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WRPS provides a tour of the Vapor Monitoring and Detection System demonstration

**Tank Operations Contract
Chemical Protection Program Office Weekly Report
July 13, 2017**

1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

CPPO continues to develop metrics to support a Comprehensive Vapors Action Plan (CVAP) monitoring dashboard. Metrics addressing KPPs 1 thru 7 are nearing completion, and are in various stages of development and review.

CPPO continues to collect and deposit vapors communications into the CPPO Library and IDMS.

WRPS has contracted Oak Ridge Associate Universities (ORAU) to perform a safety culture survey. The survey will be conducted in July. The study will provide valuable information regarding communication on vapors, the perceived validity of the communications, and the methods used for communicating the information. CPPO had the opportunity to add questions to the survey specifically to assess the vapors issues with personnel in this context. WRPS is looking forward to the results of ORAU survey.

CPPO Oversight and Tracking

Cost and Schedule Metric

Several projects supporting the draft Comprehensive Vapor Action Plan (CVAP) KPPs are currently underway. Delayed procurements are now in place and vendors are ramping up to support a tight schedule. Year-to-date, \$22.6M (90%) of our revised not to exceed (NTE) value of \$25M 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 will hit our NTE value by July 2017. Contracts and ORP are working on an increasing the NTE. An increase to \$50 M will provide budget through December 2017. It is anticipated that we will meet our target of \$33.7M by the end of the fiscal year.

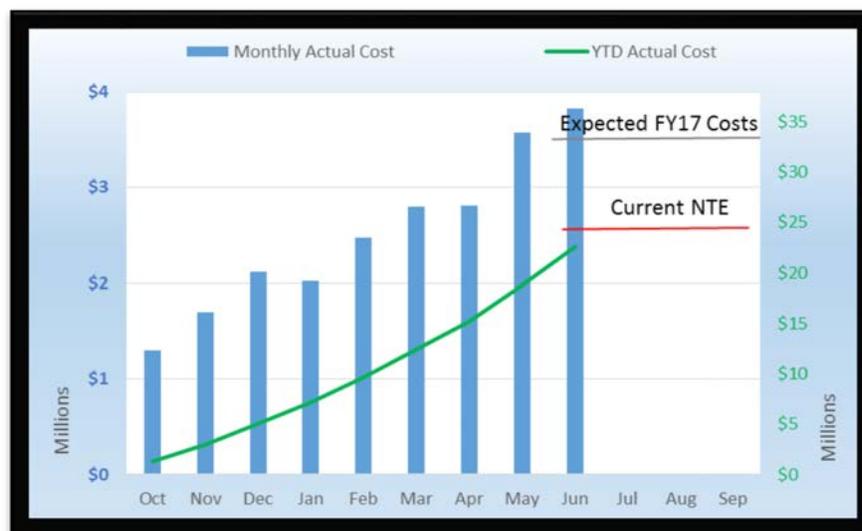


Figure 1. FY17 Projected CVAP Costs

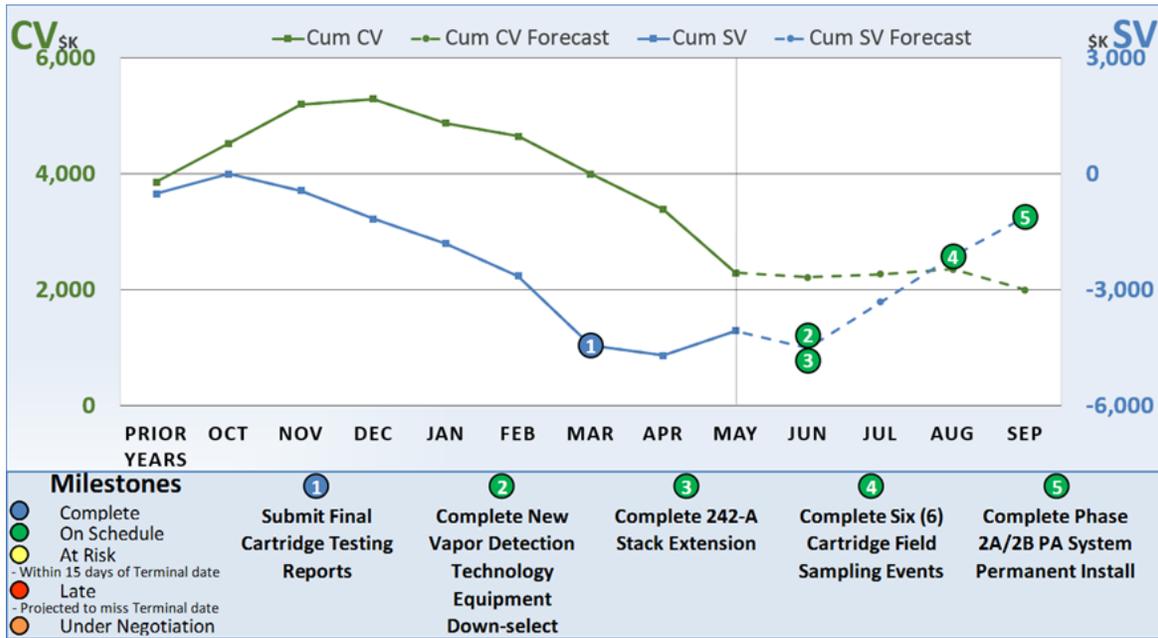


Figure 2. FY17 Cost and Schedule Variances for CVAP

2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters

KPP 1. Communications

Chemical Protection Communication

There are currently two vapors related communication plans in development. The *Comprehensive Vapor Management Communication Plan* is a requirement of KPP 1. The *CVAP Communication Plan* is a focused plan for communicating the content of the CVAP. Both plans are currently being drafted. They include actionable recommendations from the communication effectiveness measurements, as applicable.

The CPPO Notebook titled *Human Odor Perception and Chemical Exposures, Part 5*, was published on June 29, 2017. To date, 16 recipients of the Notebook indicated their intention to present the material to their staff. This week's CPPO Notebook is titled *Vapor Monitoring and Detection System (VMDS) Equipment Selection*. The presentation gives an update on the VMDS equipment that is currently being tested at A and AP Farms, and discusses the equipment that will be removed.

Key Performance Parameter 1

Establish a comprehensive vapor management communication plan, engagement processes, and effectiveness measurements.

This week's Notebook on VMDS equipment selection is one of several communications generated by CPPO to inform the workforce that equipment is being removed from the farm. *Update on testing for the Vapor Monitoring and Detection System (VMDS)* was delivered on May 25, 2017; a presentation on VMDS equipment removal was made at the June 12, 2017, CVST meeting; and a *Solutions* article was published in Issue 397/June 26, 2017. CPPO is the primary contributor on an upcoming *Solutions* article on VMDS equipment removal as well.

Hanford Vapors Website Updates

There were no Hanford Vapors Website posts the week of July 3, 2017.

Data Analysis and Visualization Tool (PHOENIX)

Update: The team is in its final week of collecting feedback from the DAV tool pool of software testers; full-scale testing began on June 8, 2017. The system is on schedule to go live at the end of September.

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 7/6/2017: Updates to RPP-22491, *Industrial Hygiene Chemical Vapor Technical Basis*, are underway. An outline of the revisions has been developed, and a list of the changes was submitted for IH management review, including a revised COPC listing based on recommendations from PNNL. The Tech Basis and COPC update are expected to be finalized by the end of FY17.

Institutionalizing the Vapors Program with the IH Program Requirements

Last update 7/6/2017: The Tech Basis and COPC update are expected to be finalized by the end of FY17.

Health Process Plan

Update: A schedule for FY2017 has been developed for the Health Process Plan. The project is broken down into seven tasks:

- Task 1: Schedule: Complete.
- Task 2: Establish Tank Operations Assessment Team. An interim TOC Assessment Committee has been tentatively identified. Developed a charter for the Assessment Team.

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.

- Task 3: Establish an External Peer Review Health Panel. Recommendations have been adopted into an internal procedure that has gone to ORP for concurrence.
 - PNNL submitted suggested names for the External Expert Panel to replace previously suggested names currently on the VMEP.
 - The review team's scope of work and sub-contracting are in process.
- Task 4: Implement Routine Analysis and Screening Process for Updating COPCs.
 - The draft sampling and analytical recommendation report completed internal review.
 - A draft of the COPC report update is undergoing WRPS review.
- Task 5: Establish Acute/Transient and Chronic Exposure Action Levels.
 - The team met to complete deliberations on the mixtures dosimetry and modeling report. A timeline and next steps was agreed upon.
 - The team met to finalize the approach for TEC derivation, assigned responsibilities, established a timeline, and set up a review meeting.
- Task 6: Evaluate Computational Approaches for Predicting Exposure and Delivered Dose.
 - No new status.
- Task 7: Database Implementation and Management.
 - No new status.

Database Implementation and Management

Update: In FY 2016, PNNL developed a database to review and update the COPC list and associated OELs. See the Health Process Plan for the latest update.

Leading Indicators

Last update 7/6/2017: For the past few months, the Leading Indicators team focused on supporting the integrated vapors data collection data quality objective (DQO) process. See the Health Process Plan for this week's update.

Parity Implementation with Established Programs

Last update 7/6/2017: Chemical Worker Tier 1 training has been reviewed and is in the process of being coded for computer based training for use in HGET. Additional feedback and comments will be included in final product prior to release. Chemical Worker Tier 2 has had the storyboard created and is currently under review by the Training review team (IH, Management). Chemical Worker Tier 2 is being designed to address facility specific issues and applications with a target audience of

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.

those individuals who work around the tank farms but will not enter them. Chemical Worker Tier 2 & 3 are being developed concurrently, and are scheduled to be in place by year end, however the current focus is on completing and implementing Tier 1.

Other Items:

Enhanced Chemical Hazards Awareness Training continues to be well received. Over the last 3 months (April-June), 5 initial classes and 9 refresher classes have been taught.

An accelerated training plan has been created for the new 35 IHTs that will be coming on board. The first group's orientation was held July 3, 2017.

New IH professionals are coming on board to help IH Programs as needed with the Chemical Vapors.

IH Programs has brought on an intern that is helping to review procedures for inclusion in the next phase of the IH Manual (FY18).

IH Rounds & Routines procedure has been streamlined to be more efficient and is now under final review prior to implementation.

KPP 4. Engineering Controls

✚ 242-A Evaporator Stack Extension

Update: The installation is complete, and the new stack is functional and operational. Future activities include re-torquing the assemblies after the upcoming evaporator campaign has been completed.

✚ Exhausters

Last update 7/6/2017: Design efforts are continuing. Meanwhile, bids for the construction sub-contract were received and reviewed; technical evaluations were prepared.

✚ Strobic Air Dilution Fan

Update: Strobic continues to develop the preliminary AW Farm fan design and estimate. Last week, the Strobic technical specifications were reviewed by WRPS.

✚ NUCON Thermal Oxidation Vapor Abatement Unit (VAU)

Update: The following activities occurred last week:

- WRPS provided additional comments to TerraGraphics on their draft work plan.
- WRPS submitted comments to NUCON on their proof-of-concept test report.

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

- TerraGraphics continued incorporating WRPS comments on the functions and requirements document needed to support upcoming testing activities.
- TerraGraphics continued preparing the demonstrations site selection report.

KPP 5. Administrative Controls and Monitoring

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

Update: Based on the test results to date, WRPS determined the viability of the VMDS equipment. Equipment will be removed from the A and AP Farms based on these results. The equipment removal strategy is based on whether the VMDS components fall into one of the three categories. They are listed below. The specific equipment that applies to each category is identified in parenthesis.

- Non-viable for the final VMDS (RAE Units, SKC Haz-Scanner, Gastronics Fixed Instrument Skid [nitrous oxide sensor])
- Viable for the final VMDS with additional engineering modifications (Autosamplers, Lufft Meteorological Station, Gastronics Fixed Instrument Skid [ammonia and volatile organic compound sensors])
- Viable for the final VMDS based on current configuration (OP-FTIR, UV-DOAS, UV-FTIR, Coastal Meteorological Station).

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.

The CPPO organization started efforts on a presentation, due for release to the workforce the week of 7/17, which provides an update on the VMDS equipment selection process.

Stack and Boundary Monitors

Update: Efforts continue on preparing the design packages for the AN, AW and 702AZ stack monitors.

* The CPPO 3rd Quarterly Summary reported that design efforts were initiated with Cerex on a preliminary design for the ultraviolet Fourier transform infrared spectrometer (*UV-FTIR*) units that will be installed on the 702AZ and AN-Farm stacks. **IN FACT, units will be installed on the AW stacks. Installation is complete on the AP stack.**

Establishing Safe Unrestricted Boundaries

Update: The following activities occurred last week:

- Efforts continued on the Air Pollutant Graphical Environmental Monitoring System Software Quality Assurance Plan.
- Evaluations continued on the dispersion plume models.
- Initiated reviews of the air dispersion modeling report.

Public Address System

Update: The excavation and burial of the conduit is complete in AW Farm as of last week. Crews re-located to AN Farm to support excavation and conduit burial activities, which are expected to start the week of 7/10. Crews also setup last week to support concrete pours in both AW and AN-Farms for the sonotube installations supporting the PA system pole mount units.

KPP 6. Tank Operations Stewardship

Pilot SST Stewardship Program

Last update 7/6/2017: Started efforts for purchasing level and temperature equipment needed to support TY-Farm mock-up activities. The purpose of the mock-up activities is to demonstrate that the equipment can be integrated with the existing tank farms systems.

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

Update: The Third Party reviewing cartridge testing, Stone Turn Consultants (STC), convened in Chicago the week of June 12, and several members visited the site the week of June 26. Initial feedback from meetings with STC appear to be very promising for near term use of air purifying respirator/powerful air purifying respirator (APR/PAPR) in lieu of self-contained breathing apparatus (SCBA) in ventilated farms. A mockup test of airlines was performed at HAMMER the week of June 19, and additional personal protection equipment (PPE) improvement with SCBA is planned for July and August. A draft report for the compilation of all cartridge testing in FY16 was provided to WRPS by Pacific Northwest National laboratory (PNNL) and is in review.

Key Performance Parameter 7

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

Mobile Laboratory

Update: Last week's activities consisted of performing routine day shift monitoring throughout the site.

Personal Vapor Monitor

Update: The latest mechanical design for the wearable device was completed (see photo below). In addition, network security and firewall constraints for the project were discussed with C₂Sense.



Figure 3. The latest C₂Sense wearable device

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

The subset of the Vapors Mitigation Risk Register this week is shown in **Table 1**.

Table 1. Vapors Mitigation Risk Register

CVAP ID Number	Current Status	Handling Actions	Current Risk Level
009 Resources not available when required.	RJ Lee Group management of critical technical vendor may result in loss of resources necessary to analyze data used for laboratory studies. Affecting KPP 2, 3, & 7.	<ol style="list-style-type: none"> 1. Identify key resources up front and secure availability. 2. Meet with subcontractor to stabilize situation and retain necessary resources. 	High
032 Litigation requires legal scrutiny of communications with workforce.	Ongoing litigation is impacting the communication of planned vapors program activities to be released. Currently the risk is realized and ongoing.	<ol style="list-style-type: none"> 1. Continue to prepare communication documents and releases 2. Coordinate and communicate with WRPS legal team early and often. 3. Communicate all allowable data and information to the workforce in lieu of vapors program plans. 	High