



washington **river**
protection solutions



BX-104 Stack Extension

Tank Operations Contract
Chemical **Protection Program Office Weekly Report**
March 2, 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. In the upcoming months, the CPPO will be leading some key activities aimed at determining vapors communications gaps and areas requiring improvement. In March, CPPO plans on performing a vapors communications effectiveness survey. Additionally, CPPO has begun initial planning with the WRPS LEAN Management coordinator to hold a Vapors Communications LEAN event in late springtime. Results of the Survey and the LEAN event will be incorporated into the upcoming CPPO Workforce Communication plan. CPPO will also be engaging a subcontractor with expert credentials to perform a combined vapors communications and Safety Culture Work Environment (SCWE) assessment. This is projected to occur this summer.

The CPPO continues to review new data from the RJ Lee Group mobile lab in support of website communications. This week, discussions were centered on the data summaries that are delivered to WRPS. The next steps for the mobile lab will be to hook the Proton Transfer Reaction Mass Spectrometer (PTRMS) up to the stack during retrieval operations. This will allow for comparison of Vapor Monitoring and Detection System (VMDS), IH, and mobile lab data coming from the same source at the same time.

2. CPPO COMMUNICATIONS

Center for Toxicology and Environmental Health (CTEH) Director of Toxicology, Dr. John Kind, is supporting Industrial Hygiene's efforts on developing communications and providing training to IH personnel. The topics will include, "the frequently asked question of IH personnel from the field." Dr. Kind and his team will research and develop message maps addressing these questions, and train IH personnel to deliver transparent, clear, and informative responses to their key stakeholders.

On March 2, Chemical Protection Program Manager Rob Gregory briefed the Hanford Advisory Board on various vapors management activities. He reviewed recent progress and outlined next steps in implementing the Hanford vapors strategy. His presentation can be viewed [here](#).

Communications with the Workforce

The CPPO Notebook presentation for the week of February 20, 2017, was *Engineered Controls for Vapors*. Engineering controls are designed to isolate the worker from the hazard. The CPPO Notebook presentation for the week of February 27, 2017, was *FY17 Strobic Air Ventilation Feasibility Study*. The strobic air tri-stack is an induced air flow self-diluting fan. Dilution air is drawn from three sources and mixes with tank vapors.

The CVST meeting held on February 22, 2017, included information on the A-Farm access gate upgrade and the temporary fence line. Additionally, presentations on the Comprehensive Vapors Action Plan and the Hanford Tank Vapors COPC Update were shown. The entire presentation is available on the [CVST Portal](#) under [Presentations](#).

HanfordVapors.com Posts

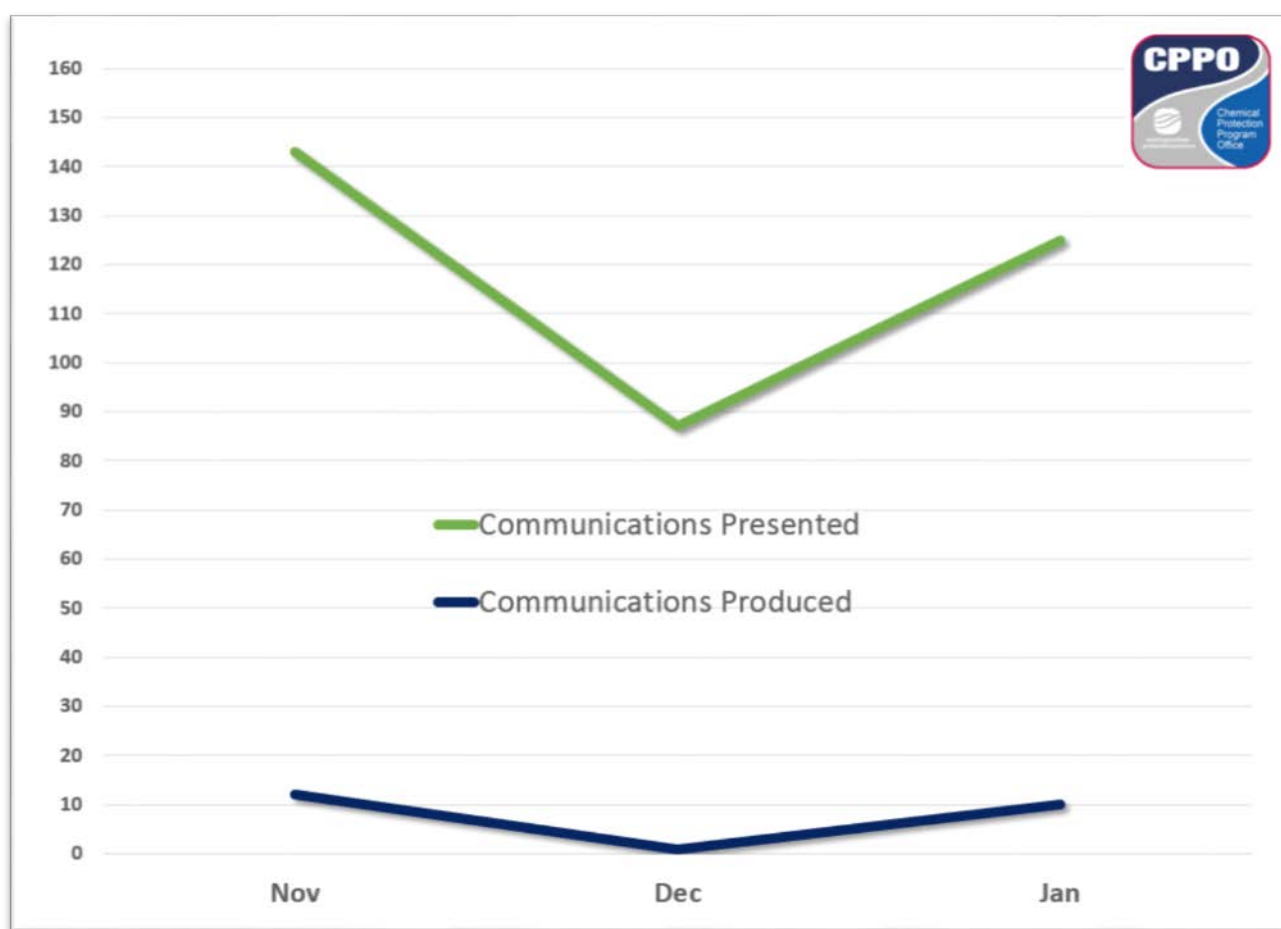
[Vapors Weekly Update – February 23](#)

3. PERFORMANCE TRACKING

CPPO Communications to the Shareholders

The CPPO creates, tracks, monitors, and distributes WRPS's vapors communications with the workforce, stakeholders, and community. Always working towards timely, effective and transparent vapor information exchanges, CPPO tracks vapor communications in several ways. This week, CPPO's performance indicator shows the number of WRPS vapor communications that were produced and the number of those vapor communications that were delivered to the workforce, stakeholders, and community from October 2016 to the end of January 2017.

Figure 1 – YTD FY2017 CPPO Monthly Communication



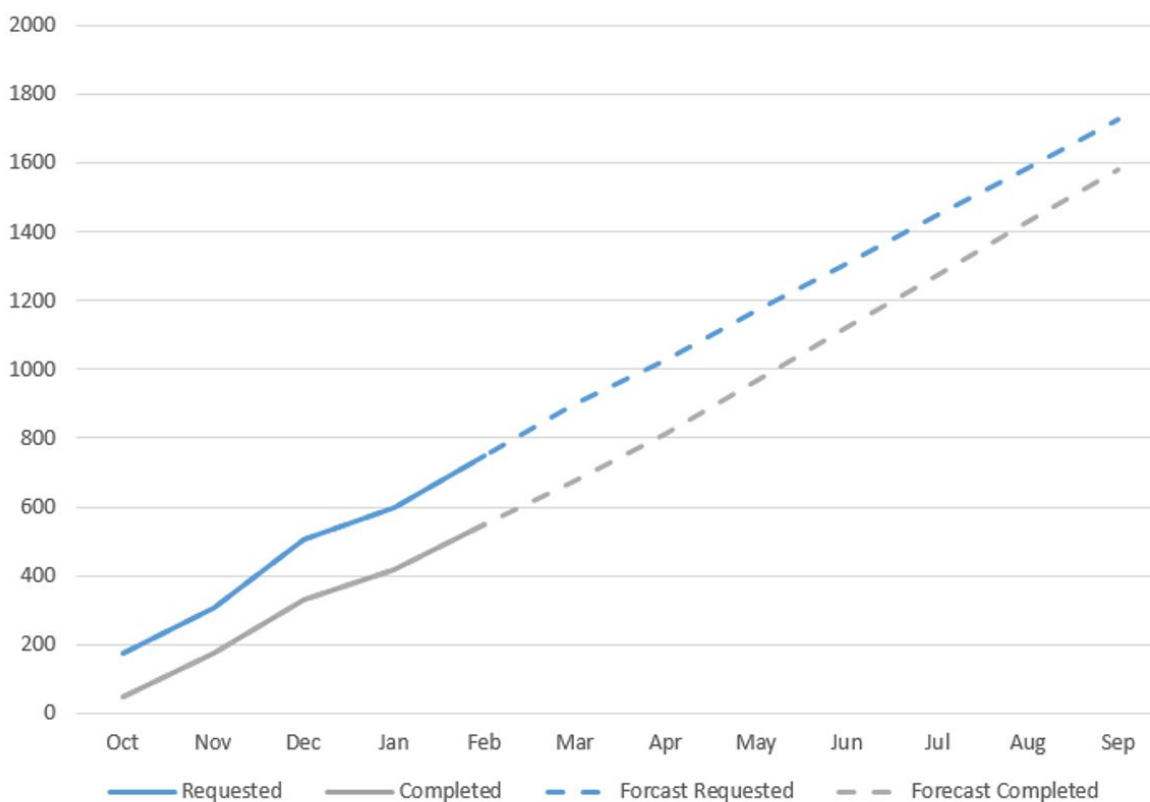
Analysis: CPPO vapor communications include reports, notebooks, articles, and other media. The CPPO on average produces 10 products per month. Vapor communication events, including face to face meetings, tailgates, safety meetings, read receipts, voting buttons, distribution lists, self-reports, material requests, and printed media are tracked as well.

Figure 2 – Vapor related Communications Categories

Request Type:	Medium	Oct	Nov	Dec	Jan	Feb	Grand Total
Communication Metrics	All Employee Email Blast	1		1			2
	All Employee Meeting				1		1
	CPPO (Manager's) Notebook Used			5	41	52	98
	CPPO Reports & Newsletters	1	4	2			7
	CVST Meeting	1	3	2			6
	CVST SubMeeting	3	1				4
	Email Individual Reply	1					1
	ESH&Q Communications			3			3
	Focus Group - Website	1					1
	Information		1			1	2
	Meeting - CVST				4		4
	Meeting - HAB (Hanford Advisory Board) Briefings			1			1
	Meeting/Briefing	38	86	99	40	71	334
	SOEN (Shift Office Event Notification)	1	1		1		3
	Solutions	1	3				4
	Tours	3	8				11
	Vapors Website (External)	4	5	26			35
	Website Analytics	3	1				4
	Website Inquiry - Submitted via website			4			4
	Meeting - CVST SubMeeting					1	1
Data Report	Vapors Website (External)	17	7	2			26
Information	Information			1			1
	Vapors Website (External)		1	1			2
	Website Inquiry - Submitted via website			2			2
Message Map	Vapors Website (External)			1			1
Missing Information	CVST Meeting			1			1
	Internal Website	1					1
	Vapors Website (External)	8					8
Presentation	CPPO (Manager's) Notebook					8	8
	CVST Meeting		1				1
	Presentation Internal	1					1
	Safety Start (Tailgate)		1				1
	Vapors Website (External)				1		1
Report	CPPO Reports & Newsletters	1					1
	Vapors Website (External)	2				1	3
Summary Article	ESH&Q Communications					1	1
	Solutions		1				1
	Vapors Website (External)	6		1			7
TVAT Status	CPPO Reports & Newsletters	2					2
Video	Vapors Website (External)	1					1
Website modification	Focus Group - Website			1			1
	Vapors Website (External)	40		2			42
Grand Total		137	124	155	88	135	639

Analysis: The CPPO uses a multi-use data base which serves as a communication log, a document tracker, and a production metric. CPPO vapor communications include reports, notebooks, articles, and other media. Figure 2 shows CPPO communications in two ways. The data entered under Communication Metric, documents an outgoing information event. The data logged under Data Report and below, is the number of communication documents (presentations, summaries and articles) generated by the CPPO.

Figure 3 – 2017 YTD Number of Communication



Analysis: Figure 3 illustrates the total number of vapor related communications activities that CPPO has been asked to support and the total number of requests that have been fulfilled. The broken lines show CPPO's predicted output for the rest of FY17 based on the current trend.

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. The SOW to continue developing the device to the point of commercial production has been submitted to Asset Suite to be approved. The RFP to support prototype testing at the CBAL facility has been sent to RJ Lee Group.

TVAT Recommendation 8; Dispersion Model Review: **No change in status.** The SOW has been submitted to Asset Suite for approval.

TVAT Recommendation 10; Review/Update Chemical of Potential Concern (COPC) Listing: The Health Planning Process Team met this week. Their focus is unwavering; develop recommendations for new acute and chronic OELs for COPCs and evaluate the screening process used for COPC list determinations. The team continues researching the current COPCs to determine if new OELs have been published by regulatory or science-based agencies, such as The American Conference of Governmental Industrial Hygienists (ACGIH), The American Industrial Hygiene Association (AIHA), The National Institute for Occupational Safety and Health (NIOSH), The Occupational Safety and Health Administration (OSHA), etc. The team expects their research to be completed in the next week followed by a first draft of their recommendations by mid-March.

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: **No change in status.** An interim TOC Assessment Committee has been tentatively identified.
- Task 3: Submitted the External Review Recommendations draft.
- Task 4: **No change in status.** Continued to work on the draft report for the recommended SAP improvements for priority COPCs
- Task 5: Drafting both the OEL (acute) and chronic OEL values with progress noted as follows:
 - Completed the internal review of the OEL assessments for acute and chronic values
 - Continued assessing the high priority chemicals.
- Task 7: Made significant progress on the report generating feature and should have a functioning tool this week; it will still need some troubleshooting and tweaking before it is perfected.

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: **No change in status.** 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): **No change in status.** 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 2 weeks.

TVAT Recommendation 28; Chemical Vapor Guidance Manual: **No change in status.** Currently on hold.

TVAT Recommendations 29, 30; Enhanced Training: **No change in status.** Enhanced Chemical Hazards Awareness Training (CHAT) training has begun and good feedback has been 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: Kenexis submitted a draft Design Practice and Philosophy document and a draft 241-A Tank Farm Basis of Design document. These documents are updated FY16 work, and include comments incorporated from the VMDS quorum meeting held in January. The documents are out for review by the VMDS quorum. A VMDS quorum meeting is scheduled for March 8th to discuss and consolidate comments to these drafts. The final quorum comments will be delivered to Kenexis on March 9th.

TVAT Recommendation 34; Vapor Control Zones/Vapor Reduction Zones (VCZs/VRZs): **No change in status.** 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: A liquid waste transfer between two double-shell tanks (DSTs), AP-103 and AY-101, was completed on February 11, 2017. Chemical cartridge filter testing was performed during the transfer at the receiving tank exhaust stack (702-AZ) in the continuing effort to obtain data on the effectiveness of the cartridges during waste disturbing activities. Upon completion, the collected data will be analyzed and assessed, and a report will be made available.

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 were provided to Industrial Hygiene to coordinate scheduling. Available dates have expired and we will reinstate contact with Dr. Covello to determine new dates.

TVAT Recommendation 44; Public Address (PA) System: 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.

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 – No change in status. 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): No change in status.** 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: No change in status.** 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. It has 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 – No change in status. 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 members of the Integrated Sampling Strategy Project Team. The Integrated Sampling Strategy Project Team formed nine Data Quality Objective (DQO) sub teams which are:

- Technology Maturation
- Technical Basis
- Fugitive Emissions
- Leading Indicators
- Aerosols
- Abatement Design Study
- Environmental Compliance
- ISA84
- Vapor Plume Modeling

Each DQO sub team is tasked with gathering the data requirements needed for successful completion of several tank farm projects. This week, members of the CPPO team presented the first draft of the Industrial Hygiene Tech Basis Revision to the Project Team. Three other DQO sub teams, Leading Indicators, Vapor Plume Modeling, and ISA84 Systems Automation, brought to the project team their data findings too.

6. VAPORS MITIGATION PROGRAM PLAN - TOP RISKS

CPPO Risk Weekly Update

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

This subset of the Vapors Mitigation Risk Register is the same as last week's, and is shown below in **Table 1**.