



washington **river**
protection solutions



Airline Respirator Training August 2017

**Tank Operations Contract
Chemical Protection Program Office Weekly Report**

August 31, 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), Vapors Expert Management Panel (VMEP) and CTEH. The actions have been discussed with the project and DOE, and are being added to the PER system for implementation and tracking.

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

CPPO Oversight and Tracking

The Oversight and Tracking is a revolving schedule of metrics

- Week 1 – Website Statistics
- Week 2 – Cost, Schedule, and Spending
- Week 3 – Communication Productivity
- Week 4 – PER Status
- Week 4/5 – CVAP Recommendations Summary Status

Currently the CVAP Recommendations are being finalized, and the weekly report is changing from the original TVAT numbering format to incorporate the remaining TVAT recommendations along with all the other external reports recommendations. The new report will be grouped by KPP and subcategories.

2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters

KPP 1. Engagement and Effective Measurement

Chemical Protection Engagement: Center for Toxicology and Environmental Health (CTEH)

CTEH team members were actively engaged in the IH Team meetings, pre-job meeting for the pump removal and replacement in APO6A, the AX-103 pit, and Production Operations IHP and IHT groups. The IHPs and IHTs reported that the area of most concern, and the topic about which they were asked the most last week, was on heat stress.

Chemical Protection Engagement: Communications

One of the recommendations from the CPPO sponsored LEAN Management Event was to establish an e-form with which to submit vapors related questions, as well as track the question/answer to completion. An e-form has been created and is available on the WRPS intranet website under the “Vapors Protection” tab.

Last week’s CPPO Notebook is titled *Third party independent review recommendation: Full face respirator use at the Hanford tank farms*. This week’s CPPO Notebook is titled *242-A Evaporator Campaign-06: Industrial hygiene sampling and monitoring results*.

Solutions, Issue 404, published August 21, 2017, reported that the Chief Technology Office (CTO) completed a summarization of tank waste cleanup technologies titled *Technology and Innovation Roadmap*. Focusing on what was identified by the Office of River Protection (ORP) as important, CTO included tank integrity, vapor management, the direct-feed low-activity waste system, and waste retrievals technologies in their investigation. This issue of *Solutions* included an article contributed by CPPO on the Strobic Air ventilation unit.

The Cartridge CVST Sub-committee Team met on August 22, 2017. The topic of discussion was the Stoneturn Consultants (STC) cartridge testing results.

An August 23, 2017, all-employee email described the vapor control strategy for the Air Lift Circulator (ALC) operation and 242-A Evaporator campaign EC-07, pointing out that the plan had been reviewed by the Chemical Vapors Solutions Team (CVST) and HAMTC leadership. “Multiple AreaRAEs and enhanced industrial hygiene monitoring/sampling will be used through the campaign to monitor IH

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

conditions. That data will be summarized in the Daily Report and personnel will be briefed each day during the campaign.”

The New Technology CVST Sub-committee Team met on August 23, 2017. Discussions focused on the Industrial Hygiene equipment report. Ron Calmus lead the discussion and conducted the meeting.

On August 23, 2017, the full CVST met. Tank Vapor Representatives (TVR) were asked to identify themselves. Mr. Rob Gregory discussed the expectation that TVRs will attend the CVST meetings and report the events to their work teams. Mr. Gregory discussed ongoing mediation. A fifth mediation meeting is planned. He spoke about the upcoming NUCON abatement technology field testing the steps being taken to assess its viability as a technology that can be used at Hanford. Rob Gregory provided a summary on the STC evaluation of the cartridge testing. The actively ventilated farms are suitable for full face air purifying respirators. An implementation schedule is being developed for roll-out of this program. Dr. Mike Lumpkin of CTEH introduced himself and described the work that CTEH will be doing in the field. He encouraged all in attendance to reach out to any of the CTEH personnel should they have any toxicology or industrial hygiene questions. Mark Bleuze provided an update on the C-105 transfer progress and the IH monitoring/sampling that has been conducted to date. Mark Hulke provided an update on the RAD monitoring and communications regarding the transfer.

The August 24, 2017, all employee *Hanford Tank Vapors* stated, “[n]o unusual odors have been reported by workers during the [C-105] retrieval.” Furthermore, “[a] comprehensive industrial hygiene (IH) control strategy, reviewed and agreed to by WRPS’s Chemical Vapors Solutions Team and HAMTC leadership, is in place...” for a second evaporator campaign of FY17 scheduled to begin August 25.

Hanford Vapors Website Updates

- Vapors weekly update – August. 24, 2017
- CPPO Weekly Report – August. 24, 2017

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)

Update: 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 Occupational Exposure Limits (OEL) and Transient Effect Concentrations (TEC). Several reports have been received from Pacific Northwest National Laboratory (PNNL) for WRPS's review, and reviews are ongoing. Additionally, TFC-Charter-71, *WRPS Internal Review Panel and External Review Panel Process for Review of Health Process Plan Recommendations*, 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.

Draft procedures for the Industrial Hygiene manual have been received from the subcontractor. The procedures are being reviewed by the IH department and ORP. The IH department has established a review group of both field and program personnel. They meet daily to review the submitted procedures. To date, the subcontractor has submitted all but two procedures. Weekly status meetings continue to be held to ensure the contractor's direction is consistent with the expectations of IH management. Several of the procedures will be ready for the procedures group next week.

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

Last update 8/24/2017: 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.
- Task 3: Establish an External Peer Review Health Panel.

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.

- Task 4: Implement Routine Analysis and Screening Process for Updating COPCs.
 - 2017 COPC updates are progressing.
- Task 5: Establish Acute/Transient and Chronic Exposure Action Levels.
 - The Chronic OELs based on regulatory guidance report have been revised according to external WRPS comments. It is awaiting final internal review before submission of the revised report.
 - For furan and nitrosamine reports, comments have been addressed but need to be reviewed prior to transmittal. Staff is unavailable week of August 21; expect transmittal week of September 1, 2017.
 - Acute Regulatory Report is undergoing internal review next week and is expected to be submitted to WRPS by September 5, 2017.
 - The team met to complete deliberations on the mixtures dosimetry and modeling reports. A timeline and next steps were agreed upon.
 - The team met to finalize the approach for Transient Effect Concentrations (TEC) derivations, assign responsibilities, establish a timeline, and set up a review meeting.
- Task 6: Evaluate Computational Approaches for Predicting Exposure and Delivered Dose.
 - Chemical mixtures and methods in vitro portion completed. Adjustments to standard operating procedure, search string and prioritization for TEC development underway. September 7, 2017, submission is target date, with possible earlier submission
- Task 7: Database Implementation and Management.
 - Create forms that will populate the Risk Assessment Tool with data.

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

Last update 8/24/2017: 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 August 17 are:

- Discussed flow charts from prior report and a focus on the R-code that will answer the important question of “is this a good indicating pair.”
- Implemented test cases, including Proton Transfer Reaction Mass Spectrometry (PT-RMS)

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.

- and Picarro (ammonia) paired data along-side of historic data.
- Pulled new data from cartridge testing done in 2016 and 2017, including direct read ammonia instrument and field notes; data is now available.
 - Initiated the conversation of comparing data from different averaging schemes (i.e. 2 min vs 2 hour, etc.).
 - Continued an investigation of the efforts needed to compile existing and new data sources (content, format, assumptions, etc.) for incorporation into analysis; including initiating an effective sample size survey to determine how best to incorporate PTR-MS time-series data.
 - Continued a discussion on designating different data sources with error bars, representing data by location, and appropriate time averaging for R-code.

Parity Implementation with Established Programs

Update: Chemical Worker Tier 1 training is complete. It is being reviewed internally at this time. The review process is in its final stage. It will be added to the training plans soon. Chemical Worker Tier 2 is currently being formatted for use in computer based training (CBT). It is slated for completion by the end of August.

The Tier 3 Chemical Worker Training is being developed concurrently with Tiers 1 and 2, and is slated for completion by the end of FY17. The rollout of a Tier 3 pilot class is still on target by end of FY17.

KPP 4. Engineering Controls

Exhausters

Update: SY-Farm Efforts to design the exhauster system are on-going, with only a few Engineering Change Notices requiring approval. They are on-track to complete the design by the middle of September. Permission was provided to restart site mobilization activities. **Update: A-Farm** The factory acceptance test (FAT) was extended to address vibration issues encountered during testing. The issues were resolved and the FAT continued. **Update: AX-Farm** The team is evaluating the AX exhauster demister video in order to understand why the demisters are loading faster than expected.

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 8/17/2017: The specification for factory acceptance testing (FAT) of the Strobic unit remains 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:

- Performed a walkdown of the PNNL test site to obtain information for the test design report.
- Submitted a revised draft of the Bench-Scale Site Selection Report, which includes the new chemical emissions permitting criteria.
- Continued developing the Bench-scale test design and the modifications for testing at PNNL.
- Provided a Rough Order of Magnitude estimate for FY18 scope.

WRPS:

- A contract was issued to PNNL for prototype testing support (analytical, test plan, test report, etc.).
- A draft statement-of-work (SOW) was prepared for TerraGraphics to support use of diesel during bench-scale testing.
- A draft SOW was prepared for NUCON to design and procure a diesel conversion kit needed to support bench-scale testing.

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:

- Viability assessments, scheduled to be completed by mid-August, are on-going for the ultraviolet Fourier transform infrared spectrometer (UV-FTIR) and open path Fourier transform infrared spectroscopy (OP-FTIR).
- Efforts continue on the *Pilot-Scale Phase 2 Report*, which is currently scheduled to be completed in late September to early October.
- Test director issued revised test procedures to keep the equipment left in the field (coastal meteorological station, UV-FTIR, OP-FTIR and Ultra-Violet-Differential Optical Absorption Spectrometer) operative.
- The 507U did report throughout the week. Efforts are on-going with the vendor to troubleshoot options.
- Determining the necessary preparations for removing equipment from A-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.

Stack and Boundary Monitors

Update: Reviews of electrical Engineering Change Notices (ECN) were started in support of both the AW and AN-Farm designs. In addition, a review of the AW-Farm mechanical design was started.

Establishing Safe Unrestricted Boundaries

Last update 8/24/2017: Quantitative Risk Assessments for A, AP, and AW-Farms are in review. Comment resolution is in its very early stages.

Public Address System

Update: Pole installations continued throughout the A-Farm complex. Power source modifications were identified during the installation activities, and were performed throughout the week.

KPP 6. Tank Operations Stewardship

Pilot SST Stewardship Program

Update: FY15 LEAN Report/Work Location Evaluations: A draft SOW is being routed for review and approval to procure engineering services needed to prepare the *Project Execution Plan*.

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: Cartridge testing at AX Farm was conducted last weekend. This will complete the cartridge testing at AX farm. No further testing is planned for the rest of FY 2017.

Mobile Laboratory

Update: Background sampling for furans and nitrosamines was performed at sites 3B, 4A, 4B, 5A and 5B. In addition, sampling was performed during the C-105 to AN-106 retrieval.

Personal Vapor Monitor

Update: The C₂Sense Personal Ammonia Monitoring System continues to evolve. The accomplishments as of August 24:

- The printed circuit boards continue to be fabricated and assembled.
- The top and mid-housings of the enclosure were re-designed to accommodate the printed circuit board.

- The prototype back housing was received. It was confirmed that the Raspberry Pi 3 fit inside the enclosure. The housing contains an integrated loop for use with a strap.

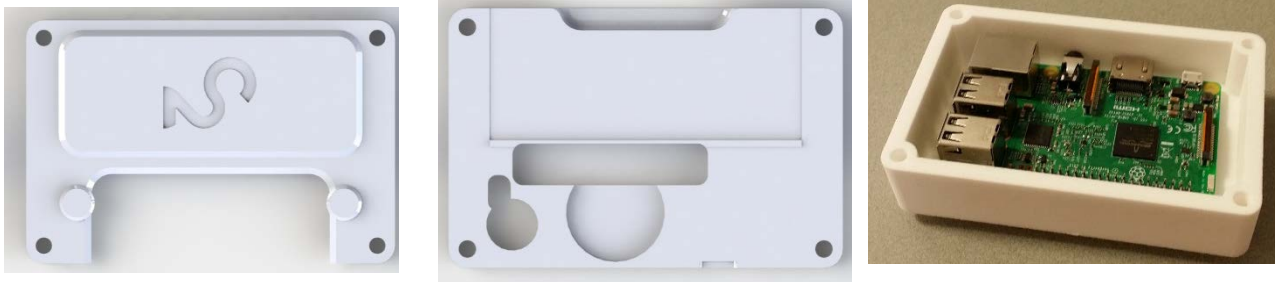


Figure 2. Wearable Ammonia Analyzer (courtesy G. Weeks)

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

Last update 8/24/2017: The subset of the Vapors Mitigation Risk Register this week is shown in **Table 1**.

Table 1. Vapors Mitigation Risk Register

CVAP ID Number	Current Status	Handling Actions	Current Risk Level
023 Internal Reviews take longer than anticipated.	Internal reviews are due Sept 17, leaving no float for delays and large amount of work for reviewers.	1. Assign expediter to the project to speed process – complete.	High
009 Resources not available when required.	Lack of design and engineering resources are causing delays in VMDS System Integration, 242-A Stack Extension.	1. Identify key technical resources up front and secure availability. 2. Utilize resource loaded schedule where appropriate. 3. Coordinate work planning to streamline resource utilization.	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.	1. Identify key program interfaces early. (Ongoing) 2. Engage with program/project managers early. (Ongoing) 3. Maintain weekly communication and IPT meetings. 4. Incorporate instrumentation (stack monitor) installation into future design of equipment.	Medium