



washington **river**  
**protection** solutions



*At 7:15 a.m., smoke obscures the sun on Tuesday, September 5, 2017, at 2425 Stevens Center Richland, Washington.*

**Tank Operations Contract  
Chemical Protection Program Office Weekly Report  
September 14, 2017**

## 1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

The CPPO continues to focus on the completion of the Recommendations Table (The Table), finalizing the draft Comprehensive Vapors Actions status dashboard and metrics process, and tracking vapors related Questions & Answers in the CPPO tracking system. The mentoring and engagement activities of the CPPO team members from Center for Toxicology and Environmental Health (CTEH) was placed on hold for a week to focus on developing vapors related educational materials and write-ups.

The Table is the compilation of actions and deliverables generated in response to the recommendations from the National Institute for Occupational Safety and Health (NIOSH), Tank Vapor Assessment Team (TVAT), Office of Inspector General (OIG), Office of Enterprise Assessments (EA-32), Vapors Expert Management Panel (VMEP) and CTEH. The actions have been discussed with the knowledgeable project members and DOE. The actions are being added to the CPPO action tracking/status database, and will be added to the Problem Evaluation Request (PER) system for implementation and tracking.

The CPPO has developed a variety of metrics in anticipation of the draft Comprehensive Vapors Action Plan (CVAP) monitoring dashboard. The metrics are designed to monitor the progress of the draft CVAP Key Performance Parameters (KPP) 1 thru 7. The metrics inform the graphs, charts, and analysis which populate the draft CVAP KPP Dashboard. The dashboard and metrics update processes have been determined. July 2017 data launched the first test of the processes. The team is updating the metrics with August data.

CPPO has begun gathering documents, as requested by the EA-32 team, to support its upcoming scoping visit.

### CPPO Oversight and Tracking

#### **Cost and Schedule**

Several projects supporting the draft CVAP KPPs are currently underway. Delayed procurements are now in place and vendors are ramping up to support a tight schedule.

Year-to-date, \$30.6M (78%) of our revised not to exceed (NTE) value of \$39.1M has been spent. Monthly costs are expected to remain at about \$4 M per month for the remainder of the year. At this rate we expect the NTE to last through October 2017.

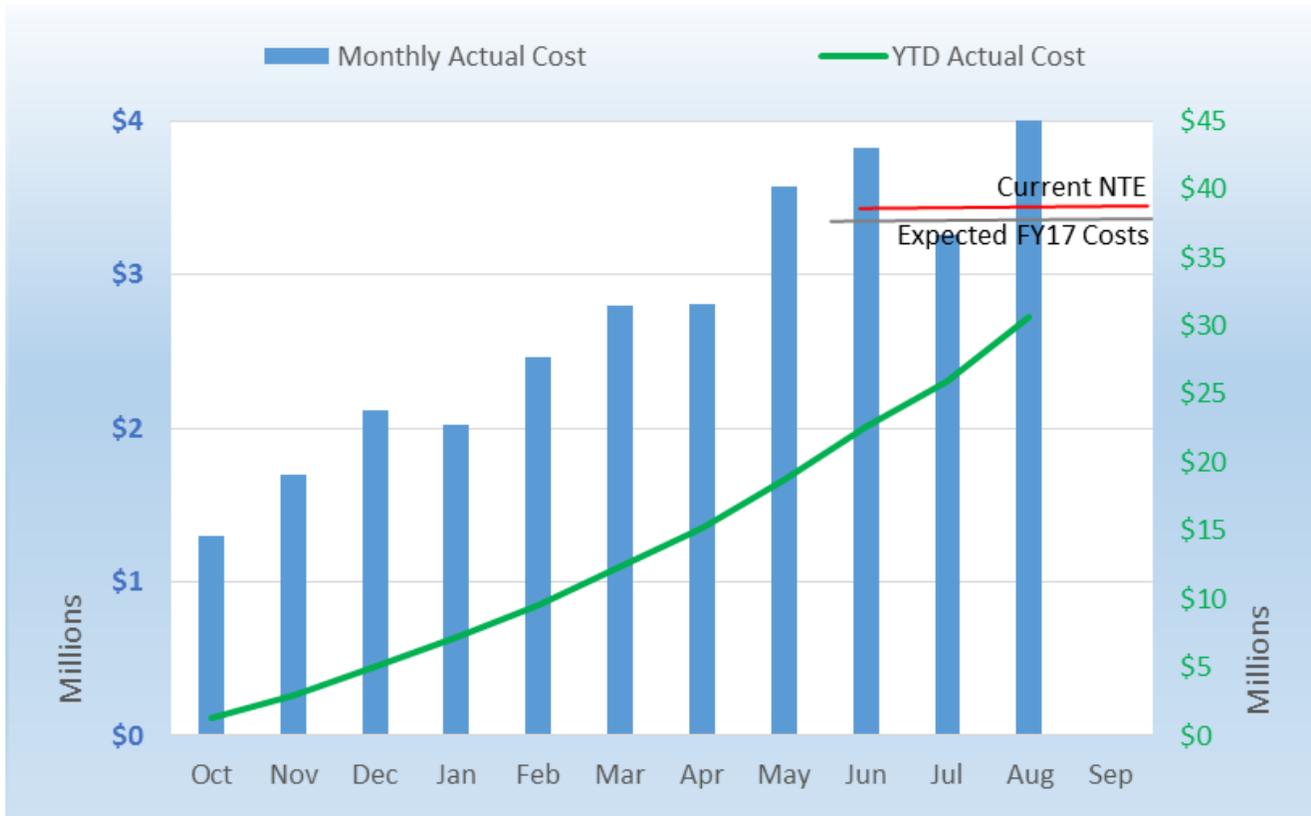


Figure 1. FY17 Projected Costs

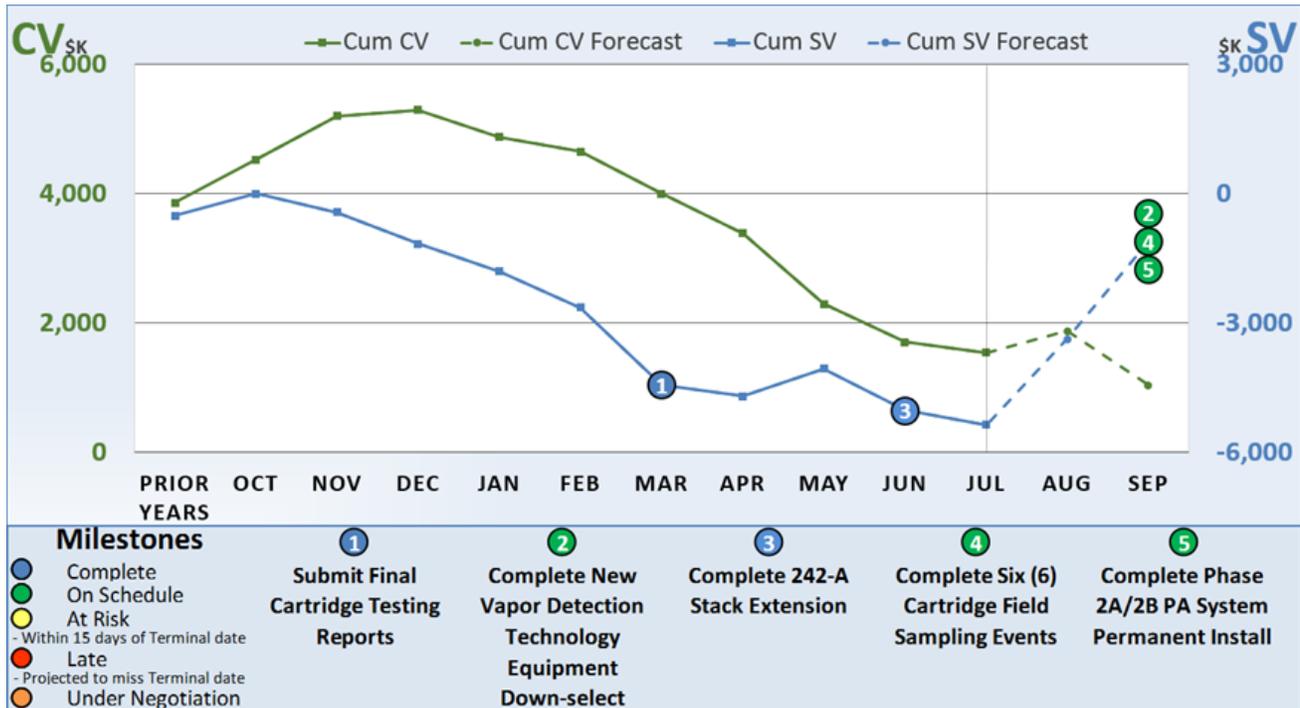


Figure 2. FY17 Cost and Schedule Variances for CVAP

## 2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters

### KPP 1. Engagement and Effective Measurement

#### Chemical Protection Engagement: Center for Toxicology and Environmental Health (CTEH)

The CPPO engagement and mentoring initiatives featuring the team from CTEH continues. There were no field activities last week.

#### Chemical Protection Engagement: Communications

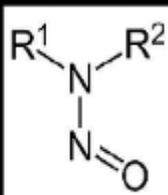
The *Comprehensive Vapor Management Communication Plan* is a requirement of KPP 1 and has received internal and DOE-ORP comments. Comments are being incorporated. Once comments are incorporated, ORP will be provided the document for an opportunity to review the revised plan.

Last week's CPPO Notebook was the first installment of a two part educational series on nitrosamines in the environment. Created by Drs. Kind and Kuhlman from CTEH, the second installment of *Nitrosamines* is this week's CPPO Notebook. CPPO assists WRPS in determining workforce engagement by tracking the use of the Notebook. We ask that the people who use the Notebook please indicate their intention to do so with the voting button option in the email.

**Key Performance Parameter 1**  
Establish a comprehensive vapor management communication plan, engagement processes, and effectiveness measurements.

# Nitrosamines

## Part 2



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Principal Toxicologist

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Toxicologist

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### Hanford Vapors Website Updates

- [CPPO Weekly Report – Sept. 7, 2017](#)
- [Hanford Tank Farm Occupational Exposure and Risk Assessment Plan, PNNL-25791](#)
- [AOP-015 EIR-2017-13](#)
- [AP Stack Weekly Report \(Dec. 28-2016 – Jan. 4, 2017\)](#)
- [VMDS Weekly Report \(Feb. 22 - March 1, 2017\)](#)
- [VMDS Weekly Report \(March 15-22, 2017\)](#)
- [Mobile Lab Monthly Report - January 2017](#)

### Chemical Protection Engagement: Data Access and Visualization Tool (DAV)

**Last update 9/7/2017:** The Data Access and Visualization (DAV) Tool is complete. The web-based data explorer application was built and deployed by Pacific Northwest National Laboratory (PNNL) to:

- Provide users with access to historical and current tank vapor sampling and monitoring results.
- Provide intuitive visualizations of relevant data and contextual information
- Avail the data to the user with little technical background, and allow the more technically sophisticated user to drill down to detailed content.

The DAV tool is complete, and will be introduced to the workforce through the CVST and the CPPO Notebook, and will be deployed to the HanfordVapors.com website.

## 3. KPPs 2 and 3. IH Technical Basis and IH Program

### Develop New or Revised Chemicals of Potential Concern (COPC)/Occupational Exposure Limit (OEL)

**Last update 9/7/2017:** WRPS, TerraGraphics and Dade Moller continue their work of RPP-22491, *Industrial Hygiene Chemical Technical Basis*. All draft procedures for the manual have been received from the sub-contractor. The IH department has established a review group of both field and program personnel. The Office of River Protection (ORP) is reviewing and commenting on the procedures concurrently with the IH department. Once through review, the procedures are forwarded to the procedures group. Weekly status meetings continue to be held to ensure the sub-contractor's direction is consistent with the expectations of IH management. Several of the procedures will be ready for the procedures group next week.

#### 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.

### Institutionalizing the Vapors Program with the IH Program Requirements

The Tech Basis and COPC update are expected to be finalized by the end of FY17.

### Health Process Plan

**Last update 9/7/2017:** The project is broken down into seven tasks. Last week's accomplishment include:

- Task 1: Schedule: Complete.
- Task 2: Establish Tank Operations Assessment Team.
- Task 3: Establish an External Peer Review Health Panel.
- Task 4: Implement Routine Analysis and Screening Process for Updating COPCs.
- Task 5: Establish Acute/Transient and Chronic Exposure Action Levels.
  - Chronic OELs regulatory and furans reports have been updated.
  - For nitrosamine report, comments have been addressed but need to be reviewed prior to transmittal. Expect transmittal week of September 8.
  - Acute Regulatory Report internal review in progress, expect transmittal by September 11.
  - Nitriles: awaiting comments
- Task 6: Evaluate Computational Approaches for Predicting Exposure and Delivered Dose.
- Task 7: Database Implementation and Management.

#### **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.

### Database Implementation and Management

In FY16, PNNL developed a database to review and update the COPC list and associated OELs.

### Leading Indicators

**Last update 9/7/2017:** The accomplishments as of August 31 are:

- Investigated PTR-MS data for COPCs with no analysis on FY16 report due to lack of available data
- Continued developing macros to prepare PTR-MS data sets (current and future) to be used within R-code

#### Parity Implementation with Established Programs

**Last update 9/7/2017:** Chemical Worker Tier 1 training is complete. It is in its final review stage, and should be listed on the WEB as a training option by September 7. Chemical Worker Tier 2 is currently being formatted for use in computer based training (CBT). The Tier 3 Chemical Worker Training is being developed concurrently with Tiers 1 and 2. The Chemical Worker 3 Team held a meeting on August 31. Comments from this meeting are being incorporated. Tier 3 training is slated for completion by the end of FY17. The rollout of a Tier 3 pilot class is on track for the first week of October. The Industrial Hygiene Fundamentals class is on track to have four modules ready for its pilot presentation at the Volpentest Hammer Federal Training Center (HAMMER) 20 year anniversary celebration on October 2, 2017. The other four modules of the IH Fundamentals class will be finalized after HAMMER's anniversary celebration.

### **KPP 4. Engineering Controls**

#### Exhausters

**Last update 8/31/2017: SY-Farm** Efforts to design the exhauster system are on-going, with only a few Engineering Change Notices requiring approval. Project management is on track to complete the design by the middle of September. Permission was provided to restart site mobilization activities. **Update: A-Farm** The exhauster factory acceptance test is scheduled to be completed the week of September 11. The design to re-locate the exhauster pad was awarded the week of August 14, and design efforts have been started. The design is currently scheduled to be completed by this December. **AX-Farm:** Evaluations of the demister video were completed last week, and options to determine a path forward are on-going.

**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

#### AW Stack Extension

**New Item:** After further review of the planned Strobic Air scope on the AW exhauster, WRPS and ORP agreed that designing a stack extension is more efficient than retro-fitting AW Stack to accommodate the Strobic Air Dilution Fan. To date, efforts have begun on the 30% design package. A mobile, skid-mounted Strobic Air dilution Fan will be procured for testing.

#### Strobic Air Dilution Fan

**Last update 9/7/2017:** The specification for factory accepted testing (FAT) was approved in SmartPlant, while the draft statement-of-work (SOW) for Strobic to support the FAT is still being routed for approval.

## ✦ NUCON Thermal Oxidation Vapor Abatement Unit (VAU)

**Update:** The following activities occurred last week:

WRPS:

- Completed the bench-scale activities site selection report and awarded it to PNNL.
- Met with senior management to review COPCs planned for bench-scale testing.

TerraGraphics:

- Received comments on the Bench-Scale Design Report, which is being developed to support bench-scale activities. Comments are due the week of September 11, 2017.
- Participated in a walkdown with PNNL to define electrical upgrades needed to support bench-scale work and to finalize the site layout.

PNNL:

- Performed the following activities in support of the bench-scale tests:
  - Completed electrical service request and electrical design walkdowns for the site's power center.
  - Started Phase 1 Test Plan development.
  - Started selection of the COPCs to be tested.
  - Started vendor evaluation of simulant gas suppliers.
  - Started air permit calculations.
  - Completed project kick off meetings.
  - Submitted PNNL schedule for Phases 1, 2 and 3.

NUCON:

- The Vapor Abatement Unit was shipped from the NUCON facilities in Columbus, Ohio, and is in transit to PNNL. Delivery is expected the week of September 11, 2017.



**Figure 3. NUCON Vapor Abatement Unit (courtesy G. Weeks).**

## KPP 5. Administrative Controls and Monitoring

### Permanent Installation of Vapor Monitoring and Detection System (VMDS) Equipment in A and AP Farms

**Update:** The events of last week include the following:

- The viability assessment for the ultraviolet Fourier transform infrared spectrometer (UV-FTIR) was completed, while the viability assessment of the open path Fourier transform infrared spectroscopy (OP-FTIR) is still being prepared.
- Efforts continue on finalizing the schedule for completing the turnover of the AP-Farm UV-FTIR stack monitor.
- Efforts to start Phase II equipment testing are underway and is scheduled to start the week of 9/11.
- The Pilot-Scale Phase 2 Report is developing, and still scheduled to be completed in late September to early October.

#### 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-in-depth.

### Stack and Boundary Monitors

**Update:** Formal reviews of the AW, AN, and AZ preliminary stack designs were started this week. Approval of the final design packages are scheduled for the week of September 18.

### Establishing Safe Unrestricted Boundaries

**Last update 8/24/2017:** Quantitative Risk Assessments for A, AP, and AW-Farms are in review. Comment resolution is in its very early stages.

### Public Address System

**Update:** Work focused on performing electrical tie-ins for the A-Farm complex and preparing for radio installations at A, AX, AY, AZ, AN and AY Farms. In addition, preparations were also made to receive and install the Guardian CentrAlert units that will be installed in the shift offices and maintenance shops.



Figures 4. Public Address System on AN Farm – August 2017



## KPP 6. Tank Operations Stewardship

### Pilot SST Stewardship Program

**Last update 8/31/2017:** FY15 LEAN Report/Work Location Evaluations: A draft SOW is being routed for review and approval to procure engineering services needed to prepare the *Project Execution Plan*.

#### 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.

## KPP 7. Hierarchy of Controls

### Cartridge Testing and SCBA Alternatives

**Last update 8/31/2017:** Cartridge testing at AX Farm was conducted August 25-26. This will complete the cartridge testing at AX farm. No further testing is planned for the rest of FY 2017.

### Mobile Laboratory

**Update:** Continued compiling data from recently completed background sampling. This data is being used, along with other background and waste disturbing data collected throughout the year, to prepare a report summarizing mobile lab activities performed during the year.

#### Key Performance Parameter 7

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

### Personal Vapor Monitor

**Update:** The C2Sense Personal Ammonia Monitoring System continues to evolve. Data collection began last week using the recently completed prototype device. This data is being used to support an upcoming prototype test at the RJ Lee facilities in Pasco, Washington.



Figure 5. Wearable Ammonia Analyzer (courtesy G. Weeks)

### KPP 8. Medical Support

The scope of KPP-8 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.

## 4. Vapors Mitigation Program Plan - Top Risks -CPPO Weekly Update

**Last update 8/24/2017:** The subset of the Vapors Mitigation Risk Register this week is shown in **Table 2**.

**Table 1.** Vapors Mitigation Risk Register

CVAP ID Number	Current Status	Handling Actions	Current Risk Level
023 Internal Reviews take longer than anticipated.	Internal reviews are due Sept 17, leaving no float for delays and large amount of work for reviewers.	1. Assign expediter to the project to speed process - complete	High
009 Resources not available when required.	Lack of design and engineering resources are causing delays in VMDS System Integration, 242-A Stack Extension.	1. Identify key technical resources up front and secure availability. 2. Utilize resource loaded schedule where appropriate. 3. Coordinate work planning to streamline resource utilization.	Medium
004 Integration with other key projects more complex than expected.	Integration of field work for VMDS implementation and associated execution concerns for SY, A-Farm, and AW stack upgrades. Installation and turnover of PA system to tank farm operations.	1. Identify key program interfaces early. (Ongoing) 2. Engage with program/project managers early. (Ongoing) 3. Maintain weekly communication and IPT meetings. 4. Incorporate instrumentation (stack monitor) installation into future design of equipment.	Medium