



*EIR-2017-024; Investigation of 285-A,
AOP-015 Event
WRPS-PER-2017-1272,
Pictures of Possible Odor Sources*



Event Investigation Reports are on Hanfordvapors.com

Tank Operations Contract
Chemical **Protection** Program Office Weekly Report
November 9, 2017

1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

The revised draft Comprehensive Vapors Actions status dashboard reflecting fiscal year 2018 scope has been drafted. The dashboard is designed to monitor the progress of the draft Comprehensive Vapors Action Plan (CVAP) Key Performance Parameters (KPP) 1 thru 7. The Dashboard is updated monthly.

The Department of Energy Office of Enterprise Assessment (EA-32) team returned to WRPS last week for a follow-up review of Hanford Tank Farms vapor issues. The team hosted focus groups, facilitated individual interviews, and reviewed reports and meeting minutes as they documented WRPS's tank farm vapor improvements. CPPO continues to support EA-32's document review requests.

CPPO Oversight and Tracking

Cost and Schedule Metric

Ongoing vapor projects supporting the draft Comprehensive Vapor Action Plan (CVAP) KPPs are still moving forward as planned, while new projects are in the design phase. Spending will begin to pick up as procurements start going out to vendors near the end of the first quarter. To date, \$38.1M has been spent implementing the CVAP KPPs. \$3M of this progress was carryover from Phase I scope already on contract. Currently, \$35.7M (75.5%) of our revised not to exceed (NTE) value of \$47.3M has been spent. Monthly costs are expected to remain at about \$4M per month. At this rate we expect the NTE to last into January 2018.

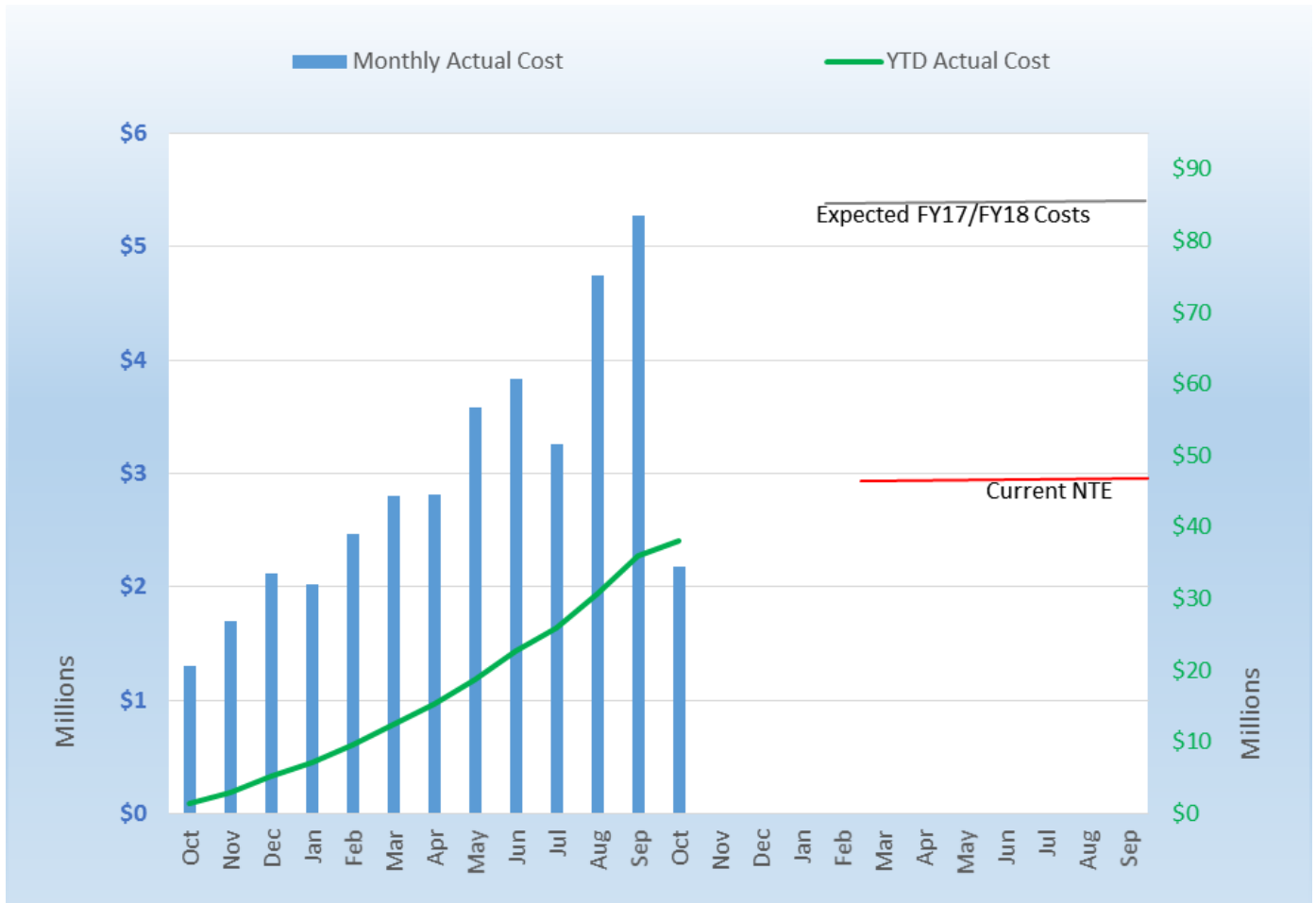


Figure 1. FY2017/FY2018 Costs

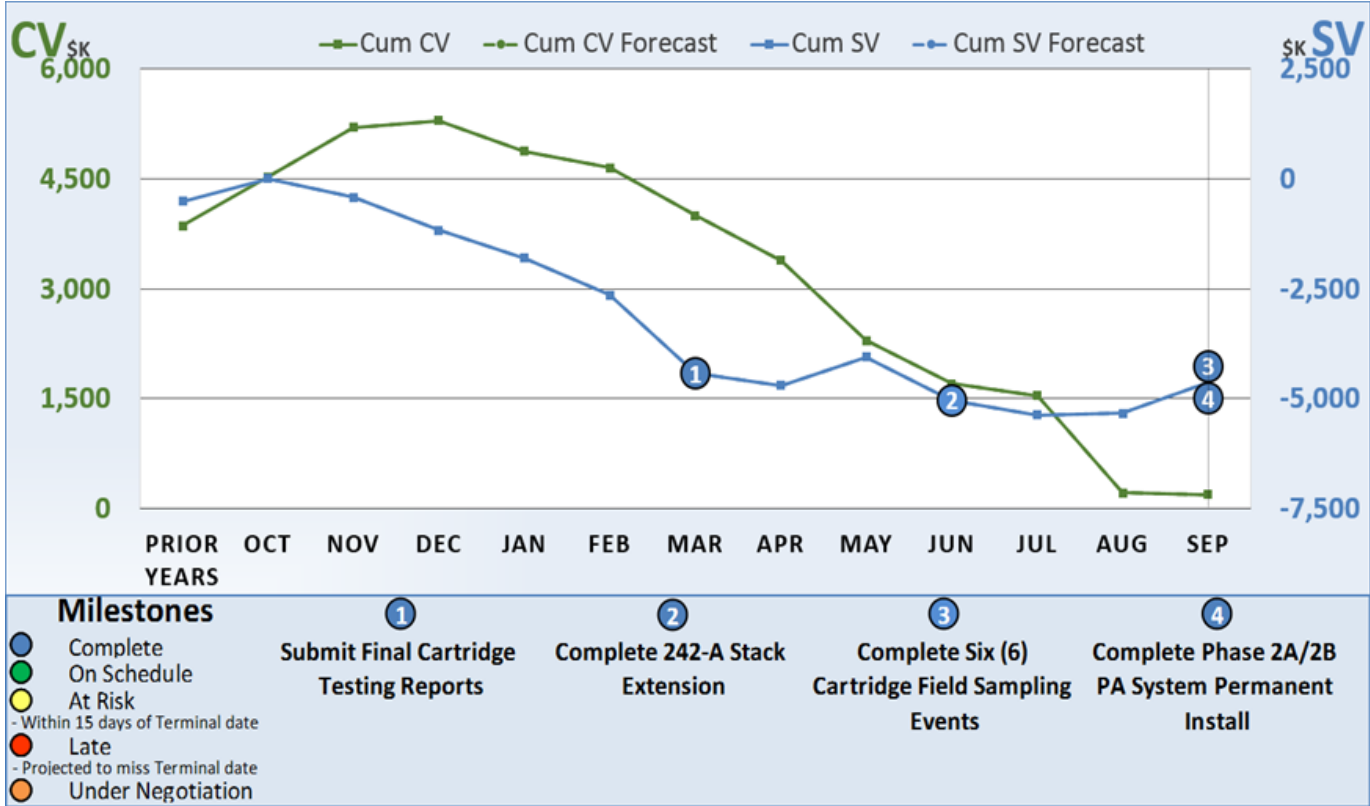


Figure 2. FY2017 Cost and Schedule Variances for the Draft CVAP

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 CTEH team members continue developing CPPO Notebook presentations covering chemicals such as dimethyl mercury, nitrous oxide, and ammonia, as well as on topics including the process of OEL development and IH program fundamentals. CTEH team members continue to conduct outreach with worker groups to serve as a resource for any questions regarding vapor-related health risks. A CTEH toxicologist accompanied a Field Safety Representative to the pre-job for the 03C pit cleanout at the AX Farm last week and toured areas of 200 East and 200 West.

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

✦ Chemical Protection Engagement: Communications

A November 2, 2017, all employee email informed the WRPS workforce that preparations for a DST-to-DST waste transfer were underway for the weekend of November 4. “Depending upon equipment availability, the sequence of these transfers may change, however, the industrial hygiene (IH) controls will remain [the same].” Reviewed by the Chemical Vapor Solutions Team and HAMTC leadership, the IH controls include backshift and weekend operations, reader boards, supplemental AreaRAEs, and enhanced IH monitoring and sampling during the waste transfers.

A new Chemical Vapors Solution Team (CVST) Sub-committee (Fugitive Emission and Source Identification and Characterization) has been developed and the kick-off meeting was held on October 31, 2017.

The CPPO Notebook published last week is titled *Where to find status on progress against external assessment recommendations*. This week’s CPPO Notebook is titled *IH and Occupational Exposure Limits (OELS), Part 2*.

✦ Chemical Protection Engagement: Hanford Vapors Website Updates

- Vapors weekly update November 2
- Solutions 10_30_2017 – Farm of the Future Article

✦ Chemical Protection Engagement: Effectiveness Measures

After the meeting with Tank Vapor Representatives (TVR) at the October 11 CVST meeting, the CPPO developed a summary of the topics discussed at the meeting, and is pursuing the recommendation from the TVRs to meet on a regular basis as a group. CPPO also received a write-up of recommendations and observations from Tom Fitzsimmons, a member of the DOE Vapors Management Expert Panel. The CPPO is working with the CVST co-chairs to disposition Mr. Fitzsimmons’s recommendations.

CPPO is developing and planning the next Vapors Communications Effectiveness Survey. The survey is in the initial stages of being drafted.

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 10/19/2017: WRPS completed the update of RPP-22491, *Industrial Hygiene Chemical Technical Basis*, and developed institutionalizing documents that provide a disciplined and rigorous process to periodically review IH data to identify new or changing information regarding tank vapors. The new information is analyzed in light of current scientific and regulatory information to determine if a new chemical of potential concern (COPC) should be identified. This analytical process determines if a regulatory Occupational Exposure Limit (OEL) exists for the newly identified COPC. Furthermore, the process determines when a new Hanford Tank Farm OEL (HTFOEL) should be created. New documents and procedures developed during FY2017 to maintain and institutionalize the technical basis include:

- TFC-PLN-174, *Chemical Vapors Technical Basis Plan* (New)
- TFC-ESHQ-S_IH-C-67, *IH Chemical Vapor Technical Basis Maintenance* (New)
- TFC-ESHQ-S_IH-C-66, *COPC to COC Evaluation Process* (New)

WRPS and its subcontractors completed a Chemical Vapors Requirements Flow Down and GAP Analysis (GAP). Based on the GAP analysis, WRPS developed an IH Manual and developed or revised documents and procedures to institutionalize the chemical vapors aspects of the IH program. The IH Manual (with specific focus given to institutionalizing the Chemical Vapors elements), and the seventeen revised/new implementing documents and procedures, including the three identified above, are routing for approval through the WRAP process. These changes will be fully implemented in FY2018.

Health Process Plan

Update: The following PNNL prepared draft reports were provided to WRPS during FY2017, completing the Health Process Plan deliverables:

- *Proposed HTFOELs for Chronic Exposures – COPCs with Regulatory Guidelines*
- *Proposed Occupational Exposure Limits for Furans*
- *Proposed Risk-Based Approach for Nitrosamine Chemical of Potential Concern*
- *Proposed Acute Exposure Concentration Limits for COPCs with Regulatory Guidelines*
- *Proposed HTFOELs for Chronic Exposures - Nitrile Class COPCs and 2,4-Dimethylpyridine*

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.

- *Assessing the Potential for Chronic or Acute Health Effects from Exposure to COPC Mixtures*
- *Recommendations for Sampling and Analysis of Hanford Waste Tank Vapors*
- *Hanford Tank Vapors FY 2017 Chemicals of Potential Concern Update*

The draft reports will be evaluated using the process established in TFC-CHARTER-71, *WRPS Internal Review Panel and External Review Panel Process for Review of Health Process Plan Recommendations*, which is as follows:

- Understand the feasibility of implementation based on technology implications and operational impacts.
- Resolve any technical questions with the authors through assistance of the external expert panel.
- Provide final recommendations to DOE-ORP for changes to the IH Chemical Vapor Technical Basis.

The draft reports will be evaluated in FY2018. Following resolution of the Internal and External Review Panel's comments and evaluation, PNNL will reconcile any changes necessary in the particular reports and issue the reports as final.

Parity Implementation with Established Programs

Update: WRPS made strides in improving parity with other well established programs such as the radiological controls program. WRPS Industrial Hygiene Programs implemented the Enhanced Chemical Hazard Awareness Training (CHAT) developed in 2016, and completed a training evaluation report to capture recommendations from students on improvement. Chemical Worker Tier 1 training is complete. As planned, it is now part of the Tank Operations Contractor Hanford General Education Training program, and available to take immediately. Chemical Worker Tier 2 was turned over to a subcontractor to code for computer based training. Mission Support Alliance (MSA) is planning on rolling out the new computer based training in October, 2017. Chemical Worker Tier 3 training was successfully piloted October 4, 2017. Comments from the pilot class will be incorporated into the lesson plan prior to final approval. The plan is to discontinue enhanced CHAT once the Tier 3 training is in service. Ongoing parity activities in FY2018 include enhancing IH involvement in the work planning process by the following:

- Develop and implement an IH work permit process.
- Increase IH participation in the work planning process.
- IH field presence gain through increased IH department staffing in FY2017.

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 FY2018.

✦ Central Residence for Industrial Hygiene Technicians (IHT)

Last update 11/2/2017: Introduction: Retrieval Industrial Hygiene Technicians (IHT) and their first line supervisors will be relocated to a centralized mobile office (MO) building in February/March of FY2018. The MO is slated to house approximately 100 workers. According to retrieval field support, this new space will be large enough to house all retrieval IHTs and their first line supervisors. Plans are to install the MO in 200 East area near the vicinity of Baltimore Avenue and 4th street. The installed and occupied MO will satisfy KPP 3 for retrieval IHTs. KPP 3 advocates a central location for IHTs that is commensurate with other technician level employees.

KPP 4. Engineering Controls

✦ A Farm Exhausters

Update: A Farm: WRPS issued a request for a proposal from American Electric to isolate A-Farm vent ducting. Isolation is necessary to establish enough vacuum for tank ventilation. The proposal from American Electric is due this week.

✦ AW Stack Extension

Last update 10/12/2017: The 60% design package is nearing completion and reviews are expected to start the week of 11/6.

✦ Strobic Air Dilution Fan

Update: Strobic submitted its proposal for the factory acceptance test to WRPS for evaluation and potential award.

✦ NUCON Thermal Oxidation Vapor Abatement Unit (VAU)

Update: Development of the bench-scale testing continued, with the following being accomplished last week:

- WRPS:
 - Issued contract revisions to PNNL and TerraGraphics for FY18 scope and funding. The PNNL and TerraGraphics contracts allow for continued support of bench-scale activities.
 - Completed all paperwork and approvals for NUCON contract for support of the propane-to-diesel conversion design. The NUCON contract allows for support of the propane-to-diesel conversion design.
 - Continued preparation of the technology maturation plan for the NUCON VAU.

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 revising Work Plan that will detail scope, schedule and resources needed to support bench-scale testing in FY18.
- NUCON:
 - Still awaiting contract authorization to proceed with the diesel design.

KPP 5. Administrative Controls and Monitoring

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

Update: Numerous activities were performed throughout the week, including the following:

- Continued resolving comments on the Phase 2 Pilot-Scale Report.
- Efforts continued on the Autosampler modification. The development of test gas standards will be delayed approximately 1-2 months as a result of modifications required on the testing equipment. This will not impact completion of the factory acceptance testing scheduled for 2018. Additionally, efforts are on-going to collect samples during upcoming waste transfers to support the development of the Autosampler.
- The Ultra-Violet Fourier transform infrared spectroscopy (UV-FTIR), currently installed at AP Farm, is going to be turned over to operations. A draft functions-and-requirements is being prepared that will capture the results of equipment set point discussions. In addition, efforts are on-going to collect samples during upcoming waste transfers to support development of VMDS equipment.

Stack and Boundary Monitors

Update: Stack monitor activities included:

- Procurement of the 13 Ultra Violet- Differential Optical Absorption Spectrometer fence-line units was delayed as a result of questions raised by the WRPS Quality Assurance (QA) department. Approximately a 1 month slip in delivery is expected, but will not impact any scheduled activities. Procurement of the stack monitors is delayed as well due to the QA issue; however, this delay is not anticipated to impact any field installation activities either.
- WRPS sent comments back to the vendor (Cerex) on the 702-AZ stack monitor design, and is awaiting the final version to initiate the WRPS design revision process.

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 plant force work review ruling was determined on the stack installation activities, and the work will be performed by construction forces.

Establishing Safe Unrestricted Boundaries

Update: The updates for Establishing Safe Unrestricted Boundaries is being reworked for future publications.

Public Address System

Last update 11/2/2017: Excavation work at C Farm resumed. Excavations are scheduled to be finished the first week in November. AP Farm excavations are to follow.

KPP 6. Tank Operations Stewardship

Pilot SST Stewardship Program

Update: Remote Monitoring Equipment: A proposal for the TY Farm automation design was submitted to WRPS, which was reviewed and returned to the subcontractor for clarification. The subcontractor is anticipated to re-submit the proposal the week of 11/6 with a technical evaluation and award expected soon thereafter. The level and temperature bench-scale tests have been delayed by approximately 2 weeks as a result of higher priority work. This delay is not expected to impact the design completion date.

Update: FY LEAN 2015: Report/Work Location

Evaluations: A detailed draft outline of the SST Stewardship Execution Strategy Document has been prepared. The outline addresses all issues identified in the FY2015 LEAN event, in addition to numerous other activities which may help reduce SST entries.

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 11/2/2017: Prior to June 30, 2017 cartridge testing was conducted at the AP Stack, A-101, 702-AZ, AN Exhauster, AW Stack, BY-108, AX-101, SX-101 and SX-104 tank farm locations. PNNL reports are complete for all of the above except for SX Farm. Copies of the completed reports are available [HERE](#). In August, cartridge testing was performed at the AX Stack. The PNNL reports for the SX Farm and the AX Stack are currently being written. More information on these cartridge tests will be made available as the reports go final. PNNL has developed a summary report rolling up the information contained in the cartridge testing reports issued to date. This summary report is currently being reviewed by WRPS management. The final summary report is expected soon. Cartridge testing for FY-2017 was completed at the end of August. Cartridge testing for FY2018 is slated to begin in January/February of 2018.

Key Performance Parameter 7
Provide options to promote the hierarchy of controls for chemical vapor respiratory protection beyond current use self-contained breathing apparatus.

To date, the third party (STC) review has indicated that full face air purifying respirators (FFAPR) equipped with the Scott 7422-SC or the Scott 7422-SD1 cartridge provides adequate protection for SEG 1 work activities at the following locations:

- AP Farm
- 241-AY
- AZ Farm
- SY-102
- A-101
- AN Farm
- AW Farm

Mobile Laboratory

Last update 10/19/2017: Last week, efforts focused on issuing a new contract for RJ Lee to support FY2018 activities.

Personal Vapor Monitor

Update: Approximately 80 liters of material was collected from the AP Farm stack to support the upcoming C₂Sense laboratory test at RJ Lee. The test, which is scheduled for the week of 11/6, will be used to prepare the monitor for future field testing and deployment. Laboratory testing continued on the prototype sensor

chip. Testing focused on exposing the sensor to humidity and ammonia, which allows for development of the algorithm needed to convert a raw signal to concentration.

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.