



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



*Ms. Adrienne King, ISMS/Safety Culture Coordinator, speaks to the CVST meeting about the upcoming safety culture survey – June 14, 2017*

**Tank Operations Contract**  
**Chemical Protection Program Office Weekly Report**  
**June 22, 2017**

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

WRPS provided status briefings on the Comprehensive Vapor Action Plan (CVAP) and the Industrial Hygiene program to DOE's Vapor Management Expert Panel (VMEP). VMEP responded to the briefings with overall positive comments on the status of vapors related activities and programmatic activities. They indicated they will be drafting a report this summer.

This week's CPPO Oversight and Tracking metric is focused on Corrective Action Tracking, and is an extension of CPPO's internal reviews of the over 320 recommendations generated by the external assessments. Pursuant to finalizing the external assessments recommendations table, CPPO is compiling a list of actions 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), Center for Toxicology and Environmental Health (CTEH), as well as the recommendations contained in the reports generated from the TVAT FY14-15 activities.

CPPO continues to develop metrics to support a Comprehensive Vapors Action Plan (CVAP) monitoring dashboard. Multiple metrics are in various stages of development and review.

CPPO continues to collect and deposit vapors communications into the CPPO Library and IDMS, ensuring they are preserved as records.

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, perceived validity of the communication, and method used for communicating this information. WRPS is looking forward to the results of ORAU survey.

### CPPO Oversight and Tracking

#### **CPPO Vapor Corrective Action Tracking**

The CPPO office tracks all vapor related Problem Evaluation Requests (PERs), and is tasked with communicating PER resolutions. The 117 TVAT actions are captured in WRPS-PER-2014-0602. The 3 OIG actions are captured in WRPS-PER-2016-2433 thru 2435. Sixty-one TVAT actions were completed during Phase I (FY16); their completions are documented in the Electronic Suspense Tracking and Routing System (ESTARS) system. It is the project's intention to add the remaining recommendations from NIOSH, EA-32, CTEH, and the Vapor Management Expert Panel (VMEP) to the PER system as soon as they are developed and time-phased for closure. The metric in

**Figure 1** shows the difference between the number of TVAT and OIG corrective actions that have been completed, and the corrective actions that are due.

**Figure 1**, below, depicts how WRPS is on schedule to meet the June deadline to complete the first 66 actions. Since this metric was updated, all of the remaining corrective actions under the PER have been completed, concurred, and closed in the PER system.

### Objective

To monitor corrective action completion based on their assigned due date.

### Measure

The difference between the total number of corrective actions completed compared to the total number of corrective actions due or baseline (BL).

The Baseline (BL) date is documented in E-Stars. Many actions (66) were assigned due dates in June 2017 to ensure coordination and validation of closure documentation.

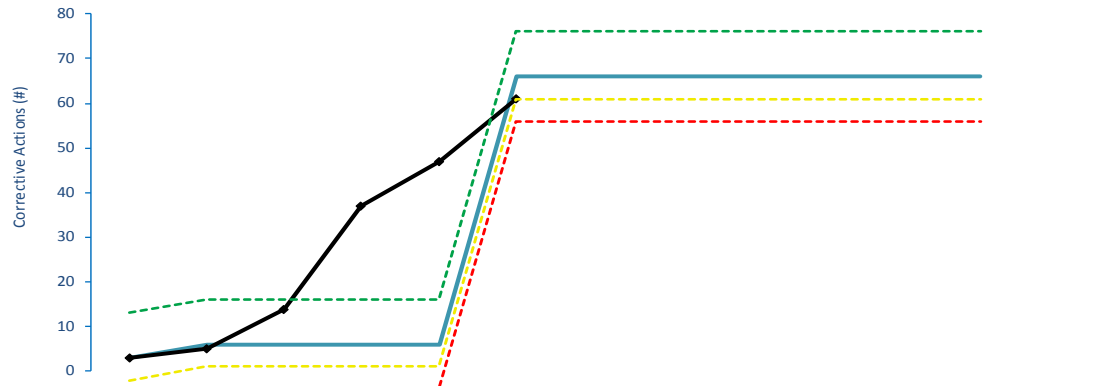
### Performance Thresholds

Adverse	≤ BL-10
Declining	>BL-10 and ≤ BL-5
Meets	>BL-5 and ≤ BL+10
Exceeds	>BL+10

### Performance Data

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Baseline Due (month)	3	3	0	0	0	60	0	0	0	0	0	0
Number of Completed (month)	3	2	9	23	10	14						
Running Total Baseline	3	6	6	6	6	66	66	66	66	66	66	66
Running Total Completed	3	5	14	37	47	61						
Schedule Performance (#)	0	-1	8	31	41	-5						

Running Total Baseline      Running Total Completed



### Specific Goal to Achieve

To complete all corrective actions on-time or before their due date.

### Leading Indicator Description

This is a lagging indicator relative to completed actions. However, this is a leading indicator for WRPS focus and attention relative to overall vapors management.

### Performance Indicator Information

**PI Owner:** Rebecca Sams  
**Data Analyst:** Greg Hanson  
**Data Source:** PER/ESTARS

### Analysis

Currently, this metric includes only the actions associated with WRPS-PER-2014-0602 (TVAT) and WRPS-PER-2016-2433 thru 2435 (OIG). In the future, additional corrective actions will be added.

There are 5 more actions due in the month of June (3 due 6/22; 2 due 6/26). Of these, 3 have been concurred with by the PER Owner and 2 are awaiting final PER Owner concurrence.

### Action

Continue to push completed actions through the final review and validation process. Remaining actions are on schedule to complete.

Additional Info: None

### Action Status Summary by Assignee

Department	Open	Closed	Total	Overdue
Vapor Technology Solutions	3	13	16	0
ESH&Q	11	2	13	0
Organic Studies	0	2	2	0
Tank Farm Projects	0	1	1	0
TFP Project Management	3	5	8	0
CPPO	3	10	13	0
Chief Technology Office	7	1	8	0
Industrial Hygiene	32	27	59	0
<b>Totals</b>	<b>59</b>	<b>61</b>	<b>120</b>	<b>0</b>

Figure 1. CPPO Vapor Corrective Action Tracking

## 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.

**Key Performance Parameter 1**

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

**Tables 1** and **2** below provide the status for implementation of the recommendations from the 2017 Workforce Communication Survey Report and the 2017 CPPO Vapors Communications LEAN Event, respectively.

**Table 1.** 2017 Communication Survey Report Recommendations Status

Topic	Recommendations	Due Date	Status
Information Delivery Methods	Determine why the workforce does not actively use the website and what is required for it to become a valuable resource	5/31/17	Complete – LEAN event
Information Delivery Methods	The senior management expectation should be reiterated that workers be released to attend the CVST,	6/30/17	Using Team Vapor Representative (TVR) at CVST approach instead. Action closed.
Information Delivery Method	A management expectation that one member from each field team attend the CVST, where attendees could rotate if needed, as long as one member from each team is present. These attendees can then disseminate the information to their teammates at their next POD	6/30/17	In Process
Vapors Communications - Topics	WRPS should focus on providing information, through the most popular information avenues, on each of the areas of interest identified in the survey	9/30/2017	Incorporate into <i>Comprehensive Vapors Communication Plan</i>
Future Assessments	Incorporate questions into SCWE survey	7/30/17	Completed 6/15/17

**Table 2.** CPPO Communications LEAN Event Recommendations

#	Action Item	Status
1	Include Exposure Assessment Summary (C48) in Work Package	Not started
1a	Modify WORA IH Review to Include CHEA as an Attachment	Not started
1b	Establish Process to put CHEA into IDMS	Not started
2	Modify Pre-Job Checklist Form to include Chemical Vapor/ Hazards	Not started
3	Each Work Team Establish a Team Vapor Representative (TVR) to Attend CVST Meetings and Communicate Back with Teams	In Process
3a	Propose and Present TVR Concept to Rob Gregory and Lou Alcala for Buy-In	Complete
4	Provide IH Vapor Program Status and Updates to Project IH Weekly	Not started
5	Schedule Bi-Weekly IH/SME Field Meetings - Coordinate with Integrated Schedule	Not started
5a	Allocate IH Resources for SME Meeting	Not started
6	Establish Ticket/E-Form to Track SME/ Vapor-Related Questions	In Process
7	Modify WRPS Intranet to Include Vapors Tab on Header for Vapors Resources (IH Data, CVST, Hanford Vapors)	Complete
8	Initiate Training Request for CHAT to Include Vapor Web-Based Resources & Navigation	Complete
9	Redesign of Vapor Weekly Delivery	In Process
10	Make CPPO Notebook Slides a Mandatory Presentation	Not started
11	Modify Vapors Communications to Include Point of Contact Information	In Process
12	Implement Vapors Awareness Training & Tools for Supervisors – Add to Qual Card	In Process
12a	Initiate Training Request	Complete
13	Schedule Team Review of Lean Event Action Status	Complete



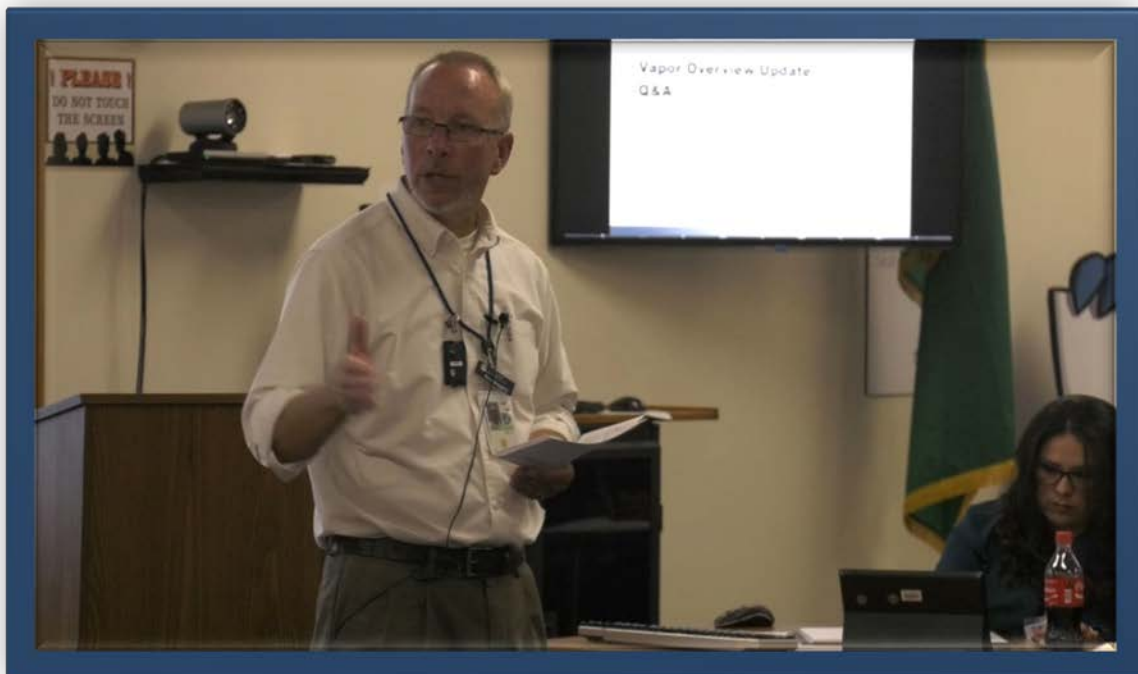
WRPS communicated with the workforce about the June 13, 2017, AOP-015 event by way of three All-Employee emails, seven Shift Office Event Notifications (SOENs), and, three HanfordVapors.com website updates.

Last week's Safety Start communicated WRPS's readiness for the 242-A Evaporator Campaign set to start in early July. The Industrial Hygiene and monitoring plan has been reviewed, agreed upon with HAMTC, and a "Brief the Briefers" meeting was held on June 20, 2017.

The CPPO Notebook published on June 15, 2017, is titled *Human Odor Perception and Chemical Exposures, Part 3*. To date, 11 recipients of the notebook indicated their intention to present the material to their staff. This week's CPPO Notebook is the fourth installment, and is titled *Human Odor Perception and Chemical Exposures, Part 4*.

A Chemical Vapors Solution Team (CVST) meeting was held on June 14, 2017, during which Mr. Rob Gregory reported the following:

- Mediation is ongoing. The next meeting for mediation is mid-July – August 1st
- The trial date now set for June 2018



Mr. Rob Gregory at the CVST meeting – June 14, 2017

- Cartridge testing will again be performed in SX Tank Farm. The new jig will be used which allows for testing both powered air purifying respirators (PAPRs) and air purifying respirators (APRs)
- PNNL plans to publish the final report on cartridge testing sometime mid-June to early July
- The third party final report is expected last week of June

Mr. Kent Smith reported the following to the CVST meeting attendees:

- Two Evaporator campaigns are planned for this summer. The first is in July and the second is in August. Several big changes have been implemented for these campaigns. The first major change is the extension of the evaporators vessel vent stack. The current vessel vent stack has been extended to 110 feet, which is 48 feet taller than it used to be. The vessel vent stack is used to off-gas filtered chemicals released from the processing portion of the plant. Modeling of the new stack's emissions indicated a 95 percent reduction of chemical contaminants likely to be detected in the areas down and around the stack. It is important to note that previous IH data collected in these areas were below action limits. With the installation of the taller stack, chemical concentrations detected in this area should be much less. The monitor on the vessel vent stack has been upgraded to monitor for more compounds in addition to ammonia. The stack monitor can now monitor for a total of 35 chemicals, of which 14 are on the COPC list. Also, a supplemental Respiratory Protection Required (RPR) zone will be established around the building during the initial EC-06 operations while IH data is collected to validate less

than action levels. A new 'Access/Egress' Corridor will be established to provide entry/exit to the facility without requiring supplied air. The corridor will be constructed as a tent, similar to the bottle change-out tents utilized in the tank farms.



Mr. Kent Smith at the CVST meeting - June 14, 2017



- The AP primary exhaust stack has also been upgraded with a taller stack and higher flow. This will create better dilution of the stack's exhaust.

Mr. Chris Holst updated the CVST attendees on the Data Acquisition and Visualization Tool (DAV), formerly known as PHOENIX, reporting that the database was developed in direct response to feedback from NIOSH. NIOSH wanted to see regular communication of tank farm data that is relevant and understandable to the worker and the public. To fill this identified need, WRPS developed a database that presents tank farm data in an understandable manner, achieved by displaying data in graphs, charts and data summaries. DAV is searchable by:



Mr. Chris Holst at the CVST meeting – June 2017

- Individual chemical (i.e. Ammonia and/or furans)
- Multiple chemicals (including all COPCs or individually)
- Time frame
- Farm
- Sub section of farm

### **Hanford Vapors Website Updates**

The Hanford Vapors Website posted 13 new items last week:

- Vapors weekly update – June 15

### **CPPO Weekly Reports**

- June 8, 2017
- June 1, 2017
- May 25, 2017
- May 18, 2017
- May 11, 2017

## Chemical Vapors Solutions Team Meeting Agenda

- May 24, 2017

## Chemical Vapors Solutions Team Meeting Minutes

- May 24, 2017
- April 12, 2017
- March 22, 2017
- March 8, 2017
- Feb. 22, 2017
- Jan. 25, 2017

### Data Analysis and Visualization Tool (PHOENIX)

**Update:** Last week, the Data Analysis Visualization (DAV) team met with the prospective testers to show the system's progress to date. The system has been rolled out to the production environment. Most of the system's features were active. 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)

**Update:** 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

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

### Health Process Plan

**Update:** PNNL Health Study Roadmap: A schedule for FY17 has been developed for the Health Process Project. The following reports are currently undergoing review by WRPS staff:

- Chronic OELs with Regulatory Basis

#### 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.

- Furans OELs
- Nitrosamines Risk Analysis
- Acute Transient Exposure Concentrations (TECs) with Regulatory Basis
- Acute TECs – SOP White Paper

The following reports are awaiting draft completion prior to WRPS review:

- Chronic Nitrile and Dimethylpyridine
- Acute TECs
- Chemical Mixtures and Modeling Recommendation
- Sampling and Analysis Recommendations
- 2017 COPC Update

Each of these reports contributes to the total body of knowledge on the properties, hazards and exposure limits of the COPC list constituents. In total, 62 chemicals are undergoing evaluation for both chronic and acute hazards. All reports are expected to be finalized and submitted to WRPS by the end of FY17.

The DQO sub-teams have met about twice a week to complete Steps 1 thru 5 (and part of Step 6), which are:

- Task 1: Schedule
- 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.
- Task 6: Evaluate Computational Approaches for Predicting Exposure and Delivered Dose.
- Task 7: Database Implementation and Management.

The following sub-teams have completed these steps:

- IH Tech Basis Update
- Leading Indicators
- Dispersion Modeling

The Off-gas Abatement Equipment sub-team met and went through the first three steps of the DQO. At that point, the data that was identified to support the task were primarily physical properties, such as flow-rates, temperature, and humidity. The sub-team decided that this data need is outside the scope of the Integrated Sampling Strategy DQO.

The DQO Project Manager met with Environmental management, QA, and others on June 7. Two items worth noting:

- Environmental compliance group will pursue a separate path for collecting emissions data for Environmental compliance purposes. Therefore, Environmental data need is no longer part of the scope of this DQO.
- The need for a QA Project Plan will be discussed with IH management. The plan is to have the DQO address the appropriate type and quantity of data, and the Quality Assurance Project Plan (QAPP) address the necessary quality for the data to be collected. QA indicated that internal resources are not available for preparing the QAPP so it will likely to be sub-contracted.

The DQO leader will be working with the statisticians to complete the DQO Step 6 for all sub-teams.

When all sub-teams have completed Steps 1-6, the full DQO team will get together for a couple of meetings. At these meetings, each sub-team lead will present the results of the first 6 DQO steps for their data use, and answer any questions from the full DQO team.

**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

**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

**Update:** 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 6/1/2017:** The successes in implementing parity with established programs are as follows:

- Enhanced CHAT continues to be well received. As of 5/18/2017, 8 CHAT Initial and 12 CHAT refresher classes have been held.
- Training has hired an additional two subcontractors to help complete required training documentation for the Industrial Hygiene Technician (IHT) Training Program.
- IHT Continuing Training has held 4 sessions (2 each week) with great response to the hands on training for Physiological Monitoring Instruments

and Theory on Photoionization Detector (PID) operation. Training continues until June 7th. Make-up sessions may be offered.

- Chemical Worker Tier One is in the Design Phase; comments are being incorporated from key stakeholders and a draft storyline is being prepared. Draft slides were released for review on 5/23; the comment period is scheduled to end by 6/7/2017. The slides will incorporate the comments received from the key stake holders.
- Chemical Worker Tier Two and Three are being developed. However, the focus is on completing and implementing Chemical Worker Tier One.

On May 18, 2017, WRPS, CHPRC, HAMMER, and Labor held an IHT Training Program kickoff meeting, the goal of which is to “[d]esign, develop and implement an IHT fundamentals and continuing training program that will educate and develop independently competent and highly effective IHTs who are trusted and respected by the workforce.” Expected to be launched in September 2017, the Industrial Hygiene Fundamentals course curriculum may include:

- Laws and Standards
- Math unit conversions and statistics
- Chemistry
- Physiology, anatomy, and toxicology
- Respiratory protection and PPE
- Industrial hygiene documentation
- Personal and area monitoring
- Using an industrial hygiene database

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

##### **+ 242-A Evaporator Stack Extension**

**Update:** The installation is complete, and the new stack is functional and operational.

##### **+ Exhausters**

**Update:** Design efforts are continuing. Meanwhile, bids for the construction 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.

#### **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

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

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

- A draft statement of work was prepared for NUCON to transport the VAU to Richland in support of upcoming bench-scale testing
- TerraGraphics initiated revision of their Work Plan to include additional work scope requested by WRPS. This work scope includes providing site selection, functions and requirements, test apparatus design, and engineering support.

## **KPP 5. Administrative Controls and Monitoring**

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

**Update:** One of the four pilot-scale spectrographic units remains off-line as a result of an outage needed to support equipment modifications. A stop work was initiated in AP-Farm for tripping hazards related to VMDS equipment, but was quickly resolved. Efforts are on-going to review the viability of VMDS equipment and determine their path forward. The results of these viability reviews will be used to plan and schedule the removal, layout, and storage of equipment not anticipated for continued VMDS testing.

### **✦ Stack and Boundary Monitors**

**Update:** Design efforts continue with Cerex working 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 parallel, specifications for the infrastructure of the UV-FTIR monitors are being developed. Efforts were also initiated on the AW-Farm stack monitor.

#### **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.

### **✦ Establishing Safe Unrestricted Boundaries**

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

- Efforts continued on the Air Pollutant Graphical Environmental Monitoring System (APGEMS) Software Quality Assurance Plan
- A meeting was held with PNNL to discuss updates to the dispersion model report and APGEMS development plans. WRPS has requested that model recommendations be made for more specific tank farm applications.
- Evaluations continued on the Fire and Gas Detection System and American Industrial Hygiene Association plume models.



### Public Address System

**Update:** The AW-Farm work package was completed, allowing for construction efforts to move forward, while development of the AN-Farm work package is on-going and nearing completion. The design contract for the FY2018 PA systems was awarded to ARES.

## **KPP 6. Tank Operations Stewardship**

### Pilot SST Stewardship Program

**Update:** 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:** To date, cartridge testing has been conducted at eight different, specifically selected Double-Shell and Single-Shell Tank locations. Eight of the tests were conducted under static conditions and one test was conducted during waste disturbing activities. A new cartridge test apparatus (jig) has been built and is ready for use. The new jig is capable of testing cartridges from other manufacturers and also powered air-purifying respirator (PAPR) cartridges. The next wave of testing scheduled this month will begin in SX Farm followed by testing during Tank AW-102 air-lift circulator (ALC) operation.

### Mobile Laboratory

**Update:** Last week's accomplishments include the following:

- Performed mobile van monitoring of the AP-Farm stack
- Performed sample collection and monitoring of generators located in the 200 East Area
- Performed quality assurance weekly measuring and test equipment verifications

#### **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:** Last week, C2Sense began developing a sensor fabrication technique using commercial, off-the-shelf, equipment.

### 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 3**.

**Table 3.** 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"> <li>1. Identify key resources up front and secure availability.</li> <li>2. Meet with subcontractor to stabilize situation and retain necessary resources.</li> </ol>	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"> <li>1. Continue to prepare communication documents and releases</li> <li>2. Coordinate and communicate with WRPS legal team early and often.</li> <li>3. Communicate all allowable data and information to the workforce in lieu of vapors program plans.</li> </ol>	High