



**Table 1. Area/Room Locations**

North East of MO-596
East of MO-523
West of AN Farm (between Buffalo and MO-497)
North East of POR107
South East of AN Exhauster
MO-596
MO-597
Middle of C Farm Egress Tent
C Farm Control Trailer/MO-579
North West of C Farm fence line
C-105
P1VB
POR104
POR209 Bypass
AN-106
North West of AN Farm
Corridor B Gate
Splice of Berm between AN and C Farm
C Farm Retrieval Change Trailer
D2AZ
Outside of C Farm middle Change Trailer
North East Corner of C Farm

**Tank Operations Contract  
 Chemical Protection Program Office Weekly Report  
 August 17, 2017**

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

The CPPO continues to focus on the completion of the Recommendations Table (Table), coordinating the mentoring and engagement activities of the CPPO team members from Center for Toxicology and Environmental Health (CTEH), developing a Comprehensive Vapors Actions status dashboard and metrics process, and launching a vapors related Questions & Answers tracking system.

The Table is the compiled list of actions and deliverables 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), and CTEH. The Table provides the draft Comprehensive Vapors Action Plan (CVAP) Key Performance Parameter (KPP) associated with each action being implemented in response to the recommendations. The Table is in the final stages of incorporating comments from the three weeks of testing. Once management reviews and concurrence is complete, it will be submitted to the Department of Energy Office of River Protection (DOE ORP). The actions associated with the deliverables will be entered into the Problem Evaluation Request (PER) system.

The CPPO has developed a variety of metrics to support the CVAP monitoring dashboard, reflecting the progress made in implementing the CVAP. The metrics are designed to monitor the progress on the CVAP KPPs 1 thru 7. The metrics inform the graphs, charts, and analysis which populate the CVAP KPP Dashboard. The dashboard and metrics update processes have been determined. July 2017 data launched the first test of the process. The team is reviewing and refining the final product.

The CPPO has drafted the CVAP Roles, Responsibilities, Accountabilities, and Authorities (R2/A2) matrix. The matrix is in review.

The StoneTurn Consultants's (STC) PowerPoint presentation, *Hanford Tank Farms Independent Qualified Third Party Review*, delivered to management, HAMTC representatives, and DOE-ORP on August 9, 2017, is posted on the **internal CPPO webpage**, as well as on the HanfordVapors.com website.

The CPPO dedicated resources to develop the summarization of the STC out brief which was utilized by Senior Management to brief managers this week. It too is posted on the **internal CPPO webpage**, and is titled *Independent Third Party Review of Full Face Respirator Use at Hanford Tank Farms*.

**CPPO Oversight and Tracking**

**CPPO Requests, Production, and Distribution Metrics**

**Tables 1 and 2** represent the vapors-related information products requested from the CPPO. The data shows the month of July, the three month trend, and the Fiscal year-to-date totals. The completion of vapor-related information by the CPPO in July was lower than previous months with 80 items currently outstanding. Of those, 45 items are in review status. Most of the items in review were intended for the HanfordVapors website and are report summaries and VMDS weekly reports; the drafted reports are in review.

**Table 1. CPPO Vapors Information Products Requested FY17**

CPPO Vapors Information Products Completed FY-17	May	June	July	FY-to-Date Total
Data Report (Monitoring Data)	1	7	0	56
Presentations (includes CPPO Notebook and CVST)	3	6	4	37
CPPO Reports and Weekly Report	5	5	5	42
Information Requests	0	1	0	30
Articles, Summaries, and Message Maps	0	2	1	23
Surveys and Focus Groups	0	7	0	9
Website Requests/Site Updates	1	1	1	27
Videos	0	0	0	1
<b>Monthly Totals</b>	<b>10</b>	<b>29</b>	<b>11</b>	<b>225</b>

**Table 2. CPPO Vapors Information Products Completed FY17**

CPPO Vapors Information Products Requested FY-17	May	June	July	FY-to-Date Total
Data Report (Monitoring Data)	5	12	2	73
Presentations (includes CPPO Notebook)	4	4	4	39
CPPO Reports and Weekly Report	4	4	5	41
Information Requests	0	0	0	35
Articles, Summaries, and Message Maps	0	1	2	53
Surveys and Focus Groups	0	21	0	23
Website Requests/Site Updates	0	0	1	36
Videos	0	0	0	5
<b>Monthly Totals</b>	<b>13</b>	<b>42</b>	<b>14</b>	<b>305</b>

**Table 3. WRPS Vapors Information Distribution Avenue**

WRPS Vapors Information Distribution Avenue	May	June	July	FY-to-Date Total
All Employee Email/Meetings & ESHQ Comm.	2	5	4	45
CPPO Notebook*	68	80	85	478
CPPO Report and Weekly Report	3	4	4	32
Fact Sheet & Information	0	0	0	3
Meeting - CVST *	1	2	2	15
Meeting - CVST Sub-team meeting *	0	0	4	32
Meeting - Hanford Advisory Board Briefing *	0	0	0	2
Meeting/Briefing*	3	3	12	82
Meeting -Morning/Pre-Shift Brief* <sup>†</sup>	258	390	347	1062
Presentation*	0	0	0	3
Safety Start	1	1	0	7
SOEN	2	7	0	16
Solution Article	2	2	3	31
Survey and Focus Group	0	0	0	2
Tours*	2	2	2	20
Website/Individual Inquiry	0	0	0	5
Vapors Weekly Update or Website Post	38	116	5	301
Video	0	0	0	1
<b>Monthly Totals</b>	<b>380</b>	<b>612</b>	<b>468</b>	<b>2137</b>

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

**WRPS VAPORS RELATED COMMUNICATIONS DISTRIBUTION AND TREND**

**Table 3** illustrates the total number of documented WRPS vapors-related communications provided to the workforce for the last three months, and FY-to-date. The data for July includes 468 vapors-related communication activities. The data reflects a rise in the documented utilization of the CPPO Notebook this month and the number of Plan of the Day (POD) meetings.

The trend for WRPS vapors communications distributed to the workforce is shown in **Figure 1**. The data suggests that at the current rate, WRPS is on track to deliver over 3,000 vapors-related communications by the end of the fiscal year, largely through briefings and face-to-face interactions with the workforce.

The drop in monthly totals from June is primarily a reflection of the increased emphasis that was placed on delivering reports to the website in June.

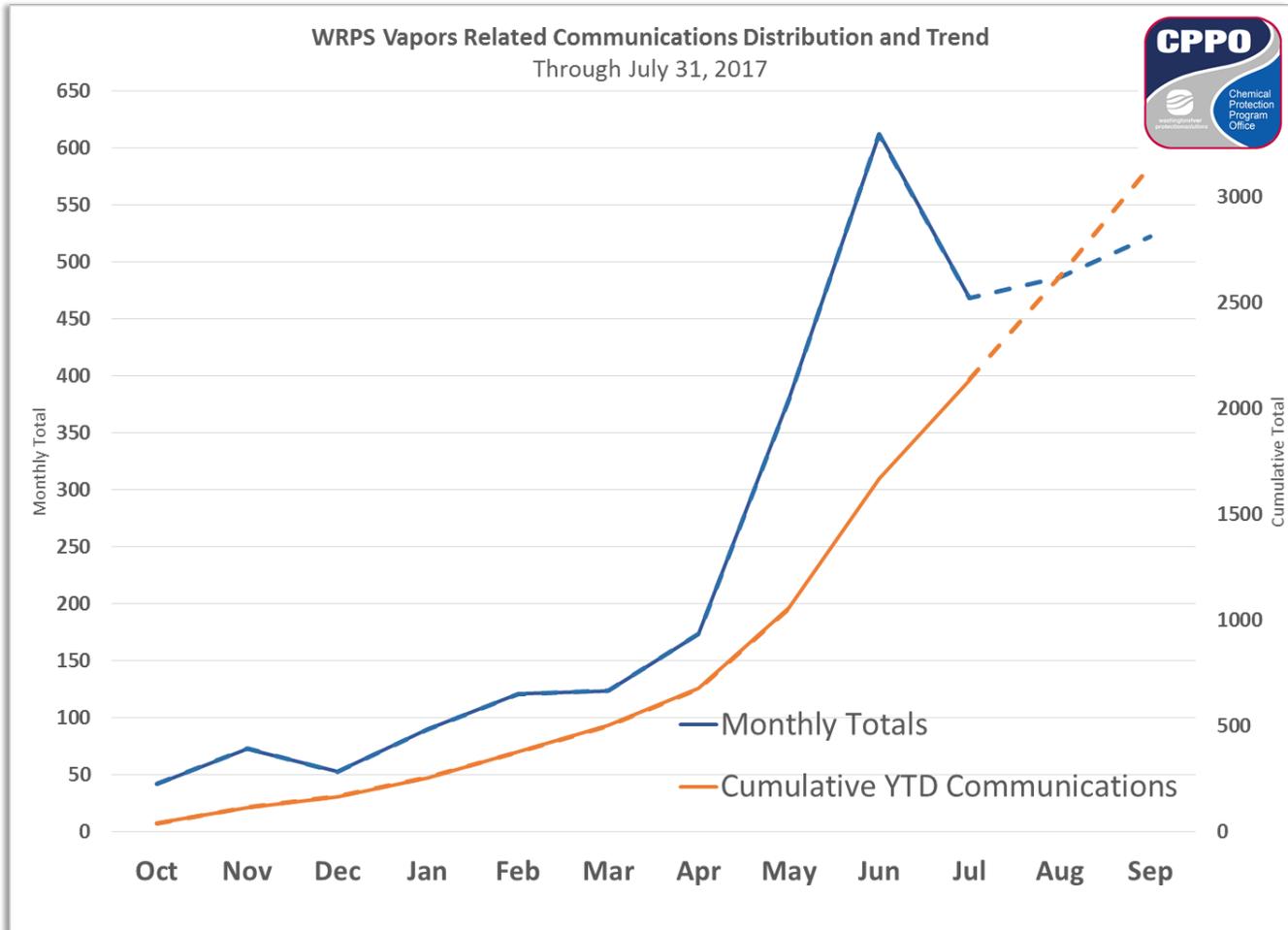


Figure 1. WRPS Vapors Information Distribution Avenue

## 2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters

### KPP 1. Engagement and Effective Measurement

#### Chemical Protection Engagement

The CPPO engagement and mentoring initiatives featuring the team from CTEH continues. Comprised of toxicologists and industrial hygienists, the CTEH team attends onsite staff meetings, select pre-job meetings, and activities with the Industrial Hygiene Professionals (IHP) and Industrial Hygiene Technicians (IHT). The CTEH team is knowledgeable on CVAP actions, general toxicology, and are trained emergency responders. The CTEH professionals also practice Covello high risk communications techniques.

### Chemical Protection Engagement Communications

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 *WRPS Hanford Communication Plan*. The plan has begun the requisite 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 *Strobic Update*. This week's CPPO Notebook is titled *CPPO LEAN Update*.

Doug Greenwell, WRPS Retrievals manager, sent an all-employee email on August 9, 2017, detailing the C-105 waste retrieval activity scheduled to begin Thursday August 10, 2017. In addition to a map outlining the IH monitoring and control strategy for C-105 retrieval, Mr. Greenwell wrote, "WRPS and HAMTC have worked together to develop appropriate controls to address chemical vapor concerns."

*Hanford Tank Vapors, Vapors Weekly Update* was published August 10, 2017. It reported that, "WRPS will start C-105 Retrieval operations... [during which] [s]ampling will include ventilation stack monitoring, IH monitoring and sampling, and strategically placed air monitoring instruments. A mobile laboratory will also periodically take and analyze air samples from areas around the tank farms."

The CVST Communications Sub-committee met on August 7, 2017. The CVST Chemical Cartridge Sub-committee met on August 8, 2017. The CVST New Technology Sub-committee and the CVST Meeting were cancelled to accommodate the site visit from STC.

The August 7, 2017, publication of *Solutions, Issue 402*, reported that WRPS's AP Ventilation Upgrade was among the projects nominated for the AECOM Excellence Awards. "The project was a first-of-its-kind upgrade that set a baseline for future ventilation upgrades at Hanford tank farms." Additionally, *Solutions* reported on the air-line respirator field trial that took place in late July.

### Hanford Vapors Website Updates

Many CPPO products are featured in the newly available compilation of the 3rd Quarter chemical vapors communications posted to the website last week. "The information in this report represents an accounting of WRPS's efforts to increase

engagement with the workforce and stakeholders on the chemical vapors issue.” Hanford Vapors Website posts the week of August 7, 2017, are:

- [Vapors weekly update – August 10, 2017](#)
- [CPPO Weekly Report – August 10, 2017](#)
- [Fiscal Year 2017 Chemical Vapors Communication Activities Quarterly Report #3 April-June 2017](#)

### **CPPO NOTEBOOK**

In July, the CPPO released four Notebooks on the following topics: *Human Odor Perception and Chemical Exposures* (part 5 repeated), *Equipment Selection for the Vapors Monitoring & Detection System*, the *Vapors Management Expert Panel Assessment*, and an update on NUCON®.

CPPO 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.

In July, the voting tab was inadvertently left off two of the weekly distributions. A follow-up email to ascertain usage for those two weeks included responses from several managers who do not typically respond via the voting buttons. This is reflected in the July data, and suggests that the CPPO Notebook is used more often than reported.

The data-to-date show an average of 18 managers per week are using the Notebook to facilitate vapors-related discussions with the workforce. Since the beginning of the FY, the Notebooks have been used 497 times.

### Chemical Protection Program Office Notebook Utilization Through July 31, 2017

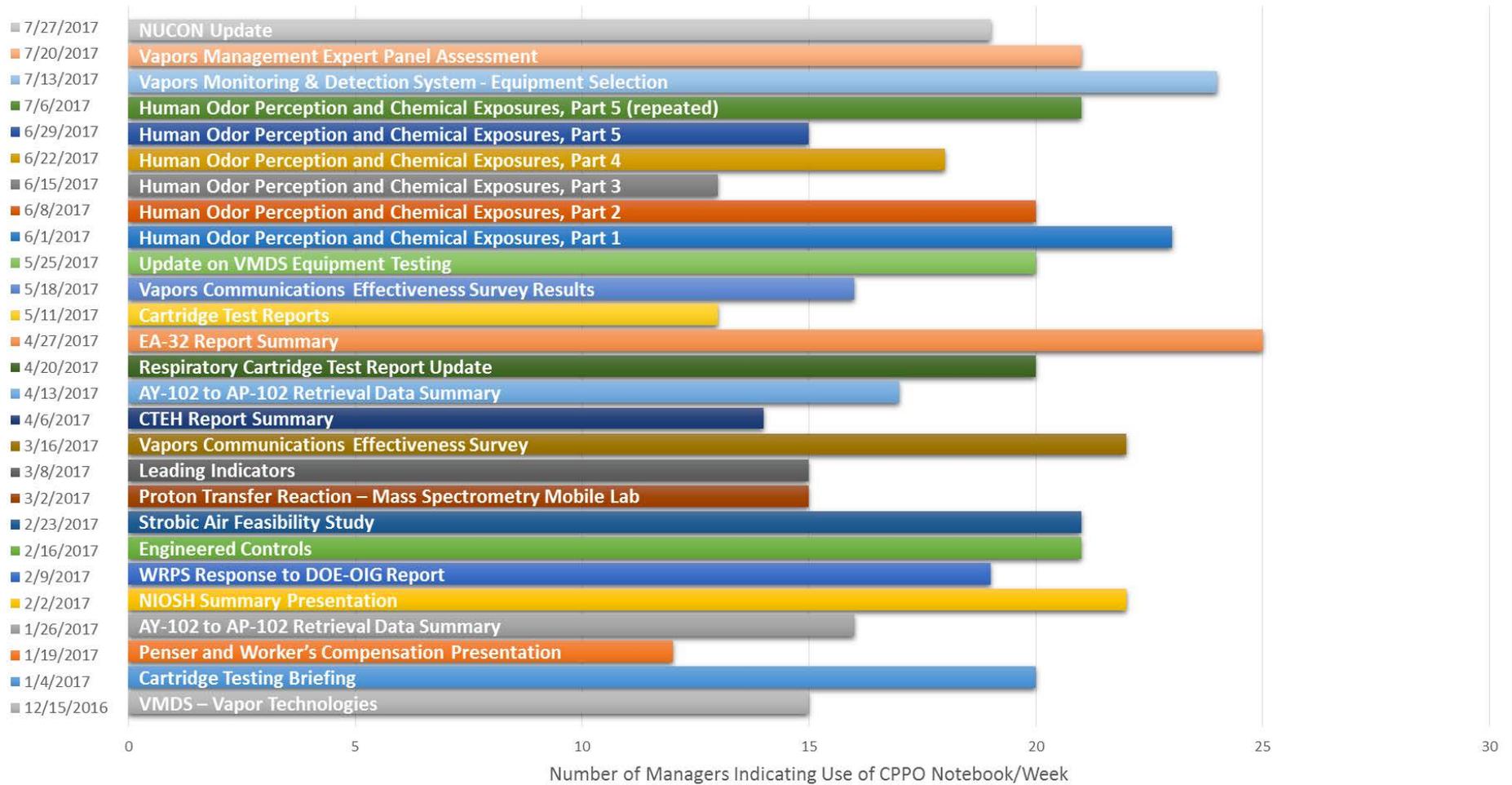


Figure 2. CPPO Notebook Utilization

### Chemical Protection Engagement: Data Analysis and Visualization Tool (PHOENIX)

**Last update 8/10/2017:** For the past four weeks, people from various organizations in 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)

**Last update 8/10/2017:** WRPS, TerraGraphics and Dade Moller continue their review of RPP-22491, *Industrial Hygiene Chemical Technical Basis* incorporating updates as appropriate from the work produced for the Health Process Plan. The Health Process Plan team studies scientific information and provides recommendation updates on Chemicals of Potential Concern (COPC), Occupational Exposure Limits (OEL) and Transient Affect Concentrations (TAC). Several reports have been received from PNNL for WRPS's review, and reviews are ongoing. Additionally, Charter 71, which provides the internal and external review panel process for the HPP review, has been published. The internal panel has met and is in the process of reviewing and completing the evaluation for one of the HPP studies that addresses Chronic Regulatory OELs. Finally, the COPC list has been revised by WRPS IH. The updated COPC list will be finalized this fiscal year.

#### 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

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 (HPP). 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 Pacific Northwest National Laboratory (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 subcontract.
- Task 4: Implement Routine Analysis and Screening Process for Updating COPCs.
  - The draft sampling and analytical recommendation report completed internal review. WRPS's comments on the analytical report and the COPC report were provided to PNNL
- Task 5: Establish Acute/Transient and Chronic Exposure Action Levels.
  - The team delivered to PNNL the WRPS comments.
- 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).
  - 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.

#### 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

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:** The data quality objective (DQO) process drives data collection that is used as the basis to validate and update the Leading Indicators. The accomplishments as of last week are:

- Moved forward with a 15-minute time averaging scheme for Proton Transfer Reaction Mass Spectrometry (PT-RMS) and Picarro Ammonia instrument data.
- Implemented test cases including PTRMS and Picarro paired data along-side of historic data in quadrant diagram plots.
- Continued the discussion on designating different data sources (instrument output) with error bars, representing data by location, and appropriate time averaging for R-code.
- Continued the investigation of identifying the efforts needed to compile existing and new data sources (content, format, assumptions, etc.) for incorporation into analysis. This effort includes initiating an effective sample size to determine how best to incorporate PTR-MS time-series data.

#### Parity Implementation with Established Programs

**Last update 8/10/2017:** Chemical Worker Tier 1 and 2 training is in the coding process for computer based training (CBT). Coding is slated to be complete by the end of August-beginning of September. Final review of the CBT will follow.

The Tier 3 Chemical Worker Training is being developed. Tier 3 training is slated for completion by the end of FY17. The rollout of a Tier 3 pilot class is anticipated by end of FY17.

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

#### 242-A Evaporator Stack Extension

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

#### Exhausters

**Update: SY-Farm:** Efforts to design the exhauster system is on-going. The target for completing the design is the end of FY17. The design is currently focused on the cathodic protection system. Site mobilization activities continue to be on-hold pending the results from the third party review of vapor controls. **A-Farm:** Acceptance testing began August 1 and is on scheduled to be completed by the week of August 14. **AX-Farm:** The evaluation of the AX exhauster demister capabilities are on-going.

#### **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

#### Strobic Air Dilution Fan

**Last update 8/10/2017:** The specification for factory acceptance testing (FAT) of the Strobic unit is in SmartPlant for review, while a draft statement-of-work for Strobic to support the FAT is being prepared.

#### NUCON® Thermal Oxidation Vapor Abatement Unit (VAU)

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

TerraGraphics:

- Submitted a revised and reformatted Functions and Requirements (F&R) Document for WRPS review on August 10. The F&R addresses requirements for the upcoming bench-scale test.
- Submitted a revised draft of the Demonstration Site Selection Report, which now includes Columbia Energy's Salk Facility as a candidate to support bench-scale testing.
- Continued work on the bench-scale test design. Specific instrumentation is being defined to help determine the layout of the test site.

WRPS:

- PNNL submitted a proposal to support bench-scale activities.

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

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

**Update:** The events of last week include the following:

- Ongoing preparations for the Pilot-Scale Phase 2 Report.
- Planning for the removal of equipment from A Farm.
- Issuing test procedures to keep running the equipment left in the field.

#### Stack and Boundary Monitors

**Update:** Efforts continued on the design for the AN, AW and 702AZ stack monitors, the main focus being on getting the AW-Farm design out for review. In support of the design, bottle rack locations were selected along the west fence at AW-Farm and on the southeast side of AN-Farm.

#### **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 Unrestricted Work Boundary team has developed a draft document to establish criteria for developing the boundaries. A team meeting was held the week of July 31 and the development document was sent out for review afterward amongst the team. During the week of August 7, at least twelve comments were presented for additional consideration. Many were incorporated into the draft. Pending any further revisions the draft will be presented to the ORP to assist in the on-going discussions.

### Public Address System

**Update:** Excavations and conduit installations were started at A Farm. The pole mounted speakers are currently with the Acquisition Verifications System group and are planned to be shipped to the field the week of August 14. Pole installations are anticipated to begin the week of August 14.

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

### Pilot SST Stewardship Program

**Update:** FY15 LEAN Report/Work Location Evaluations: Procurement documents continue to be prepared for obtaining engineering services needed to develop the Project Execution Plan (PEP), which will be used to define the scope and schedule for these activities. Work is expected to start on the PEP by the end of FY17.

#### **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:** Stoneturn Consultants (STC) stated in their August 9th close out meeting with WRPS management and HAMTC leadership that full-face air purifying respirators (FFAPR) fitted with Scott 7422-SC1 (Chemical – multipurpose) or the Scott 7422-SD1 (Chemical – multipurpose/P100) would provide adequate protection for Seg1 work activities in the following approved locations:

- AP Farm
- SY-102
- A-101
- BY-108
- 702-AZ
- AN Farm
- AW Farm

#### **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 use of FFAPRs was not approved for BY 108 and AX-101. Following STC's announcement, WRPS and HAMTC began working on the implementation. Workers may choose to wear SCBAs in these locations.

#### Mobile Laboratory

**Update:** Background sampling for furan and nitrosamines was performed at sites 1B, 2B, 3B, 4B and 5A. Site 1B represents a remote location positioned at what is historically upwind of 200W and 200E for the months of July and August. Site 2B is at the 200W T-Farms. Site 3B is located in 200E, on the north side of BY Farm. Site 4B is located approximately ½ mile east of the Waste Treatment Plant. Site 5A is located in Kennewick, Washington, to evaluate background levels in residential and more urban areas.

#### Personal Vapor Monitor

**Last update 8/10/2017:** C<sub>2</sub>Sense made a change to the planned architecture of the Personal Ammonia Monitoring system. The reader will now communicate via Wi-Fi rather than Bluetooth LE, which strategically will simplify things in the future as the technology matures and is deployed. The C<sub>2</sub>Sense schedule baseline was revised to reflect the new direction.

### **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

**Last update 8/10/2017:** 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
009 Resources Not Available When Required.	Lack of design and engineering resources are causing delays in VMDS System Integration, 242-A Stack Extension.	<ol style="list-style-type: none"> <li>1. Identify key technical resources up front and secure availability.</li> <li>2. Utilize resource loaded schedule where appropriate.</li> <li>3. Coordinate work planning to streamline resource utilization.</li> </ol>	Medium
004 Integration with Other Key Projects more complex than expected.	Integration of field work for VMDS implementation and associated execution concerns for SY, A-Farm, and AW stack upgrades. Installation and turnover of PA system to tank farm operations.	<ol style="list-style-type: none"> <li>1. Identify key program interfaces early. (Ongoing)</li> <li>2. Engage with program/project managers early. (ongoing)</li> <li>3. Maintain weekly communication and IPT meetings.</li> <li>4. Incorporate instrumentation (stack monitor) installation into future design of equipment.</li> </ol>	Medium