



washington **river**
protection solutions



All Employee Meeting – January 2017

Tank Operations Contract
Chemical **Protection Program Office Weekly Report**
February 2, 2017

Department of Energy Contract NTE 16-TF-0089

1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

CPPO continues support to the development and review of the *Chemical Vapors Action Plan* 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 team has expert involvement from engineering, tank farms operations and industrial hygiene, as well as subject matter experts on project controls and communications. The multi-discipline team approach allows the CPPO to be involved and engaged in a knowledgeable way with virtually all aspects of vapors mitigation progress and affords the CPPO with the technical understanding that enables streamlining of effective communication developed to address the more challenging questions posed by the workforce as well as effective oversight of vapors related actions.

Dr. John Kind, Director of Toxicology for The Center for Toxicology and Environmental Health (CTEH), joined the CPPO team the last week of January. Dr. Kind is assisting the CPPO in developing comprehensive communication tools to augment the current and future tank farm understanding of vapors related terminology and issues. With a particular emphasis on the site IH worker, Dr. Kind will also support tutoring IH personnel on information delivery with effective terminology and language. With the CPPO team, Dr. Kind is developing physical and electronic materials for the tank farm workers and educators.

The CPPO team attended the National Institute of Occupational Safety and Health out briefing. Major discussion points in the out brief were consistent with the content of the *NIOSH Review of Hanford Tank Farm Worker Safety and Health Programs* report. There was a specific emphasis on the recommendation to focus on engineering controls, in lieu of sampling, to determine if exposure occurred.

This week, the CPPO participated in the design basis meetings with Kenexis. Kenexis is conducting the modeling and instrument placement studies for A Farm. The primary purpose of the project is to help WRPS maximize instrument coverage in the farms where tank vapors have the probability of emission from the passive breather filters (SST).

Members of the CPPO team have been invited to participate in the Integrated Vapors Sampling Strategy data quality objective (DQO) process. This allows the CPPO to participate in the early planning stages of the project, and provide input on the data gathering requirements needed for updates to the sampling requirements and data needs.

The CPPO received additional data from the RJ Lee Group mobile lab this week. The data includes results from December 9, 2016, to January 10, 2017, bringing to the sampling count more than 43 MILLION measurements. The mobile lab has been supporting night and weekend retrieval operations by monitoring for COPC concentrations downwind of the AP stack during the AY-102 to AP-102 transfers.

The CPPO and PNNL continued their collaboration on the PHOENIX Tank Vapor Data Access and Visualization Project. Keeping in mind the shared commitment to prioritize ease of use, meaningful contextualization, and clarity, the participants reviewed and discussed the newest mockups.

The CPPO met with the construction crews involved with the AOP-15 last week in the grout loop area. The CPPO shared the measurements recorded by the VMDS instrumentation installed along the AP fence line and stack, as well as weather data from the meteorological station installed just southwest of the AP stack. The

crew asked many questions about the CPPO and the ongoing efforts to mitigate tank farm vapors and non-tank farm vapors. After the events last week, it was determined that the tile field septic system had been the source of the odors. The field septic system is being evaluated for corrective actions to prevent future events in the grout loop area.

The CPPO has established a weekly information exchange meeting with the HAMTC safety representatives. The meeting will be an informal discussion format.

2. CPPO COMMUNICATIONS with the Workforce

Communications with the Workforce

The PHOENIX Steering team met this week and reviewed the first very basic layout of the Tank Vapors Data Access and Visualization (DAV) tools being developed by PNNL. Ultimately this will have a web interface with the Hanford Vapors website. The goal is to have near real time display of the tank farms monitoring information, including the information in the Site Wide Industrial Hygiene Database (SWIHD) and the Tank Waste Information Network System (TWINS).

The CPPO Notebook presentation for February 6, 2017, will be on the National Institute for Occupational Safety and Health (NIOSH) out briefing, including the recommendations from the NIOSH report.

HanfordVapors.com Posts

[Odors reported east of Hanford's AP Tank Farm](#)

[Odors reported outside of Hanford's AZ Tank Farm](#)

[AY-102 to AP-102 Retrieval Summary Dec. 9-31, 2016](#)

[Vapors Weekly Update – January 31](#)

[New VMDS pilot-scale testing data sets](#)

[UV-DOAS Weekly Report 11/09/16 – 11/16/16](#)

[UV-DOAS Weekly Report 11/16/16 - 11/23/16](#)

[UV-DOAS Weekly Report 11/23/16 - 11/30/16](#)

[Direct Reading Instrumentation Weekly Report 11/09/16 – 11/16/16](#)

[Direct Reading Instrumentation Weekly Report 11/16/16 - 11/23/16](#)

[Direct Reading Instrumentation Weekly Report 11/23/16 - 11/30/16](#)

[OP-FTIR Weekly Report 11/09/16 – 11/16/16](#)

[OP-FTIR Weekly Report 11/16/16 - 11/23/16](#)

[OP-FTIR Weekly Report 11/23/16 - 11/30/16](#)

3. PERFORMANCE TRACKING

One of CPPO’s goals is to monitor WRPS vapors communication efforts with the workforce, stakeholders, and community. This information should be transparent and timely in order to be effective. Figure 1 demonstrates the volume of communication by category. Figure 2 shows the total volume to date with the gap showing the current workload. More details for each category can be found in Figure 3.

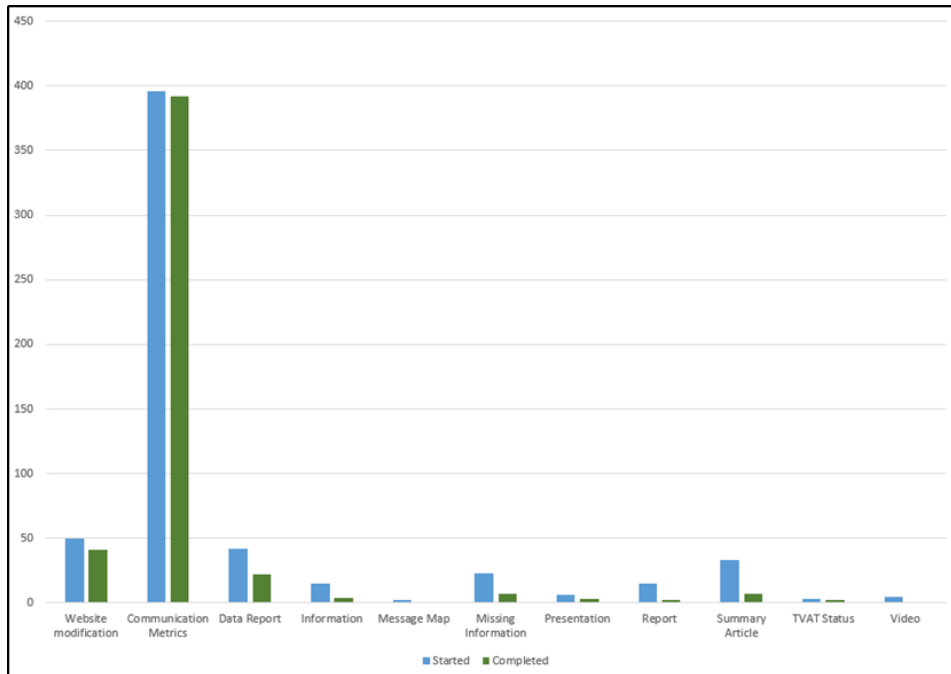


Figure 1 – YTD FY2017 CPPO Communication Lines

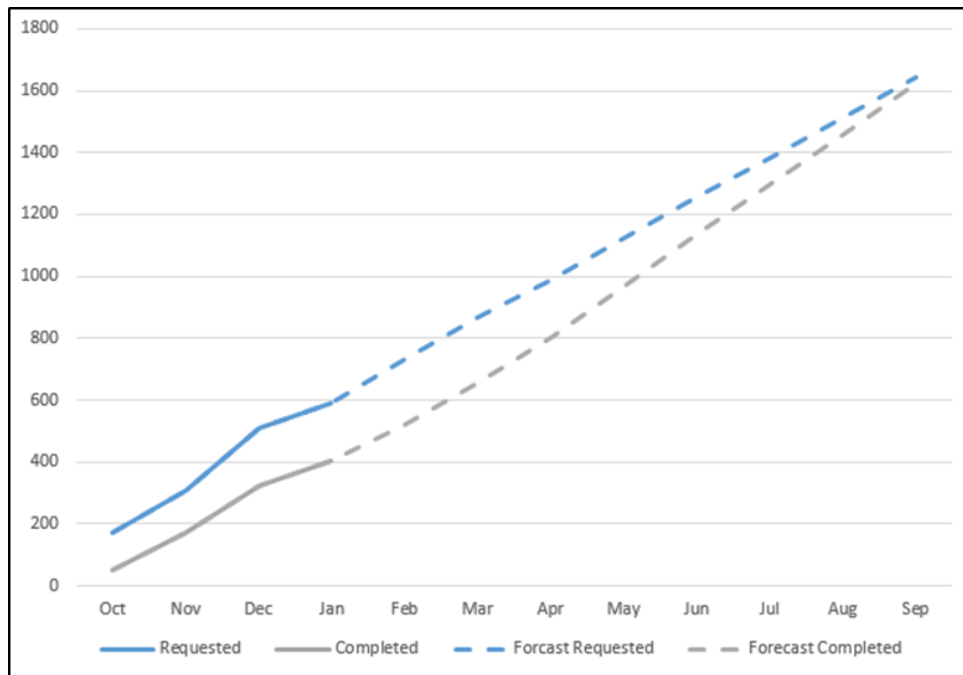


Figure 2 – 2017 YTD Number of Communication

Request Type:	Medium	Oct	Nov	Dec	Jan	Grand Total
Communication Met	All Employee Email Blast	1		1		2
	All Employee Meeting				1	1
	CPPPO (Manager's) Notebook			5	34	39
	CPPPO 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
	Meeting - CVST				4	4
	Meeting - HAB (Hanford Advisory Board) Briefings				1	1
	Meeting/Briefing	38	86	99	42	265
	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
Data Report	Vapors Website (External)	23	9	10		42
Information	CPPPO Reports & Newsletters	1				1
	Fact Sheet		1			1
	Individual Email Response/Reply		1			1
	Information			2		2
	Vapors Website (External)		2	1		3
	Website Inquiry - Submitted via website			7		7
Message Map	Vapors Website (External)			2		2
Missing Information	CVST Meeting			1		1
	Focus Group - Website			4		4
	Internal Website	1				1
	Vapors Website (External)	15		2		17
Presentation	CVST Meeting		1	1		2
	Presentation Internal	1				1
	Safety Start (Tailgate)		1	1		2
	Vapors Website (External)				1	1
Report	CPPPO Reports & Newsletters	1				1
	Information	1				1
	Vapors Website (External)	7		6		13
Summary Article	CPPPO Reports & Newsletters			1		1
	Solutions		1	1		2
	Vapors Website (External)	17	4	9		30
TVAT Status	CPPPO Reports & Newsletters	2				2
	Vapors Website (External)	1				1
Video	Safety Start (Tailgate)		1			1
	Vapors Website (External)	4				4
Website modificatio	Focus Group - Website			3		3
	Vapors Website (External)	42		5		47
Grand Total		174	134	199	83	590

Figure 3 - Communications by Category in Further Detail

4. TVAT PHASE 1 and PHASE 2 DETAILED STATUS

TVAT Recommendations 1 and 9; Headspace Sampling: As reported last week, for FY 2017, headspace sampling is being re-planned after the impacts to the transfer schedule caused by the switch of AP-106 and AW-106. There are only five waste disturbing activities planned so it is critical headspace sampling occurs during these five activities. The IH sample plan has been finalized.

Stack sampling (AP) is currently ongoing during AY-102 retrieval.

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 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 produced last week raised several questions that need to be resolved before the project scope can be finalized.

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: 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: A short list of potential external peer reviewers has been developed.
- Task 4: Continued literature review of sampling and analytical candidate methodologies.
- Task 5: Expect the first draft to be ready for internal PNNL review by the end of this week.
- Task 7: Continued transcribing data from PAC/AEGL images into data forms. Began creating JIRA tasks per the project schedule.

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 the AY-102 retrieval. Data from the fifth week of sampling was submitted on 1/19/17.

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

TVAT Recommendations 29, 30; Enhanced Training: No change in status. Enhanced Chemical Hazards Awareness Training (CHAT) is on schedule for roll out next week. This training will be used as a supplement while the Chemical Worker training modules are developed and rolled out (anticipated summer 2017). Tank Farms training is working on scope and module development of the Chemical Worker training.

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

TVAT Recommendation 33; Vapor Monitoring Detection System (VMDS): WRPS hosted engineers from Providence Photonics (January 23-26) who 1) installed and tested the fixed Optical Gas Imager (OGI, Fixed FLIR), 2) tested the portable OGI integrated with the QPT 100, and 3) held training for WRPS personnel on the methodology and operation of the fixed OGI and QPT 100. The fixed OGI is a permanently mounted OGI that is mounted on the NE corner of the AP Tank Farm. It is configured to autonomously scan the tank farm for chemical vapor plumes that contain ammonia. The QPT100 is an industrial tablet loaded with proprietary software from Providence Photonics that, when paired with an OGI, can determine the emission rate in mass per time for a chemical vapor plume containing ammonia. Providence Photonics presented preliminary results from field testing conducted early in the week demonstrating the fixed OGI could display a plume and plume behavior from an exhauster. The team also demonstrated that the portable OGI with the QPT 100 could estimate the emission rate of ammonia from an exhauster.

TVAT Recommendation 34; Vapor Control Zones/Vapor Reduction Zones (VCZs/VRZs): The Vapor Control Zone (VCZ) procedure is under review. Drafted changes are being incorporated into a single submittal for work flow.

TVAT Recommendation 35; Cartridge Testing: Four cartridge reports have been issued to HAMTC for their review. AP Exhauster, SY-102, A-101, and SBY108 are the named reports.

A draft of the AY/AZ Cartridge Report is being reviewed by WRPS and is pending release.

This weekend, additional cartridge testing is scheduled to be performed during a waste disturbing activity. The test will take place in conjunction with the next waste transfer.

The cartridge testing team initiated a contract with a fabricator to test PAPR and MSA cartridges. The testing unit is expected to be complete in early summer; testing will begin immediately after receipt of the testing unit.

TVAT Recommendation 37; IH Improvements Tracking: No update.

TVAT Recommendations 38-39, 41; Management Commitment: A CVST meeting, held 01/11/17, discussed the new bottle change tent in AW Farm, Worker's comp claims/ Penser North America, Inc., and response to readily apparent or general purpose facility odors. The next CVST meeting is tentatively scheduled for 01/25/17.

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 three contracts are underway for support from Mission Support Alliance (MSA), ARES, and Safer. The conceptual design has been finished for location of the speakers and reader boards in all the farms. ARES is now moving on preliminary design for Phase 2A/2B, MSA continues design and install support for wireless access point, and SAFER is expected to deliver the sound propagation study covering all Phase 2A-D Farms.

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 – The RFP for the 242-A Stack Extension will go out for bid the week of 2/2/2017. The team is looking to award a contract by the end of February.

Leading Indicators - As reported last week, the leading indicator contract has been put in place to continue FY 2017 work. PNNL is developing a schedule and it is expected in February. However, further progress is dependent on availability of headspace, cartridge breakthrough, VMDS, and Mobile Lab data. Little progress is possible until this data becomes available.

Abatement Technologies – No change in status. As reported last week, an integrated project team was established to develop a feasibility study for installation of a Strobic Air Tri-Stack ventilator on the AW stack. This study is complete and will be published by 1/26. Two abatement technology projects were funded in FY17. Installation of the Strobic Air Tri-Stack on the AW Stack and support for further development of the NUCON thermal oxidation technology. Tank Farm Projects will lead the design and installation of the ventilation upgrade for the AW stack with the CTO providing support to resolve technology maturation as needed. NUCON is funding the 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. Assuming a positive outcome of the proof of concept tests, WRPS will begin preparation for the FY18 pilot test.

SCBA Equipment Evaluation – No change in status. Field testing of SCBAs during Phase 2 testing in a non-hazardous setting for approximately two weeks at the Volpentest HAMMER Federal Training Center was completed 12/07/16. The Phase 2 test report is currently drafted and is in the approval cycle. Release of the Phase 2 report in Smart Plant is scheduled for 1/31/17. Phase 3 for ordering the SCBA units and equipment chosen after Phase 2 testing was completed is about to be initiated.

Certification of existing air-line equipment was completed the week of December 19th. Field crews will begin using air-line during single-shell tank and double-shell tank annulus videos in late January/February. This activity will serve as a pilot for determining if other projects can effectively utilize air-line systems across tank farms.

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.

Chemical Vapor Data Quality Objectives (DQO) – As reported last week, WRPS is in the process of assembling a cross sectional team to develop Data Quality Objectives (DQO) to integrate many of the TVAT Phase 1 and 2 data collection activities. By developing DQO for the TVAT activities, the collection of data for each TVAT activity will have improved efficiency and the collection data can then be shared between activities, which will ultimately result in comprehensive data product.

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 stack and fence line monitors have been operating and functioning properly since they were installed and have not shown any issues with reliability. The data they are providing is consistent with the results from IH monitoring and have confirmed where issues with sampling methodology exist during waste disturbing activities. The in tank monitors have had communication and calibration issues that are being worked through and is continually improving.

The mobile lab has collected over 20 million readings during normal and AY-102 Retrieval during the month of December. Throughout January, the mobile lab has continued to conduct monitoring during retrieval operations and WRPS is awaiting those results. The lab has been providing the background levels for both the Hanford site, as well as the Pasco and Richland areas. RJ Lee provides weekly reports of the data that has been collected and also provides time and location information for when levels above background are detected. The lab is sensitive enough to pick up exhaust from vehicles that drive by while it is monitoring.

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-007 Excessive Work Stoppages	Currently inclement weather has caused a significant decrease in work efficiency through safety stand downs due to icy conditions, lost shifts, and cancelled work days.	1. Plan work based on historical data of stoppages.	High
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

Table 1. Vapors Mitigation Risk Register – Top Risks