



washington **river**
protection solutions



242-A Stack Installation – June 2017

Tank Operations Contract
Chemical **Protection Program Office Weekly Report**
June 15, 2017

Department of Energy Contract NTE 16-TF-0089

1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

CPPO's internal reviews of the over 320 recommendations generated by the external assessments is ongoing. 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 is migrating the vapors library items into IDMS to ensure they are preserved as records.

CPPO Oversight and Tracking

CPPO Requests and Production Metrics

Tables 1 and 2 represent the vapors-related information products requested from the CPPO, and those completed, for the month of May, including the Fiscal Year-to-date totals. With the recent refinement of the ticket/tracking system, the data have been reviewed and updated from the beginning of the FY. The completion of vapor-related information by the CPPO in May was somewhat lower than previous months, however work in progress is not shown. Of the 68 outstanding items, 46 are in review status.

Table 1. CPPO Vapors Information Products Completed FY-17

CPPO Vapors Information Products Completed FY-17	March	April	May	FY-to-Date Total
Data Report (Monitoring Data)	0	21	1	49
Presentations (includes CPPO Notebook and CVST)	3	4	3	27
CPPO Reports and Weekly Report	5	4	5	32
Information Requests	0	18	0	26
Articles, Summaries, and Message Maps	3	2	0	20
Surveys and Focus Groups	1	0	0	2
Website Requests/Site Updates	0	1	1	24
Videos	0	0	0	1
Monthly Totals	12	50	10	181

Table 2. CPPO Vapors Information Products Requested FY-17

CPPO Vapors Information Products Requested FY-17	March	April	May	FY-to-Date Total
Data Report (Monitoring Data)	0	21	5	59
Presentations (includes CPPO Notebook)	3	4	4	31
CPPO Reports and Weekly Report	4	4	4	32
Information Requests	0	18	0	35
Articles, Summaries, and Message Maps	13	1	0	50
Surveys and Focus Groups	1	0	0	2
Website Requests/Site Updates	0	0	0	35
Videos	0	0	0	5
Monthly Totals of Requests	21	48	13	249

WRPS Vapors Related Communications Distribution and Trend

Table 3 illustrates the total number of documented WRPS vapors-related communications provided to the workforce on a monthly basis and FY-to-Date. Maturation of this metric is ongoing. The data for May include 380 vapors-related communication activities. The monthly increase from April to May is driven by a change in how documentation of morning meetings are reported. Rather than documenting Manager meetings, where information was primarily shared with other managers, the 'Morning/Pre-Shift Brief' (formally reported as 'POD/POW') now captures regularly scheduled daily morning meetings held with field personnel (Operations, Construction and Support workers). The Morning/Pre-Shift Briefs are where the previous day's Industrial Hygiene (IH) monitoring results are presented and discussed as part of the enhanced IH monitoring program. An estimated total of 14 Morning/Pre-Shift Brief meetings occur daily and are recorded as part of this metric. The increase from April to May reflects these meetings which take place each work day of the month. At the end of May, HPT and IHT daily meetings also began to be captured. Utilization of the CPPO Notebook continues to be a primary avenue for delivering vapors-related communications to the workforce. In addition, several updates were posted to the Hanford Vapors website in May.

WRPS Vapors Information Distribution Avenue	March	April	May	FY-to-Date Total
All Employee Email/Meetings & ESHQ Comm.	2	3	2	36
CPPO Notebook*	75	47	68	313
CPPO Report and Weekly Report	4	1	3	24
Fact Sheet & Information	0	1	0	3
Meeting - CVST *	2	1	1	11
Meeting - CVST Sub-team meeting *	5	3	0	28
Meeting - Hanford Advisory Board Briefing *	1	0	0	2
Meeting/Briefing*	10	1	3	67
Meeting -Morning/Pre-Shift Brief* [†]	14	15	258	325
Presentation*	1	0	0	3
Safety Start	0	0	1	6
SOEN	1	0	2	9
Solution Article	4	1	2	26
Survey and Focus Group	1	0	0	2
Tours*	1	2	2	16
Website/Individual Inquiry	0	0	0	5
Vapors Weekly Update or Website Post	3	99	38	180
Video	0	0	0	1
Monthly Totals	124	174	380	1057

* Face-to-face communication †Morning/Pre-Shift Brief expanded to include field personnel interactions

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 2,000 vapors-related communications by the end of the fiscal year, largely through briefings and face-to-face interactions with the workforce.

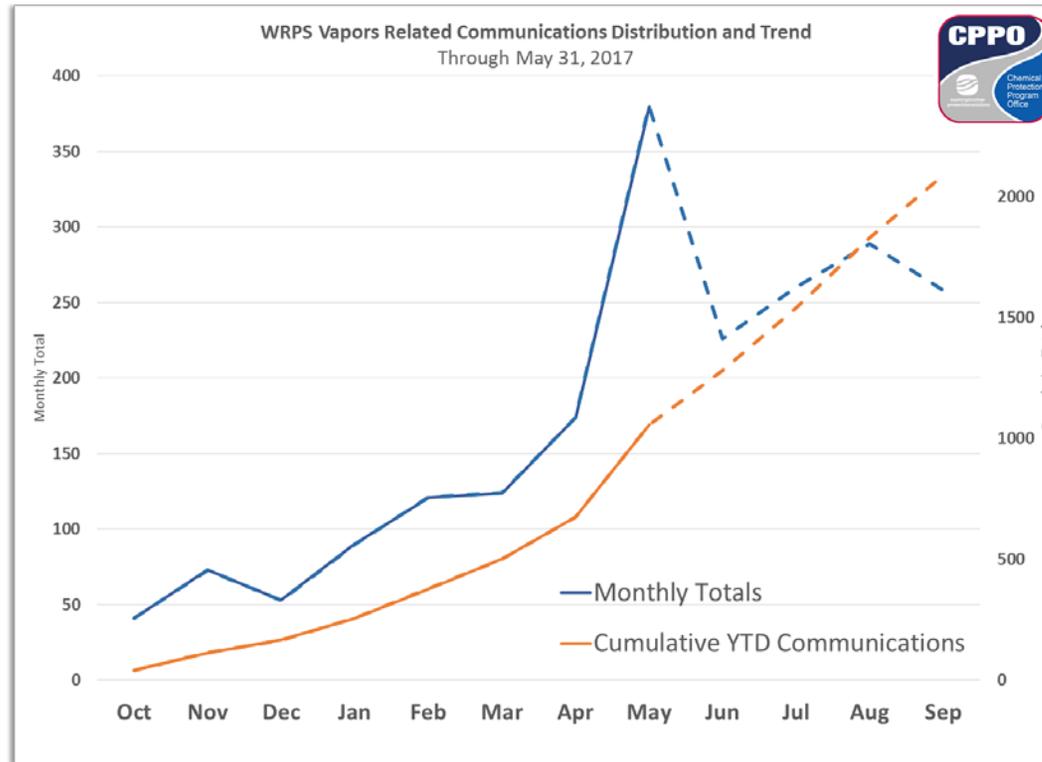


Figure 1. WRPS Vapors Related Communications Distribution Avenue

The peak shown for May is due to the shift from reporting POD/POW to Morning/Pre-Shift Briefings. The drop in the trend for out months is a reflection of how the trend data is calculated – using an average of the three previous months. This change from tracking POD/POW meetings to Morning/Pre-Shift Briefings affects the forecast, but is expected resolve over the next three months.

CPPPO Notebook and Utilization

The CPPPO released three Notebooks in May covering an update to the cartridge test reports, the results of the CPPPO vapors-related communications survey, and an update on the VMDS equipment testing. CPPPO Notebook topics and their utilization as reported by management is 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 Notebook. Since the beginning of the FY, the Notebooks have been used 313 times, and reach an audience of over 300 staff per week.

Chemical Protection Program Office Notebook Utilization Through May 31, 2017

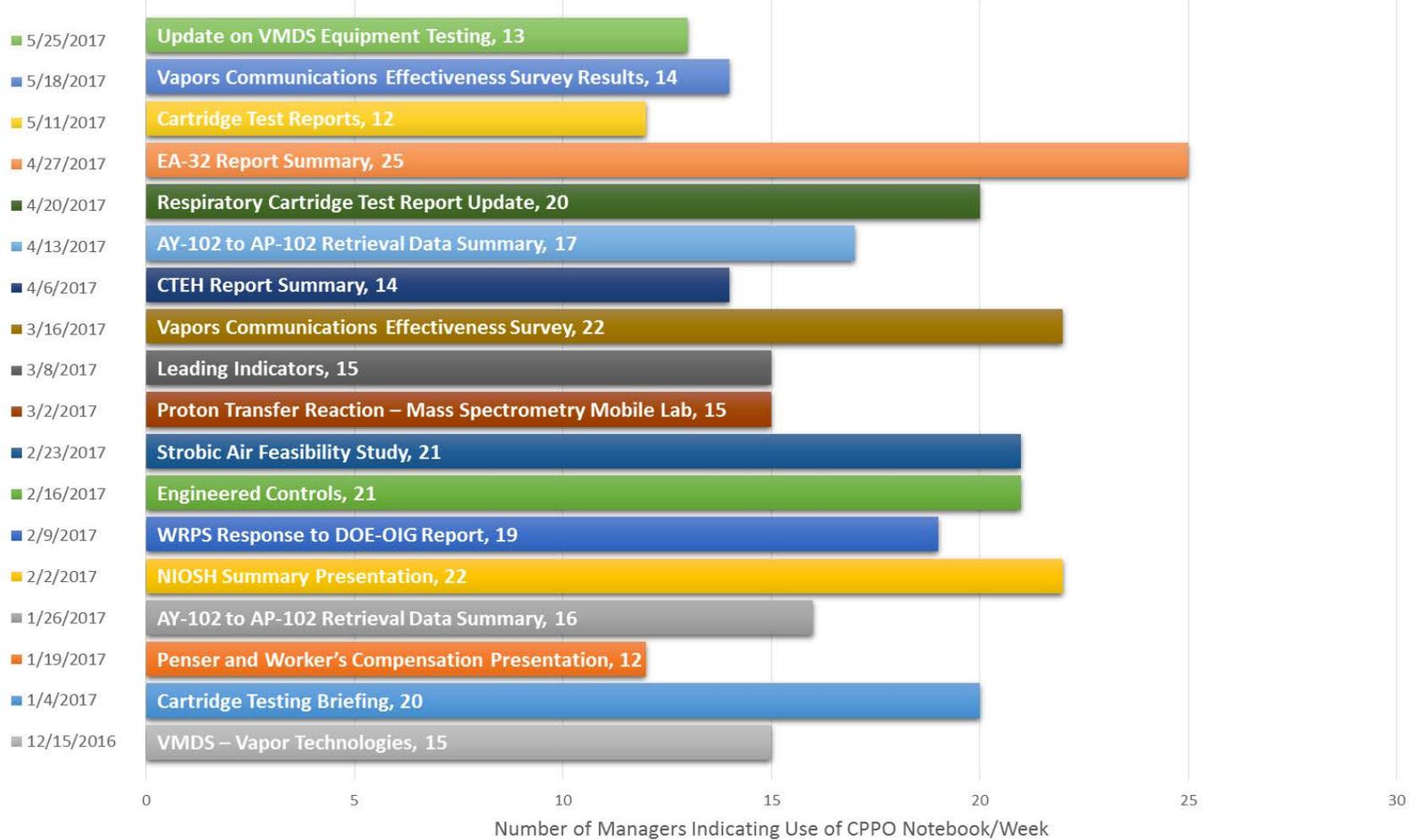


Figure 2. CPPO Notebook and Utilization

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.

Last week's *Solutions* publication reported that "[a]fter evaluating 10 Self-Contained Breathing Apparatus (SCBA) models for potential tank farm use, then narrowing the choices to four for testing at HAMMER, an employee committee has selected two models for further testing inside the tank farms this summer. The units are the Air-Pak NxG7 and the ACSi SCBA, both manufactured by Scott Safety, a major provider of respiratory and personal protective equipment."

Additionally, *Solutions* described the Lean Management Rapid Improvement Event that was held May 16-18. The goal of the event was to "propose more effective means of exchanging information between chemical-vapor subject-matter experts and the WRPS workforce." Furthermore, *Solutions* reported, "[t]he event, sponsored by the Chemical Protection Program Office (CPPO), focused on finding ways to increase face-to-face communication with subject-matter experts, strengthen the use of the Chemical Vapors Solutions Team (CVST) as an effective communication tool, and improve the workforce's access to web-based vapors resources." Importantly, the LEAN event "identified a number of potential improvements and action items, including making the Hanfordvapors.com website easier to navigate, utilizing social media, increasing CVST participation, modifying training curriculum, and changing pre-job checklists. Other improvements include additional training for managers and supervisors, and hiring additional industrial hygiene subject-matter experts to communicate vapors information to the workforce."

The CPPO Notebook published on June 8, 2017, is titled *Human Odor Perception and Chemical Exposures, Part 2*. To date, 15 recipients of the notebook indicated their intention to present the material to their staff. Part 1, the CPPO Notebook published on June 1, continues to hold the community's interest as the number of recipients has climbed to 20. This week's CPPO Notebook is the third installment, and is titled *Human Odor Perception and Chemical Exposures, Part 3*.

Key Performance Parameter 1

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

Hanford Vapors Website Updates

The Hanford Vapors Website posted one new items last week:

- Vapors weekly update – June 8

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)

Last update 6/8/2017: 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 recommendation from the PNNL Report. The template for RPP-22491 revisions has been created and is under review. The GAP analysis for RPP-22491 is ongoing.

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

Last update 6/8/2017: The IH Manual draft is taking shape; its structure and drafts contents have been compiled into an Excel spreadsheet, which is now in review/revision with IH Management. The spreadsheet maps out the requirement matrix, and is a primary tool in the GAP analysis. The focus of the IH Program Manual is on Chemical Vapor Program aspects, and it revises existing standards and procedures. The IH management is reviewing the spreadsheet for completeness and accuracy.

Health Process Plan

Last update 6/8/2017: PNNL Health Study Roadmap: A schedule for FY17 has been developed for the Health Process Project. Accomplishments:

- Task 1: Schedule
- Task 2: Establish Tank Operations Assessment Team.

- An interim Tank Operations Assessment Committee has been identified. A charter for the Assessment Committee is developed and in review.
- **Task 3: Establish an External Peer Review Health Panel.**
 - Submitted the Draft External Review Recommendations. A meeting with Sr. management to finalize the membership in the Assessment Committee was held on March 14th. WRPS reviewed PNNL's assessment team recommendations, and drafted a charter for membership and function. PNNL is in the process of reviewing and providing additional comments.
- **Task 4: Implement Routine Analysis and Screening Process for Updating COPCs.**
 - A draft of the sampling and analytical recommendation report is in internal review.
 - The COPC report update is underway.
- **Task 5: Establish Acute/Transient and Chronic Exposure Action Levels.**
 - Draft reports for Chronic Occupational Exposure Limits and nitrosamines have been formatted and will be submitted to WRPS for their review.
 - PNNL continued to evaluate chemical mixture methodology test cases, and a concept paper for evaluation of mixture interactions has been developed and is under internal review.
- **Task 6: Evaluate Computational Approaches for Predicting Exposure and Delivered Dose.**
- **Task 7: Database Implementation and Management.**
 - Worked on adding more functionality to the citation management capability.

Database Implementation and Management

Last update 6/8/2017: In FY 2016, PNNL developed a database to review and update the COPC list and associated OELs. See Task 7, Health Process Plan, for the latest update.

Leading Indicators

Last update 5/25/2017: For the next few months, the Leading Indicators team will be focused on supporting the integrated vapors data collection data quality objective (DQO) process. This DQO will drive data collection that will be used as the basis to validate and update the Leading Indicator Process. Accomplishments for the week ending 5/21 are shown below:

- Continued review of analysis code, ideas for any potential revision needs
- Continued investigation of the effect of series or parallel sampling in available data
- Continued investigation of existing data sources (content, format, etc.) and how to best incorporate into analysis

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.

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 stakeholders.
- 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 lower assembly, upper assembly, and lightning protection system of the new vessel vent exhaust stack were installed. Extension activities are on-track to be complete by mid-June. Last week, *Solutions* reported, “Tank Farm Projects is making progress on replacing the ventilation stack on the 242-A Evaporator. The stack is being extended from about 63 feet above ground level to 111 feet. A template was set in place over the weekend and the anchor holes for the stack were drilled. The anchors will be epoxied into place in preparation for attaching the new stack to the facility. Plans call for removing the old stack this week.”

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

Exhausters

Update: The design for the SY-Farm exhauster, which is scheduled to be completed by the end of FY17, is on-going and approximately 80% complete. Efforts are on-going to procure construction support which is currently scheduled to be awarded by June 22.

Strobic Air Dilution Fan

Update: Strobic is still developing the preliminary AW-Farm fan design and estimate. In addition to design work, a draft of activities was prepared and submitted for peer review.

NUCON Thermal Oxidation Vapor Abatement Unit (VAU)

- **Update:** The following on-going procurement activities occurred last week:
 - A preliminary cost estimate was received from Savannah River National Laboratory to support testing of bench-scale and pilot-scale NUCON VAUs
 - Procurement documentation was prepared and submitted for TerraGraphics to provide site selection, functions and requirements, test apparatus design, and engineering support.
 - Procurement documentation was prepared and submitted for national laboratories to provide test documentation, analytical and data analysis support.

KPP 5. Administrative Controls and Monitoring

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

Update: Two of the four pilot-scale spectrographic units continue to remain off-line as a result of an outage needed to support equipment modifications. Efforts are also 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.

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: A scoping meeting was held to discuss the process and equipment details for the 702 AZ stack monitoring system. The completion of this meeting allows in-house design the ability to move forward with the overall 702 AZ stack monitoring design. It will also expedite the designs at AW and AN tank farms since the project is looking to standardize the stack monitor installations to the extent possible.

+ Establishing Safe Unrestricted Boundaries

Update: Efforts continued on the Air Pollutant Graphical Environmental Monitoring System Software Quality Assurance Plan, as a draft report was initiated.

+ Public Address System

Update: Efforts continued on preparing a work package needed to support AW-Farm public address system construction activities.

KPP 6. Tank Operations Stewardship

+ Pilot SST Stewardship Program

Update: The project performed a walk down of the T-Farm complex to start identifying the work scope for stewardship activities.

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: Efforts were made to perform AP-Stack monitoring and analysis, but were not performed as a result of on-going VMDS sampling upgrades. The AP stack mobile lab sampling activity is expected to be performed next week. Other activities included a detection limit study, with the mobile laboratory gathering data using the random fluctuations of zero-air analysis. In addition, the FY 2016 summary report was submitted for final review and comments were provided.

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 accomplished the following:

- Successfully demonstrated real-time monitoring of a sensor chip using an Android app
- Submitted draft test plans and project schedules for continued development of the personnel monitoring 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

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
004 Integration with other key projects more complex than expected.	242-A Stack Extension experiencing delays due to construction issues, possible threat to EC-6 startup.	<ol style="list-style-type: none"> 1. Identify key program interfaces early. 2. Engage with program/project managers early. 	Medium
009 Resources not available when required.	Cartridge testing experienced lack of resources over the weekend causing a delay in test schedule and resulting in a back to back weekend overtime call to make up for the missed test.	<ol style="list-style-type: none"> 1. Identify key resources up front and secure availability. 	Medium
032 Litigation requires legal scrutiny of communications with workforce.	The ongoing vapors litigation and negotiations constrain the expedited release and communication of planned vapors program activities. Currently the risk is realized and ongoing.	<ol style="list-style-type: none"> 1. Continue to prepare communication documents and releases in anticipation of legal release. 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