



washington **river**
protection solutions



Roger Jarrell (left), DOE-HQ Environmental Management, Senior Advisor to the Secretary of Energy, tours 274-AW Centralized Control Room.

Tank Operations Contract
Chemical **Protection Program Office Weekly Report**
July 24, 2017

1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

As WRPS continues to draft the Comprehensive Vapors Action Plan (CVAP), CPPO has developed a variety of metrics to support the CVAP monitoring dashboard. Metrics addressing KPPs 1 thru 7 are in internal review. The metrics are designed to monitor progress on all CVAP KPPs. The metrics are summarized in the CVAP KPP Dashboard which also is being developed and in review.

Completion with concurrence on the table of recommendations and corresponding actions continues to be worked as a priority within CPPO. This table is the compiled list of actions in response to the recommendations from TVAT, NIOSH, OIG, EA-32 and CTEH. The table is developed and proceeding through a series of concurrence reviews prior to finalizing.

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

Launched on July 17, 2017, Oak Ridge Associate Universities (ORAU) is conducting a safety culture survey which includes CPPO generated questions designed to specifically assess the vapors issues with personnel. All employees will have the opportunity to take the survey. The survey period ends on July 31, 2017. Links to the ORAU survey interface will be sent to non-bargaining unit personnel, while union workers will have hard-copy surveys provided and collected by ORAU. ORAU is on site this week to distribute the hard-copy surveys. WRPS management will receive a report in September.

CPPO Oversight and Tracking

CPPO Requests, Production, and Distribution Metrics

Tables 1 and 2 show the vapors-related information products that were requested and delivered by the CPPO. Shown is the tracking for the month of June, the three month trend, and the Fiscal Year-to-date totals. Surveys and Focus Groups were in demand in June, with 21 Vapors information products requested. The requests were driven by the LEAN management event. Seventy-seven is the number of CPPO products that have been requested, but are not complete. Forty-seven of the 77 outstanding items are currently in review status.

Table 1. CPPO Vapors Information Products Requested FY17

| CPPO Vapors Information Products Requested FY-17 | April | May | June | FY-to-Date Total |
|--|-----------|-----------|-----------|------------------|
| Data Report (Monitoring Data) | 21 | 5 | 12 | 71 |
| Presentations (includes CPPO Notebook) | 4 | 4 | 4 | 35 |
| CPPO Reports and Weekly Report | 4 | 4 | 4 | 36 |
| Information Requests | 18 | 0 | 0 | 35 |
| Articles, Summaries, and Message Maps | 1 | 0 | 1 | 51 |
| Surveys and Focus Groups | 0 | 0 | 21 | 23 |
| Website Requests/Site Updates | 0 | 0 | 0 | 35 |
| Videos | 0 | 0 | 0 | 5 |
| Monthly Totals of Requests | 48 | 13 | 42 | 291 |

Table 2. CPPO Vapors Information Products Completed FY17

| CPPO Vapors Information Products Completed FY-17 | April | May | June | FY-to-Date Total |
|--|-----------|-----------|-----------|------------------|
| Data Report (Monitoring Data) | 22 | 1 | 7 | 56 |
| Presentations (includes CPPO Notebook and CVST) | 4 | 3 | 6 | 33 |
| CPPO Reports and Weekly Report | 4 | 5 | 5 | 37 |
| Information Requests | 19 | 0 | 1 | 30 |
| Articles, Summaries, and Message Maps | 2 | 0 | 2 | 22 |
| Surveys and Focus Groups | 0 | 0 | 7 | 9 |
| Website Requests/Site Updates | 2 | 1 | 1 | 26 |
| Videos | 0 | 0 | 0 | 1 |
| Monthly Totals | 53 | 10 | 29 | 214 |

Table 3 presents the total number of documented WRPS vapors-related communications provided to the workforce for the last three months and FY-to-Date.

Table 3. WRPS Vapors Information Distribution Avenue

| WRPS Vapors Information Distribution Avenue | April | May | June | FY-to-Date Total |
|--|------------|------------|------------|------------------|
| All Employee Email/Meetings & ESHQ Comm. | 3 | 2 | 5 | 41 |
| CPPO Notebook* | 47 | 68 | 80 | 393 |
| CPPO Report and Weekly Report | 1 | 3 | 4 | 28 |
| Fact Sheet & Information | 1 | 0 | 0 | 3 |
| Meeting - CVST * | 1 | 1 | 2 | 13 |
| Meeting - CVST Sub-team meeting * | 3 | 0 | 0 | 28 |
| Meeting - Hanford Advisory Board Briefing * | 0 | 0 | 0 | 2 |
| Meeting/Briefing* | 1 | 3 | 3 | 70 |
| Meeting -Morning/Pre-Shift Brief* [†] | 15 | 258 | 390 | 715 |
| Presentation* | 0 | 0 | 0 | 3 |
| Safety Start | 0 | 1 | 1 | 7 |
| SOEN | 0 | 2 | 7 | 16 |
| Solution Article | 1 | 2 | 2 | 28 |
| Survey and Focus Group | 0 | 0 | 0 | 2 |
| Tours* | 2 | 2 | 2 | 18 |
| Website/Individual Inquiry | 0 | 0 | 0 | 5 |
| Vapors Weekly Update or Website Post | 99 | 38 | 116 | 296 |
| Video | 0 | 0 | 0 | 1 |
| Monthly Totals | 174 | 380 | 612 | 1669 |

The data for June include 612 vapors-related communication activities which is a significant increase from May. This was driven by a rise in the utilization of the CPPO Notebook and the number of updates to the HanfordVapors.com website. It was further impacted by the change in how the Plan of the Day (POD) meetings are reported, a collection effort started in May. The POD for field managers is now captured – providing data more reflective of the regularly shared vapors-related information with the workforce.

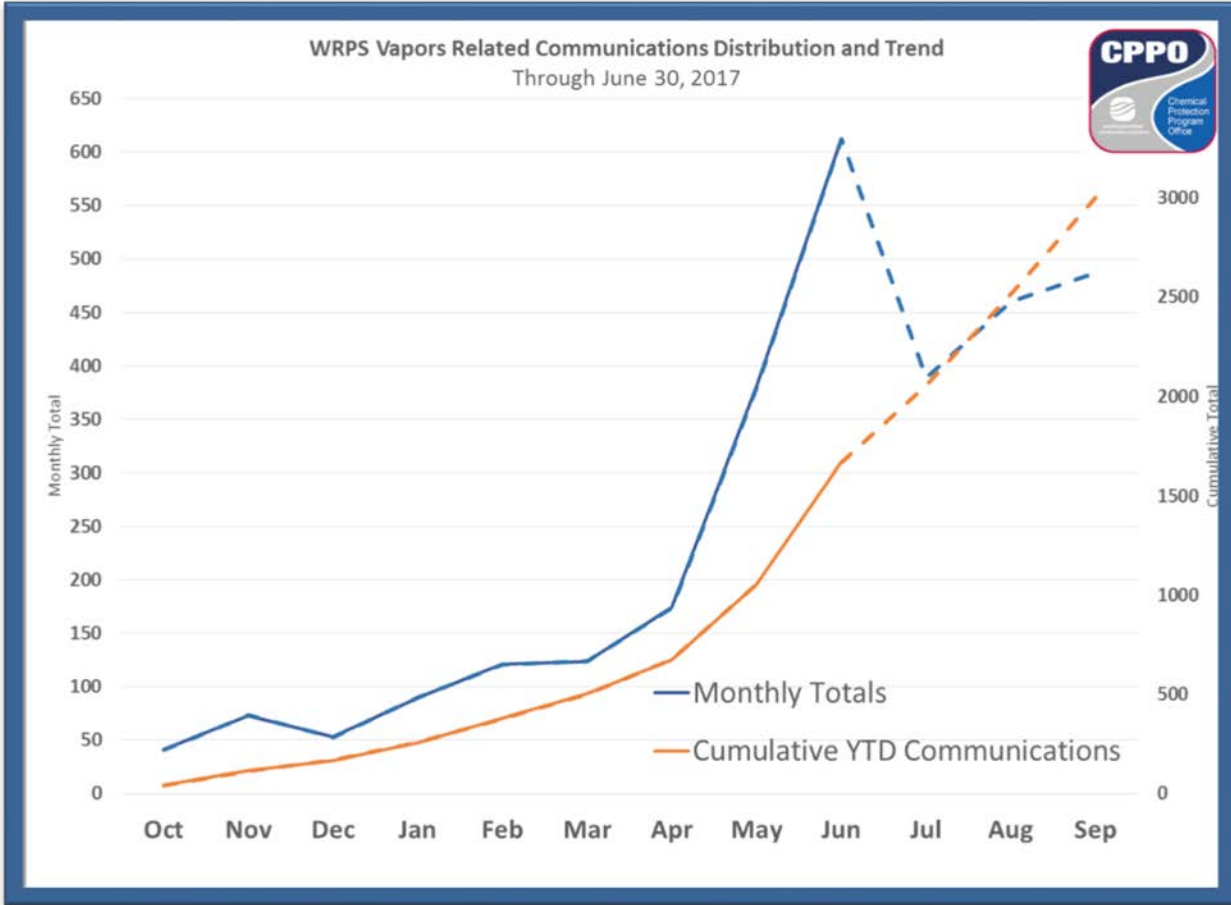


Figure 1. WRPS Vapors Information Distribution Avenue

The trend for WRPS vapors communications distributed to the workforce is shown in **Figure 1**. The data suggest that, at the current rate, WRPS is on track to deliver over 3,000 vapors-related communications by the end of the fiscal year. Briefings and face-to-face interactions with the workforce are the most often reported communication events. The peak shown for May/June is due to the change in how the POW/POD meetings are captured. The drop in the trend in future months is a reflection of how the trend data is calculated – using an average of the three previous months. The change in tracking POD meetings affects this forecast, but is expected to resolve over the next couple of months.

2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters

KPP 1. Engagement and Effective Measurement

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 when it is completed and issued. Both plans are in draft. The *Comprehensive Vapor Management Communication Plan* is being included in the *Hanford Communication Plan* and then will be sent for internal review.

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

Last week's CPPO Notebook is titled *Vapor Monitoring and Detection System (VMDS)*. This week's CPPO Notebook is titled *Vapors Management Expert Panel (VMEP) Assessment*.

The CVST Communications Sub-committee met on July 10, 2017, and the CVST New Technology Sub-committee met on July 12, 2017.

The CVST Meeting was held on July 12, 2017, during which Mr. Rob Gregory spoke on the on-going litigation, the third party review of the cartridge testing, and the next cartridge test AX Farm. Additional information on cartridge testing [here](#). Ron Calmus spoke on the VMDS equipment selections. Eugene Morrey discussed the Mobile Lab. Doug Greenwell gave an update on Major Waste Disturbing Activities. Kent Smith gave the status on Current Evaporator Campaign, and Dan Wolf reviewed the 242 A Evaporator Campaign and Industrial Hygiene summary.

The Chemical Vapor Solution Team (CVST) meeting, held on July 12, 2017, included new members filling the Tank Vapor Representative (TVR) position. The role of the TVR is to attend and participate at the CVST meetings, and then to communicate the information from the CVST to their respective field teams. This will promote and encourage greater worker involvement in implementing strategies to address tank vapor issues and the deployment of new technologies. This position was created as the result of recommendations from the 2017 CPPO Vapors Communication Survey, the CPPO LEAN Event, and EA-32. Approximately 20 field teams were represented by the TVRs at the July 12th meeting.

Industrial Hygiene published a *Safety Flash* on July 12, 2017, reminding the workforce that “[i]n accordance with the IH Monitoring and Control Plan, significant IH monitoring and sampling has been performed over the course of the [EC-06] campaign. These include: Around the clock IHT coverage, 10 AreaRAE

monitors, the RJ Lee mobile sampling lab and stack monitoring and sampling. To date, all IH monitoring results have been significantly less than established action levels. Based on these results and consistent with our agreement with HAMTC leadership, the Respiratory Protection Required (RPR) area surrounding the 242-A facility has been re-designated as “Restricted Access – Authorized Personnel Only”.

The *Message from Mark*, published on July 12, described the ORAU Safety Culture Survey which was launched on July 17, 2017, and updated readers on the VMDS equipment selection process in the A and AP Tank Farms.

A presentation of the VMDS equipment selection process was provided to the CPPO/HAMTC Safety Representatives interface meeting on July 12, 2017. The presentation was well-received and the HAMTC representatives provided feedback for the VMDS team.

Solutions Issue 398, published on July 10, 2017, reported, “Roger Jarrell, DOE-HQ Environmental Management, Senior Advisor to the Secretary of Energy, receive[d] a briefing from Karthik Subramanian on AP Farm activities, vapor abatement activities and vapor equipment testing.”

Hanford Vapors Website Updates

Hanford Vapors Website posts the week of July 10, 2017, was [Vapors Weekly July 12.](#)

CPPO Notebook

The CPPO released a five-part series of Notebooks in June titled *Human Odor Perception and Chemical Exposures*. The series was presented by Dr. John Kind, a toxicologist with the Center for Toxicology and Environmental Health, LLC. Several positive responses were received regarding this series.

CPPO Notebook topics and their utilization as reported by management are shown in **Figure 2**. The Notebook is distributed on a weekly basis to aid managers in providing vapor-related communications with staff on current topics of interest. The use of the Notebooks is tallied via email ‘voting’ responses to the distribution email. Since the Notebook is frequently used several weeks after distribution, the data regarding the utilization of individual editions may change over time. The data-to-date continue to show an average of 17 managers per week make use of the Notebook. Since the beginning of the FY17, the Notebooks have been used 403 times.

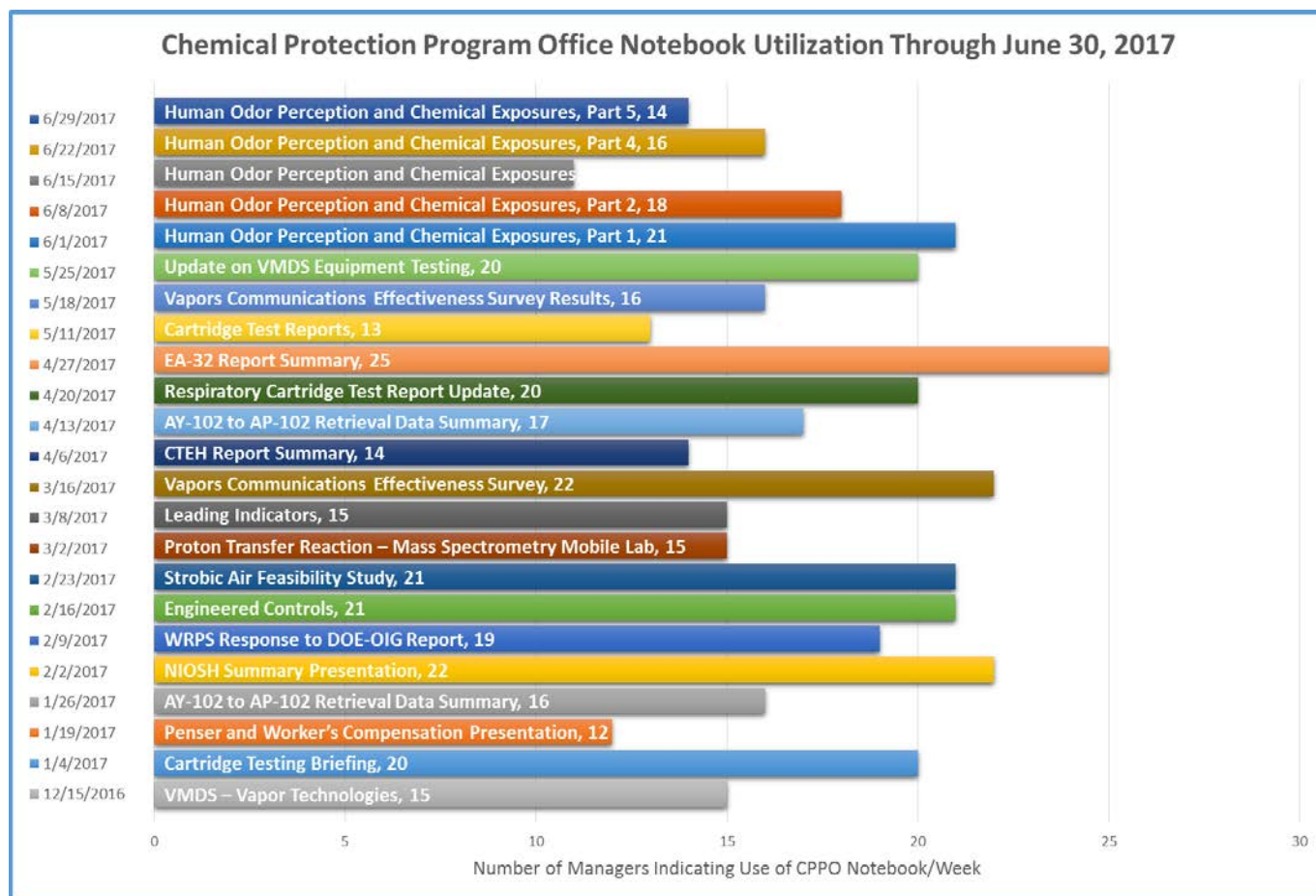


Figure 2. CPPO Notebook Utilization

Data Analysis and Visualization Tool (PHOENIX)

Update: For the past three weeks, people from all parts of WRPS have been testing the DAV tool and providing feedback. The team is in the process of sifting through the feedback from this pool of software testers. The response thus far has been positive with a lot of interactive ideas. The system remains 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)

Update: Updates to RPP-22491, *Industrial Hygiene Chemical Vapor Technical Basis*, are underway. WRPS, Terra Graphics, and Dade Moller have met several time and reviewed the initial draft of the Requirements Implementation Matrix and Gap Analysis. The procedures that need to be updated or created are in review. The initial set of procedures to be revised is in process of being added to the master

schedule. Feedback and comments on the GAP analysis continue to be provided to the contractor. Weekly status meetings are held, ensuring the direction of the contractor is consistent with the expectations of IH management.

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 FY17 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. Accomplishments from last week:
 - A kick-off meeting was held for the HPP internal review panel (IRP).
 - A share drive was created for use by the IRP and populated with PNNL reports for review.
- Task 3: Establish an External Peer Review Health Panel. Recommendations have been adopted into an internal procedure that has gone to ORP for concurrence.
 - Procurement is in process for putting External Expert Panel (EEP) members under contract.
- 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.
 - Worked on incorporating the CMM Wizard into the HPP Test site (adding/editing fields)

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.

- Examined “CMMWorkbook (MOATOE)-PAC29-15 rows final-2” Spreadsheets to understand calculations
- Met to discuss Risk Assessment (specifically, the workbooks and visualization)
- Documented a few button bugs found on the site
- Will begin comparing new chronic report draft with the previous draft to note any major changes
- Began setting up GeoServer to facilitate the plume modeling for the risk assessment maps

Database Implementation and Management

Update: In FY16, PNNL developed a database to review and update the COPC list and associated OELs. See the Health Process Plan, Task 7 for updates.

Leading Indicators

Update: For the past few months, the Leading Indicators team focused on supporting the integrated vapors data collection data quality objective (DQO) process. Weekly accomplishments as of July 14:

- Initiated evaluation of Proton Transfer-Reaction Mass Spectrometry (PT-RMS) files for incorporation within the process and identified questions about connecting data to specific locations.
- Continued investigation of efforts needed to compile existing and new data sources (content, format, assumptions, etc.) for incorporation into analysis, including development of macros to pre-process excel files for use with R-code.
- Continued quality review process for historical data sets, including procedures for combining samples in series.
- Continued data quality objectives (DQO) support.

Parity Implementation with Established Programs

Update: Chemical Worker Tier 1 training has been reviewed and is in the process of being coded for computer based training in the Hanford General Employee Training. The schedule for coding is being developed for both Tier 1 and 2. Additional feedback and comments will be included in the final product prior to release.

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.

The Chemical Worker Tier 2 storyboard has been created and is being reviewed by the Training review team (IH, Management). Chemical Worker Tier 2 is being designed to address facility specific issues and applications with the target audience those individuals who work around the tank farms but will not enter

them. Chemical Worker Tier 2 & 3 are being develop concurrently, and are on scheduled to be in place by year end. However, the current focus is on completing and implementing Tier 1.

Other Items:

- An accelerated training plan has been created for the new 35 Industrial Hygiene Technicians that will be coming on board. The first group's orientation was held July 3, 2017.
- New Industrial Hygiene Professionals are coming on board to help IH Programs as needed with the Chemical Vapors.
- IH Programs has brought on an intern who 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

Update: SY-Farm: Installation design work is on-going, while Federal Engineers and Constructors continued mobilization activities. **A-Farm:** A draft Statement-of-Work is being prepared to obtain engineering support for design of the exhauster pad re-location.

Strobic Air Dilution Fan

Update: No activities were performed during the week.

NUCON Thermal Oxidation Vapor Abatement Unit (VAU)

Update: The following activities occurred last week:

- TerraGraphics continued incorporating WRPS's comments on the Functions and Requirements document needed to support upcoming testing activities.
- TerraGraphics continued preparing the Demonstration Site Selection 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

KPP 5. Administrative Controls and Monitoring

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

Update: Last week, both the CPPPO and CTO organizations released presentations to the workforce summarizing the VMDS equipment selection process. Preparations are on-going and equipment removal from the A and AP Farms is currently scheduled to start the week of July 17. In addition to equipment removal, procurement activities for the fence-line UV-DOAS units was performed.

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

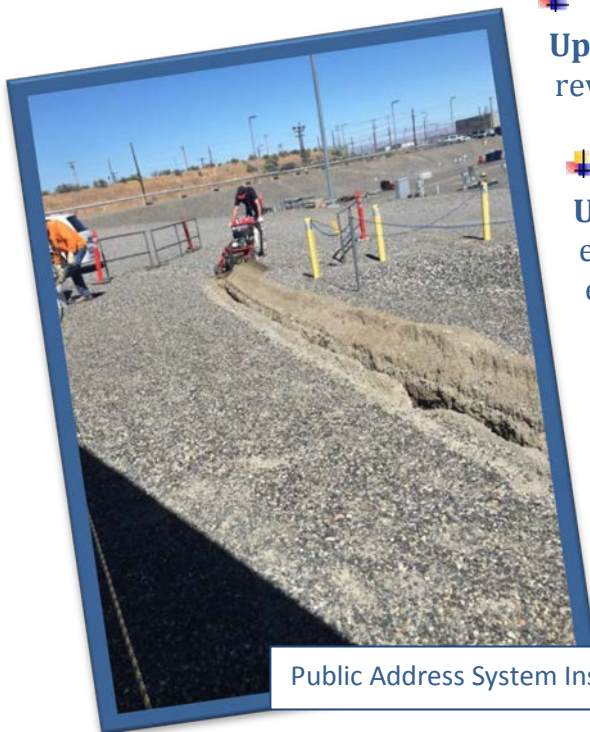
Update: Efforts continue on preparing the design packages for the AN, AW and 702AZ stack monitors. A UV-FTIR system, is installed in a pilot test configuration in AP farm. Based on testing that was done over the past year, several modification to this system will need to be made prior to turnover to operations.

Establishing Safe Unrestricted Boundaries

Update: The latest air dispersion modeling report is in review.

Public Address System

Update: Crews re-located to AN Farm to support excavation and conduit burial activities, which are expected to be completed the week of July 17. In parallel, construction progress is continuing, with the Project Engineer visiting SAFER Systems the week of July 17 for Factory Acceptance Testing.



Public Address System Installation Excavations

Public Address System Installation Excavations



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 6. Tank Operations Stewardship

✚ Pilot SST Stewardship Program

Update: Efforts are on-going to procure equipment needed to support mock-up activities. Also, a kick-off meeting was held last week with WRPS design engineering to review design scope and schedule.

KPP 7. Hierarchy of Controls

✚ Cartridge Testing and SCBA Alternatives

Update: Initial feedback from meetings with STC appear to be very promising for near term use of air purifying respirator/powered air purifying respirator (APR/PAPR) in lieu of self-contained breathing apparatus (SCBA) in ventilated farms. Rob Gregory shared at length at the July 13 CVST meeting, including:

Key Performance Parameter 7

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

- The third party, STC, is scheduled to return August 8-10. During this visit, the third party has requested to observe APR use in AP Farm. WRPS will also meet with the third party to answer any final question regarding APR testing and implantation at tank farms. The SX testing is complete. This testing was performed in preparation for barrier application slated for next year. The purpose was to determine if APRs could be worn instead of SCBA for the barrier application.
- The next cartridge test location is the AX stack. The CVST recommended that cartridge testing occur at the location with the most workers. Since AX can have 50 to 60 workers per day, it was chosen to address the CVST recommendation. The new AX exhaustor is installed. The AX Stack cartridge testing is scheduled for July 21, 22, and 23. Cartridge testing at the AX stack will include a mixture of chemical vapors from 4 AX Tanks. This round of cartridge testing was made possible by the installation of this engineering control.
- An employee submitted a question about airline respirators a few months ago. To answer the question, WRPS conducted mockup airline use. Workers from the HAMTC and the Building Trades unions participated. The results of the mockup indicated that airline respirators could be used for certain applications at tank farms.
- A pilot test of actual work will be conducted with airline respirators while workers are utilizing airline respirators for certain tank farm work activities. If the pilot testing indicates that airline respirators have an application within tank farm. The use of airline respirators will be incorporated into the ISMS and work planning.
- Cartridge Testing has been completed under non-waste disturbing conditions at the following locations:
 - AP Stack
 - SY-102 Tank
 - A-101 Tank
 - 702 AZ Stack (non-waste disturbing),
 - AX-101 Tank
 - AN Stack
 - AW Stack



Airline Respirator Use at HAMMER

- In addition, cartridge testing under waste disturbing conditions was completed at the 702-AZ stack; more testing is planned at AW Tank Farm while air lift circulators (ALCs) are operating.

Mobile Laboratory

Update: The mobile lab, PTR-MS Van, was used to monitor the AP stack emissions during 242-A slurry-out to AP farm and area monitoring around 242-A during the campaign. In addition, to monitoring, routine maintenance activities were completed.

Personal Vapor Monitor

Update: Last week, C2Sense submitted a final test plan for continued development of the personnel monitoring device. This plan focuses on testing the prototype device and its integration with cellular phones and servers.

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 -CPPPO Weekly Update

The subset of the Vapors Mitigation Risk Register this week is shown in **Table 4**.

Table 4. Vapors Mitigation Risk Register

| CVAP ID Number | Current Status | Handling Actions | Current Risk Level |
|--|--|--|--------------------|
| 022 Procurements Less Than Adequate | Currently longer than expected procurement lead times are affecting CVAP project schedules. | 1. Identify and track project designated high priority procurements for equipment and services. (ongoing) | Medium |
| 007 Excessive Work Stoppages | AOP-15 events, Beryllium Controls, labor disputes, stop works, inclement weather, or other work stoppages routinely impact the conduct of field work within the tank farms. A risk exists that excessive work stoppages hinder execution of work impacting project cost and schedule. Currently excessively hot and windy weather may preclude work from being performed in the farms. | 1. Pre-plan for work stoppages based on historical data. (ongoing) 2. Additional Communication to workforce (ongoing) 3. POD vapors updates. (ongoing) 4. Actively publishing/sharing of IH measurement data to reassure workforce. (ongoing) 5. Move work off shift to minimize impacts from recovery actions (septic pumping, Purex collapse). (ongoing) 6. Modify shift schedules to lower risk of AOP15s. | High |