) a new section was added to house the various [Independent Assessments](#) conducted on behalf of WRPS. Specifically, sections summarizing the [TVAT](#) and [NIOSH](#) review of tank farms worker safety and health programs were posted. Additional summaries will be developed for the OIG and EA-32 reports and posted in the near future.

3. PERFORMANCE TRACKING

Website Statistics and Use

The HanfordVapors.com website communicates information, topics and issues involving chemical vapors at Hanford. There were several reports, summaries and presentations posted to the website in January.



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: No change in status. 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 Group to support prototype testing. The SOW to continue development of this device to the point of commercial production has been written and is in review.

TVAT Recommendation 8; Dispersion Model Review: Meetings were held this last week to further clarify the FY17 modeling project scope. The SOW has been rewritten and will be submitted to procurement this week.

TVAT Recommendation 10; Review/Update Chemical of Potential Concern (COPC) Listing: PNNL is 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.

TVAT Recommendations 11-13, 15, 17-18; PNNL Health Study Roadmap: No change in status. 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 3: Currently drafting recommendations.
- Task 4: Reviewing PID response factors for COPCs and a variety of compounds.
 - Reviewing analytical methods and met with the organic analytical team at 222-S.
- Task 5: Met to review draft reports for chronic and acute OELs.
 - Worked on the assessment of high priority chemicals
- Task 7: Working on task 7005 (Recommendations Tool Development and Testing)
 - Modified sections of the recommendations data form
 - Replaced image files with data
 - Uploaded document to show how a recommendation is saved to the library (investigated the options for implementation and have a plan as to how to proceed with adding this functionality to the site)
 - Developed a template for exporting the recommendation reports
 - Converted hyperlinks to buttons in the recommendations and document exchange tools

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 Rounds and Routines procedure was submitted to work-flow for final review and approval with a due date of 3/1/17.

TVAT Recommendation 22; Acute Bolus Assessment (RJ Lee Group Mobile Lab): The mobile lab continues to support waste disturbing activities with the DST to DST transfer. Data from the sixth week of sampling has been submitted to WRPS. RJ Lee submitted a draft schedule showing their plan to complete work identified in the SOW.

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

TVAT Recommendations 29, 30; Enhanced Training: No update.

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

TVAT Recommendation 33; Vapor Monitoring Detection System (VMDS): **No change in status.** 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.

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: Five cartridge reports have been issued to HAMTC to perform the third party reviews. These five reports include AP Exhauster, SY-102, A-101, BY-108, and AY/AZ. An additional cartridge test was completed last weekend in conjunction with the transfer from AP to AY.

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 – 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 Strobic Air Tri-Stack ventilator 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 Strobic Air Tri-Stack installation on the AW Stack, and continued development of the NUCON thermal oxidation technology.

- **Strobic Air Tri-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. They have a plan to resolve this issue and are working to acquire the required instruments.

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 Subject Matter Experts (SME) participated in the Integrated Sampling Strategy Data Quality Objective (DQO) kickoff meeting. CPPO SMEs are participating in several of the sub groups tasked with detailing the data requirements, including the Fugitive Emissions/Source DQO Sub team, and the Vapors Sampling DQO input for leading indicators sub team.

Phase 2 Implementation Plan – The Integrated Project Team (ITP) is providing feedback on the development of the Phase 2 implementation plan currently titled Comprehensive Vapor Action Plan. The completion target date is mid-February.

AY-102 Retrieval - The AP-103 to AY-101 supernate transfer was completed on 2/11. Following the transfer, flushing of a small section of pipe located in the AY-102 pump pit requires addition of a small volume of waste and flush water into the AY-102 primary tank. That flush was completed on 2/13 resulting in addition of approximately 170 gallons of liquid to AY-102.

The AY-102 retrieval system was flushed with water last night as part of final retrieval activities. In total, approximately 700 gallons of water drained into the AY-102 primary tank. While nearly all of the transfer lines and equipment were successfully flushed last night, the activity could not be completed due to an issue encountered while attempting to open the final motor operated valve that directs flow to one of the four sluicers. As a result, the short section of transfer line running to Sluicer 4 has not yet been flushed. The remainder of the flush activity is anticipated to be completed this week and a final remaining waste volume estimate will be provided at that time. As expected, the AY-102 annulus waste level increased following the last primary tank and annulus pumping operations on 1/31 due to drainage of primary tank supernate that could not be removed with the slurry pump. Since that increase, the level has remained stable and further pumping has not been warranted.

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

Table 1. Vapors Mitigation Risk Register – Top Risks