



**WRPS Integrated Chemical Vapor Hazard
Control Program
Monthly Report – November 2018**
Published: December 20, 2018



At the end of Fiscal Year (FY) 2016, Washington River Protection Solutions LLC (WRPS) was completing Phase I of the *Implementation Plan for Hanford Tank Vapor Assessment Report Recommendations* (WRPS-1500142), developed to address Tank Vapors Assessment Team (TVAT) recommendations. The implementation plan actions were originally planned to occur in two phases. Phase I was completed at the end of fiscal year FY 2016. During the latter part of Phase I, multiple assessments were conducted on the progress of the implementation plan and/or the overall Industrial Hygiene (IH) program, including those conducted by the National Institute for Occupational Safety and Health (NIOSH), Office of Inspector General (OIG), Center for Toxicology and Environmental Health, LLC (CTEH), and DOE-Office Environment, Safety, and Health Assessments (EA-32). Assessment results, feedback from stakeholders, and the Phase II actions were incorporated into a comprehensive vapor management strategy, focusing on the vision that all workers on the Hanford Central Plateau continue to be protected by the comprehensive approach to vapors management, and that workers **are safe and feel safe**. The *Comprehensive Vapor Action Plan* (CVAP), as the plan became known, presented the new implementation strategy, and replaced the *Implementation Plan for Hanford Tank Vapor Assessment Report Recommendations*.

The CVAP was organized around eight Key Performance Parameters (KPPs):

- ✚ Engagement and effectiveness measurement
- ✚ Industrial hygiene technical basis
- ✚ Industrial hygiene program parity
- ✚ Engineered controls
- ✚ Unrestricted work boundaries
- ✚ Single shell tank stewardship program
- ✚ Chemical vapor respiratory protection hierarchy of controls, and
- ✚ Support medical program enhancements

The Plan was implemented during fiscal years 2017 to 2018.

The Chemical Protection Program Office (CPPO) was established in October 2016. The mission of the CPPO is to provide independent monitoring of vapor action status, and facilitate the flow of clear and transparent information throughout WRPS and to stakeholders to promote understanding of Hanford tank vapors by:

- Providing independent measures of progress to ensure actions achieved the required intent
- Both leading and supporting vapors engagement and communication efforts

From FY 2017 to FY 2018, CPPO delivered KPP 1 of the CVAP: “[e]stablish a comprehensive vapor communication plan, engagement processes, and effectiveness measures,” in part by publishing the *CPPO Weekly Report*. The weekly updated all the KPPs as described in the CVAP. WRPS’s ongoing actions aimed at managing chemical vapor hazards from the Hanford Tank Farms are now focused around the outcomes of the CVAP. Instead of describing the outcomes in terms of KPPs, WRPS is now using the following descriptors:

-  **People, Programs and Processes**
-  **Mitigating actions/Engineering controls**
-  **Information Sharing/Communication**
-  **Sampling and Monitoring**

The CPPO Weekly Report is now the WRPS Integrated Chemical Vapor Hazard Control Program Monthly Report.

1. People, Programs, Processes

IH Tech Basis Updates

Last Update October 2018:

WRPS completed the update of RPP-22491, *Industrial Hygiene Chemical Technical Basis*, and developed detailed, institutionalizing documents in fiscal year (FY) 2018, as well as establishing a process to analyze new information in light of current scientific and regulatory information to determine if a new chemical of potential concern (COPC) should be identified. This analytical process determines if a regulatory Occupational Exposure Limit (OEL) exists for the newly identified COPC. Furthermore, the process determines when a new Hanford Tank Farm OEL (HTFOEL) should be created.

Exposure Assessments

Update:

TFC-PLN-34, *Industrial Hygiene Exposure Assessment Strategy*, is the published guideline for developing exposure assessments. TFC-IH-C-69, *Exposure Assessment Procedure*, was published on September 4, 2018. In November, IH continued the baseline exposure assessments for the following tank farms and facilities: AX, AY/AZ and AN Tank Farms and the 242-A Evaporator. AX Farm exposure assessment was being written in November.

Central Residence for Industrial Hygiene Technicians

Update:

During November, progress continued on the balance of the parking lot (striping and bumper installation), the fire protection tie-in at the building, and the installation of interconnecting spool pieces between modular units. Leak testing and disinfection of the water supply systems were performed on November 16. The final skirting was installed on November 19. At the end of November, the team was waiting for the disinfection test results.



Figure 1. New 10-Wide Industrial Health Personnel and Equipment Trailer – November 2018 (Photo courtesy of L. Parker-Bowles).

IH Training

Update:

In November, IH added a *ToxiRae Pro Hanford Vapors Fact Sheet* and a *Solutions* article to the *ToxiRAE Pro* library of published communications. IH presented a *ToxiRAE Pro Field Use* briefing to the IHT and RCT first line managers at the November 12, 2018, Monthly Seminar Meetings. Additionally, IH completed a *ToxiRAE Pro Laboratory Preparation & Calibration Training* for all Instrument Technicians (TFC-OPS-IHT-028), and a *ToxiRAE Pro Field Use Training* for all OJT/OJE Qualified IHTs. IH is working on the training plan for FY 2019 to include Part Two of the *Crucial Conversations*. Additionally, the *ToxiRAE Laboratory Preparation Training* for IHTs is ongoing.

Health Process Plan (HPP) and Charter 71

Update:

The following three HPP or Charter 71 reports were further developed by Pacific Northwest National Laboratory (PNNL) and WRPS:

-  **Hanford Tank Farm Occupational Exposure and Risk Assessment Plan** (PNNL-25791): This report has been issued to WRPS by PNNL as revised Revision 1, incorporating WRPS comments. It is in WRPS legal review prior to final issue.
-  **Proposed Risk-Based Approach for Nitrosamine Chemicals of Potential Concern** (PNNL-26787): PNNL is completing the editorial review and is preparing the Revision 0 draft for WRPS review.
-  **Chemical Mixtures and Modeling Recommendations** (PNNL-27089): PNNL scientists have scheduled a meeting to prioritize the COPCs for development of Health Code Numbers to be used in calculating health risks from tank vapor chemical mixtures.

Chemical Worker Training

Update:

WRPS Training issued an all-employee email on November 27, 2018, titled, *Training Bulletin TB-18-07, Chemical Worker Training Program Change*. “We are going from two to one,” reads the bulletin. “From now on, you only need to complete one *Chemical Worker Training* course to ACE into the tank farms. Course #350538, *Tank Farm Chemical Worker*, (previously known as *Chemical Worker III*) will prepare you to work safely around exclusion zones (formerly VCZs).” The training bulletin reported that over 500 workers completed the classroom training and over 2000 workers completed the web-based training since October 2017.

CTEH toxicologists regularly visit the *Chemical Worker Training*, moderating Question & Answer (Q&A) sessions that give the course trainees an opportunity to get answers to their questions regarding the toxicology and potential health impacts from tank vapor chemicals. In the month of November, CTEH toxicologists interacted with a total of 91 trainees.

-  **November 7, 2018:** Dr. Mike Lumpkin answered toxicology and health risk-related questions for about 25 minutes. Questions included the management decision to use MSA-brand respirators and filters rather than Scott, whether or not CTEH toxicologists had observed biological effects in workers from tank vapor exposures, the reason for collecting air data in vapor control zones

when workers were in FFAPR or SCBA protection, and publicly-available information resources for heavy metal and radionuclide biomarkers and body burden for former DOE/DOD workers.

✚ **November 27, 2018:** Dr. Lumpkin answered toxicology and health risk-related questions for about 10 minutes. One worker asked if CTEH was under contract to provide emergency response services like those provided to government and private sector organizations outside of Hanford. Another worker asked if CTEH toxicologists studying the SWIHDS data had noticed a difference in measured compounds in the worker breathing zones before and after the installation of exhaust stack extensions.

✚ **November 27, 2018:** Dr. Lumpkin answered toxicology and health risk-related questions for about 15 minutes. One worker asked if skin exposed to tank farm air would result in dermal absorption of tank vapor sufficient to cause adverse effects. Another asked if there were differences in the nitrosamine compounds found in common foods and those found in tank headspaces.

✚ **The Data Access Visualization Tool**

Update:

The Data Access and Visualization (DAV) tool is being further enhanced by IH as a tool to refine analytical data. The new development uses Tableau Server and scripting languages to augment critical IH and engineering data analysis functions. The fully automated tool sets are expected to assist qualified IH staff in updating exposure assessments. PNNL kicked off the IDAV project and working sessions have been scheduled with WRPS IH programs to add efficiencies to exposure assessment data analytical process.

✚ **Integrated Sampling & Monitoring Strategy**

Update:

IH has established the scope and purpose for the IH 200 Areas Surveillance Strategy and briefed the Office of River Protection (ORP). IH began developing a sampling and monitoring strategy for the IH program. However, due to changes in staffing and availability, assignments are being adjusted to cover priority work.

ToxiRAE Implementation

Update:

In November, IH added a *ToxiRae Pro Hanford Vapors Fact Sheet* and a *Solutions* article to the ToxiRAE Pro library of published communications. IH presented a *ToxiRAE Pro Field Use* briefing to the IHT and RCT first line managers at the November 12, 2018, Monthly Seminar Meetings. Additionally, IH completed a *ToxiRAE Pro Laboratory Preparation & Calibration Training* for all Instrument Technicians (TFC-OPS-IHT-028), and a *ToxiRAE Pro Field Use Training* for all OJT/OJE Qualified IHTs.

Root Cause Analysis (RCA)

Update:

The RCA Team reviewed all the past vapor data vapors-related issues to develop a draft RCA report. An external review team reviewed the draft in November. The final report is scheduled to be released in early FY 2019.

People, Programs, and Processes describes actions to ensure employees are qualified and trained, processes are in place to perform work safely, and programs are developed and updated.

2. Mitigating Actions/Engineered Controls

AW and AN Stack Extensions

Update:

The scope of the AW Farm Exhauster is to extend the stack's elevation from 27 feet to 60 feet by FY 2019, and turnover the stack to operations.

Below is a summary of what was accomplished in November:

-  **Stack Installation:** Fabrication of the stack extension was completed in October and delivered on-site in November. The work package to support site construction activities was approved. Final installation will be complete when the non-radiological and radiological permits have been approved.
-  **Permitting:** During November, efforts continued on preparing permits. The radiological permit is currently with the Department of Health for review, while the non-radiological permit is with the Department of Ecology for review.

A Farm Exhausters

Update:

The goals for FY 2019 are to complete installation of the exhausters, exhauster valve manifold component, and all the ventilation cold tie-in components. Below is a summary of what was accomplished in November:

-  **Exhausters:** Completed installation of the exhauster columns and platforms and commenced installation of the exhauster landing and stairs (**Figure 2**).
-  **Exhauster Valve Manifold:** Efforts are currently on-going to deliver the exhauster valve manifold on-site.
-  **Procurement/Fabrication:** Completed fabrication of numerous exhauster components (work platform and cover plate, top-hat and hose assembly, duct spool, demister shielding structure) and started efforts to deliver these components on-site.



Figure 2. A Farm Exhauster Components Installation (Photo courtesy of J. Laurenz)

🔧 NUCON^{®1} Thermal Oxidation Vapor Abatement Unit (VAU)

Update

The current goals for FY 2019 are to start the detailed design of the next generation VAU and tank farm infrastructure, and to apply for environmental permits, as necessary. This is a collaborative effort between WRPS, PNNL, TerraGraphics, and NUCON[®]. Below is a summary of what was accomplished in November:

🔧 TerraGraphics:

- Initiated work on the 30% design package and continued preparing review comments throughout the reporting period.

NUCON®:

- Continued to provide telephone consulting.

WRPS:

- Identified and resolved a work scope issue with the PNNL contract, which allowed work to continue on removal of the VAU skid used for the engineering-scale test.
- Approved the final specifications for both the TerraGraphics and NUCON® design products.
- Developed cost estimates for adding detail design of the VAU to FY 2019 scope, which is necessary to complete the infrastructure design and permit application.
- Developed a preliminary list of risks and mitigation strategies for the NUCON® VAU FY 2019 scope. The VAU design was evaluated to accept a larger diesel generator (up to 145 cfm), but it was determined that a flexible VAU system may impact its efficiency; therefore, it was decided to design to the 50 cfm design.

PNNL:

- Started isolation and demobilization of the NUCON® VAU used to support the engineering-scale test, and continued efforts throughout the month to prepare the VAU skid for shipment to NUCON®.
- Completed the first draft of revision 1 of the *NUCON® Vapor Abatement Unit Performance on Hanford Tanks Farm Chemicals of Potential Concern* report. That report will include a review of the off-line sample results. The report is currently under review.

Strobic®² Air Tri-Stack

FY 2018 saw completion of both the factory acceptance test and full-scale off-site demonstration test. **The unit is being evaluated for future use and updates will be provided when additional information is available.**

AP Farm Ultra Violet Fourier Transformer Infrared Spectrometer (UV-FTIR)

Update:

In FY 2017, WRPS identified VMDS components for use in the tank farms, one of those being the Ultra Violet Fourier Transformer Infrared Spectrometer (UV-FTIR). The main goal for FY 2018 was turnover of the AP Farm stack monitor (UV-FTIR) to Operations. Because of issues identified during the testing process, the schedule for completing the activity was stretched out into FY 2019. The goal for FY 2019 is to

complete turnover of the AP Farm UV-FTIR to operations. Below is a summary of what was accomplished in November:

- ✚ **Ammonia-Only Turnover:** A number of parallel activities are being prepared in support of the ammonia-only turnover and are discussed below:
 - Started the design for the bottle racks installation.
 - Continued the interim reliability Operational Acceptance Test (OAT) testing.
 - Started the no-gas OAT.
 - Instrumentation and control engineering continued IDMS interface development activities, and continued the review of the UV-FTIR software installation plan.
 - Continued preparing the maintenance and operating procedures.
 - Continued compiling evidence to support the readiness of the UV-FTIR to Operations.
- ✚ **Multi-Gas Only Turnover:** A number of parallel activities are being prepared in support of the multi-gas only turnover and are discussed below:
 - Continued preparing OAT procedure to support testing.
 - Continued procurement of permeation tubes for calibration and testing.
 - Continued compiling evidence to support readiness of UV-FTIR to Operations.

✚ **Continuous Emissions Monitor Sampler**

Update:

The Continuous Emissions Monitor Sampler, previously called the Autosampler, will be modified in FY 2019. The scope and schedule was prepared for the modification in November. Activities are scheduled to begin in December.

✚ **Stack Monitor Turnover/VMDS Upgrade**

Update:

In FY 2018, VMDS stack monitors were installed on the AW, AX (2), AN, and 702-AZ exhausters. The goal for FY 2019 is to turn over all the monitors to operations. In November, the set-point calculation sub-contract was awarded to ARES. ARES started preparing the draft calculations for all the farms. Test requirements and OATs for all the farms were started in November. Additionally, the material requisitions for the AX Farm and 702-AZ ammonia OAT gases were started. The

design work for the installation of the ultra violet-differential optical absorption spectrometer stack monitor in A Farm continued.

Public Address System (PA)

Update:

The focus in FY 2019 is to install all the reader boards associated with the PA system, followed by integrated testing of the entire system. In November, the concrete foundations were poured and backfilled for all the reader boards. Approximately 70% of the reader boards have been installed.

SST Farm Automation

Update:

The purpose of the single-shell tank (SST) Stewardship Program is to identify and evaluate procedures requiring entry into SSTs and determine whether those requirements can be eliminated or reduced. The goals for FY 2019 are to install the remote monitoring equipment at both TY and TX Farms with turnover to operations. Below is a summary of what was accomplished in November:

-  **SST Remote Monitoring Equipment:** Veolea Nuclear Solutions continued performing design validations in TX/TY Farm on the liquid-level electrical and mechanical design modifications.
-  **T-Complex Field Construction:** Awaiting completion of design modification prior to completing the statement of work for the T-Complex construction award.

FFAPR and PAPR

Update:

In November, IH worked with respiratory vendors and third party reviewers to implement APR cartridges in actively ventilated tanks farms with MSA brand respirators. Orders were placed, purchases were authorized, and the vendors began shipping the necessary filters and respirators, thus beginning to build an inventory.

3. Information Sharing/Communication

📌 Chemical Vapors Solution Team (CVST) Meetings

The CVST held a meeting on November 28, 2018, attended by Communications, IH Programs and Technicians, Management, Operations, HAMTC Safety Representatives, Nuclear Chemical Operators, Radiological Control personnel, CPPO, as well as a number of the Team Vapor Representatives (TVR). The meeting focused on several areas, including:

- 📌 A discussion by Rob Cantwell, ESH&Q Manager, on the vapor's Settlement Agreement (SA), which is located on the external website and lists the agreed to actions and completion criteria.
- 📌 A discussion on the status of FFAPR implementation. The required respiratory procedures and forms have been updated and the MSA cartridges have arrived but the masks have not yet arrived. Therefore, limited implementation is scheduled to begin the week of December 3, 2018 in SY Farm, with the other actively ventilated farms to follow.
- 📌 A discussion on the ongoing implementation and use of the ToxiRAE personal lapel monitor.
- 📌 A discussion by Mr. Ron Calmus, Vapor Technology Solutions Manager, discussed vapor detection at the Hanford Site that included both inside and adjacent to the tank farms. He discussed some preliminary results of the Fugitive Emissions Sub Team-Initiative, which included research, sampling, and monitoring activities around 244-AR (i.e., near 4th and Buffalo). Mr. Calmus explained that this is more of a forensic analysis/evaluation in which they utilize the same vapor monitoring and detection system (VMDS) equipment, that is located at AP Tank Farm, and the mobile lab to monitor around the clock (i.e., 24/7) at possible odor sources. They also performed monitoring in agricultural areas, which are adjacent to the Hanford Site, such as onion, potato and sugar beet fields. The investigation and monitoring activities will continue until mid-summer 2019, followed by issuance of the final report by the end of FY2019.
- 📌 An update from Mr. Jeff Peterson from Technical & Support Staff Training on the upcoming changes to the Chemical Worker Tier 1, 2, and 3 courses. It was realized that much of the Tier 2 training material was duplicating the Tier 1 and 3 material so the Chemical Worker 2 training is being eliminated and its material will be incorporated into the tier 1 and 3 courses. The Tier 1 course will be

delivered through HGET and the Tier 3 course will continue to be presented in a classroom setting. These changes are scheduled to be completed the 2nd Quarter of FY2019.

- ✚ A discussion lead by Mr. Dan Wolf, Production Operations Safety and Health – East Manager, on the odor event outside of AW Tank Farm. Three employees, performing electrical work, reported an odor.
- ✚ An update from Dr. Sandy Rock from HPMC on the 2017 Worker Health Trending Report, which is issued and on the website. He also reported on the 2018 report, which is in a final review.

✚ **CVST Sub-team Meetings in November 2018**

✚ **Communications Sub-team Meeting**

- **November 12, 2018:**

The purpose of the CVST Communications sub-team meeting is to provide general vapor and sub-team product updates, outreach and presentations to other Hanford site contractors and develop focused presentations on vapor items/activities. The CVST Communications Sub-committee held a meeting on November 12, 2018. Multiple organization representatives were in attendance. The Communications lead provided an update on litigation and settlement activities, CVAP rollout, FFAPR implementation, workforce incentive plan. The majority of the meeting focused on how efforts could be improved to communicate the rollout and implementation of new programs. The main concern is that the new programs aren't communicated until they are actually implemented. Recent examples included the following:

- ❖ Rollout of IH Work Permit/Exposure Assessment
- ❖ Rollout of MSA cartridges that will be used to replace Scott cartridges
- ❖ Updates on potential PAPR usage
- ❖ Rollout of Worker Incentive Program
- ❖ Changing of Vapor Control Zone to Exclusion Zone
- ❖ Implementation of new IH signs
- ❖ Implementation of Beryllium program.

The general thought is that a systemic issue exists and that potentially a site-wide procedure should be developed on the rollout process. The Communications lead indicated that efforts would be made to improve this process.

- **New Technology Sub-team:** No November Meeting
- **Fugitive Emissions Sub-team:** No November Meeting
- **Chemical Cartridge Sub-team:** No November Meeting

HanfordVapors.com Metric

Figure 3 shows that the Hanford Vapors website logged over 1,769 views in November 2018, marking a thirty-five percent (35%) decline in views from October. In November, the website experienced an average of 59 hits-per-day, which is moderately below the average for FY 2018. Website traffic was elevated on November 28, coinciding with posting the [Vapor Settlement Agreement](#). In the agreement, WRPS agreed to post to a public website a collection of documents, linked [here](#). Communications and Public Relations (C&PR) reported posting the following 76 items to the site this month.

A-6004-101, Job Hazard Analysis Checklist	Former Worker Medical Screening Program Link
A-6005-593_Rev_4_Respiratory Protection Form	Hanford Vapors Update 11012018
A-6005-827, Technical Procedure GHA Determination	NUCON new landing page and image
A-6007-360, Preventive Maintenance GHA Determination	PNNL-27816 NUCON Report
Airline Equipment Evaluation	PNNL-27816 NUCON Report Summary
ARPA Posting Commitment Statement	Problem Evaluation Requests Monthly Reports
CPPO FY18 Annual Summary	Return to Work Policy
DOE RL-92-36, Rev 1 HR_CHAPTER_03	TF-AOP-015 G3 Response to Reported Odors or Unexpected Changes to Vapor Conditions
DOE-0359, Rev 2 Hanford Site Electrical Safety Program	TFC-ENG-DESIGN-C-35, Process Hazard Analysis Determination and Technique Screening
DOE-343, Rev 3 Hanford Site Stop Work Procedure	TFC-ENG-DESIGN-C-47, Process Hazard Analysis
TFC-ESHQ-IH-STD-01, Cold Stress	TFC-ENG-SB-C-06, Safety Basis Development

Former Worker Medical Screening Program Link	TVIS-TY-001
TFC-ESHQ-IH-STD-03, Exposure Monitoring, Reporting, and Records Management	TFC-ESHQ-S_IH-C-17, Employee Job Task Analysis
TFC-ESHQ-IH-STD-08, Lead Control Program	TFC-ESHQ-S_IH-C-46, Industrial Hygiene Reporting and Records Management
TFC-ESHQ-IH-STD-11, Carcinogen Control	TFC-ESHQ-S_IH-C-47, Chemical Management Process
TFC-ESHQ-IH-STD-13, Illumination	TFC-ESHQ-S_IH-C-48, Managing Tank Chemical Vapors
TFC-ESHQ-IH-STD-14, Prevention of Illness From Hazardous Biological Agents	TFC-ESHQ-S_IH-C-52, Asbestos Exposure Control and Management
TFC-ESHQ-RP_RWP-C-03, ALARA Work Planning	TFC-ESHQ-S_IH-C-53, Occupational Noise Exposure Control and Hearing Conservation
TFC-ESHQ-RP_RWP-C-04, Radiological Work Permits	TFC-ESHQ-S_IH-C-54, Laser Safety
TFC-ESHQ-S_IH-C-02, Hazard Communication	TFC-ESHQ-S_IH-CD-38, Evaluation and Procurement of Industrial Hygiene Monitoring Instruments
TFC-ESHQ-S_IH-C-05, Respiratory Protection	TFC-ESHQ-S_IH-D-49, Using Office Ergonomic Assessment Tools
TFC-ESHQ-S_IH-C-07, Heat Stress Control	TFC-ESHQ-S_IH-P-11, Industrial Hygiene Equipment Management
TFC-ESHQ-S_IH-STD-03, Ergonomics	TFC-PLN-41, Integrated Safety Management System Description
TFC-ESHQ-S_IH-STD-68, Respirable Silica Exposure Control	TFC-PLN-55, Industrial Hygiene Program
TFC-ESHQ-S_IS-C-02, Personal Protective Equipment	TFC-PLN-91, Industrial Safety Management Program Plan
TFC-ESHQ-S_SAF-C-02, Job Hazard Analysis	TFC-POL-16, Integrated Safety Management System Policy
TFC-OPS-MAINT-C-01, Tank Operations Contractor Work Control	TVIS-A-001
TFC-OPS-MAINT-C-02, Pre-Job Briefings and Post-Job Reviews	TVIS-AN-001
TFC-OPS-MAINT-STD-02, Work Planning and Work Instruction Development	TVIS-AP-001

TFC-OPS-OPER-C-67, Response to Readily Apparent or General Purpose Facility Odors	TVIS-AW-001
TFC-PLN-01, Integrated Safety Management System	TVIS-AX-001
TFC-PLN-34, Industrial Hygiene Exposure Assessment Strategy	TVIS-AY-AZ-001
TVIS-BX-001	TVIS-B-001
TVIS-BY-001	TVIS-TX-001
TVIS-C-001	TVIS-TY-001
TVIS-S-001	TVIS-U-001
TVIS-SX-001	Vapors FAQ 09202018
TVIS-SY-001	TVIS-T-001
TVIS-TX-001	



Figure 3. Hanford Vapors Website Metric

CPPO Notebook Metric

The *CPPO Notebook* assists managers in providing vapor-related information to their staff. It is delivered on a weekly basis in multiple formats: a one sheet summary of the weekly topic, a PowerPoint presentation (with speaker notes), and a narrated video. No notebook was distributed Thanksgiving week. Three *CPPO Notebooks* were distributed in November:

- ✚ **NUCON® diesel abatement unit engineering scale test**
- ✚ **Strobic® air system full-scale demonstration test**
- ✚ **Industrial Hygiene work permits**

Managers are asked to reply “Yes” to their email when they intend to use the notebook with their staff. Often, the notebook is utilized weeks after it was distributed. Consequently, the data frequently changes over time. The data is updated monthly.

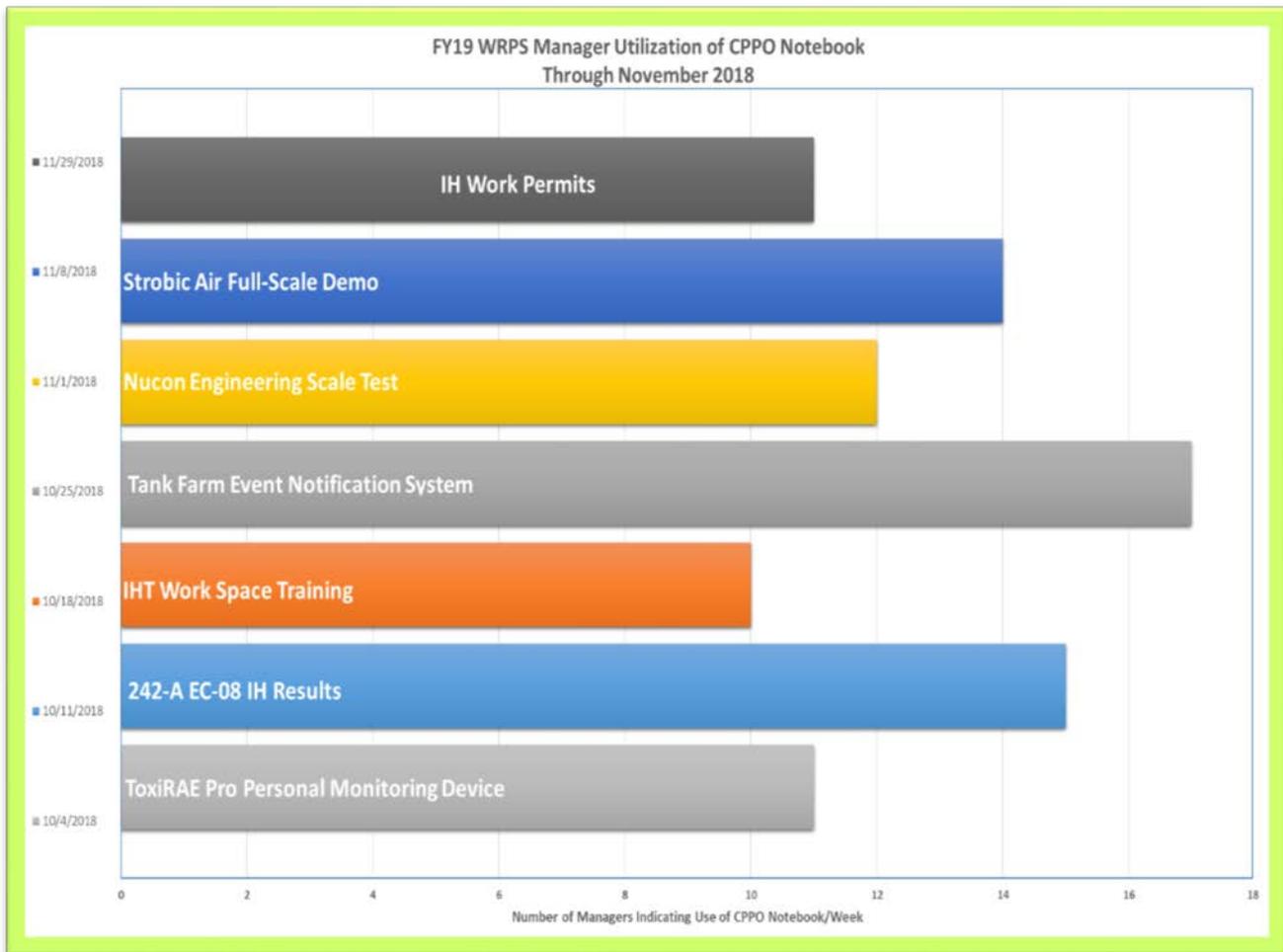


Figure 4. FY 2019 WRPS Manager Utilization of CPPO Notebooks

In November, an average of 12 managers a week reported using the notebook. **Figure 4** shows which notebooks were used by WRPS managers, and when each notebook was used. Since the beginning of FY 2019, WRPS managers reported utilizing the *CPPO Notebooks* 90 times. The notebook material is provided in multiple formats, including an SME narrated/video presentation posted to the intranet, and available to all WRPS staff. In November, narrated notebook files were accessed **356** times. There were two *Solutions* articles and three *CPPO Notebooks* released in November. **Figure 5** shows the monthly website traffic statistics for visits to the CPPO Multimedia Library since the beginning of the fiscal year. The data suggests a larger reach than that which is self-reported by the management distribution list.

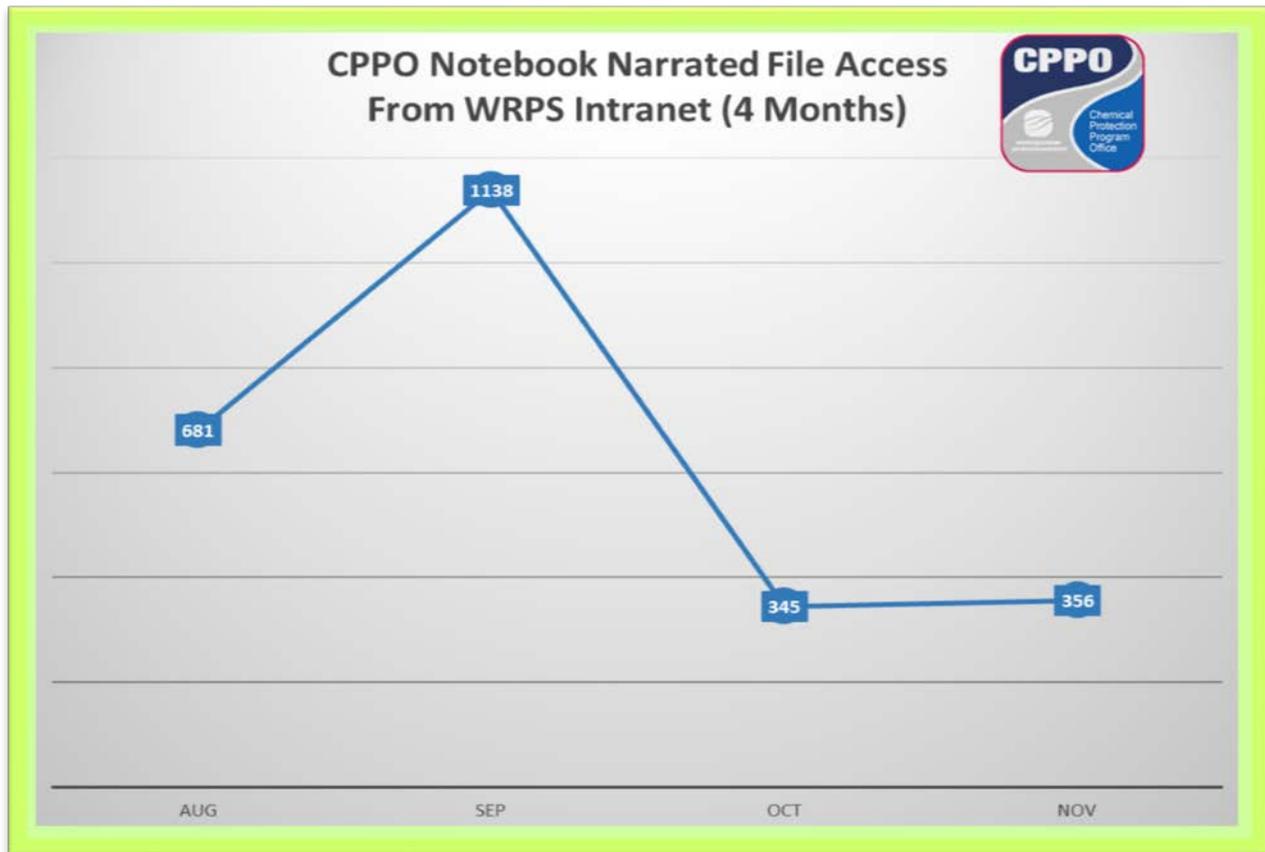


Figure 5. Narrated File Access of CPPO Notebook from WRPS Intranet – 4 Months

CPPO Production Metrics

The CPPO provides monitoring results, report summaries, presentations, and a monthly report on WRPS vapors activities to the workforce. The *Solutions* newsletter, the HanfordVapors.com website, the internal vapors website, and direct emails are the primary distribution paths of the CPPO products. The vapor-related materials produced by the CPPO in November are shown in **Table 1**. In November, the CPPO produced and provided one monthly report, one report summary, an article summary, a draft focus group plan, and seven worker engagement activities. In addition, three *CPPO Notebooks* were delivered to the workforce. The total number of documented WRPS vapors-related communications provided to the workforce in FY 2019 is shown in **Table 2**. The data for November shows a modest increase in the otherwise steady rate of around 500 vapors-related communications per month. Plan-of-the-Day (POD) meetings remain the primary source of vapors-related information provided to the workforce, followed by the settlement agreement documents and the *CPPO Notebook*.

Table 1. CPPO Vapors Information and Engagement Activities FY 2019

CPPO Vapors Information and Engagement Activities FY19	October	November	FY-to-Date Total
Presentations (includes CPPO Notebook and CVST)	4	4	4
CPPO Reports and Monthly/Quarterly/Annual Report	1	1	1
Articles, Summaries, and Message Maps	4	2	4
Surveys, Focus Groups, and Recommended Actions	1	1	1
Website Requests/Site Updates	10	76	10
Videos	0	0	0
Field Visits	3	4	3
Chem. Worker Training Support	3	3	3
Monthly Totals	26	91	26

Table 2. WRPS Vapors Information Distribution Avenue – FY 2019

WRPS Vapors Information Distribution Avenue	October	November	FY-to-Date Total
All Employee Email/Meetings & ESHQ Comm.	7	2	7
CPPO Notebook*	43	25	43
CPPO Report and Weekly Report	1	1	1
Fact Sheet & Information	0	0	0
Meeting - CVST *	1	1	1
Meeting - CVST Sub-team meeting *	1	0	1
Meeting - Hanford Advisory Board Briefing *	0	0	0
Meeting/Briefing*	5	0	5
Meeting -Morning/Pre-Shift Brief*	437	345	437
Presentation*	0	0	0
Safety Start	2	2	2
SOEN	2	3	2
Solution Article	3	2	3
Survey and Focus Group	0	0	0
Tours*	0	0	0
Vapors Weekly Update or Website Post	11	76	11
Video	0	0	0
Monthly Totals	513	457	513

WRPS Vapors Communications

November 12, 2018, Solutions, Issue 460:

Subject: CPPO Notebook on Strobic Air System testing published

November 16, 2018, 11:17 a.m. Shift Office Event Notification

Text: Entering AOP-015 for odors reported on man-lift outside of AW Farm.

November 16, 2018, 1:32 p.m. Shift Office Event Notification

Text: Initiated Event Investigation for AOP-015 odors outside AW Farm.

November 16, 2018, 2:47 p.m. Shift Office Event Notification

Text: Exited AOP-015 or odors outside of AW Farm. IH sample results complete; no readings above background.

November 16, 2018, 3:08 p.m. WRPS Communications & Public Relations

Subject: Odors Reported outside of AW Farm

November 27, 2018, All-Employee Email, WRPS Training

Subject: Chemical Worker Training Program Change

The full text of the all-employee email is available [here](#).

Engagement/Site Visits

Update:

Early in FY 2018, CPPO completed an employee vapors information effectiveness survey, which found that a majority of the workforce were either unaware of CPPO's job scope or unaware of some of the vapors-related information available. In reviewing the survey results at a CPPO/HAMTC interface meeting, it was suggested that CPPO visit the WRPS teams to educate the workforce about CPPO. A dozen teams on site hosted CPPO during plan-of-the-day and morning shift meetings. This workforce engagement activity is a FY 2019 CPPO priority, and will be reported on in the Monthly Report. Also, the HAMTC Safety Representatives requested that the interface meeting be held three times a month instead of four.

CPPO/HAMTC Safety Representatives Interface Meetings were held on November 6, November 14, and November 28, 2018.

CTEH toxicologists routinely engage with groups of workers face-to-face to inform them on the latest tank vapors communications efforts as well as to answer worker questions related to the mitigation of health risks and concerns related to tank vapors exposures.

November 6, 2018: Dr. Mike Lumpkin, along with other CPPO team members and IPT staff, met with HAMTC safety representatives. A discussion was held covering new technologies slated for rollout in the near future, as well as the need to clearly communicate the significance of the new technology to keep and help workers feel safe.

Focus Groups/Surveys

Update:

To evaluate the effectiveness of vapor information resources to first line supervisors, CPPO will conduct two assessment activities in FY 2019. In November, focus group questions were drafted for discussion and review.

AOP-15 Events

On November 16, 2018, an *All WRPS Employee Email* reported, “[a] Hanford worker was released to return to work after undergoing medical evaluation for odors reported Friday morning outside of Hanford’s AW Farm. Three other workers also reported odors but declined precautionary medical evaluation.” Three Shift Operations Event Notifications (SOENs) were also published on November 16, 2018, describing the AOP-015 event. See [WRPS Vapors Communications](#) for the full text of the SOENs.

External Assessments Recommendation Status

The recommendations status columns in **Table 3** below are defined as follows:

-  **Complete** - The scope and deliverable(s) (i.e. final report or documentation) addressing the recommendation is complete and closed. CPPO validated the deliverable(s) as complete.
-  **Field Work Complete** - The scope addressing the recommendation is complete, but the final deliverable(s) is not complete (i.e. final report or documentation).
-  **In Progress** - The scope addressing the recommendation is in progress.
-  **Pending Validation** - Status of the scope addressing the recommendation and associated deliverable(s) is awaiting initial CPPO review.

CPPO validated that ninety-five (95) percent of the recommendations have been addressed by actions and/or deliverables that are either **Complete** or **Field Work Complete**. Of the 371 total recommendations:

-  Eighty-four (84) percent have been verified **Complete** and are considered closed.
-  Eleven (11) percent are verified as **Field Work Complete** and are awaiting final deliverables (i.e. documentation) to close.
-  Five (5) percent have ongoing actions and are **In Progress**.

The majority of the remaining recommendations that are **In Progress** are scheduled to be completed in FY 2019. These recommendations regard

the final actions to support DOE medical communication (December 2018), completion of the reader board testing for the PA system (January 2019), the medical epidemiology study (June 2019), VMDS turnover in AW, AP, AY/AZ, AX, and AN (September 2019), CVAP external assessment (May 2020), and the Aerosol Studies (September 2020).

Table 3. External Assessments Recommendations Status Table

Report	As of November 29, 2018				
	Total	Validated Complete	Field Work Complete	In Progress	Pending
TVAT	117	99	10	8	0
OIG	3	3	0	0	0
NIOSH	54	43	9	2	0
EA-32	31	26	1	4	0
CTEH	24	22	1	1	0
VMEP I, II	67	60	5	2	0
Other	75	57	16	2	0
Total	371	310	42	19	0

External Assessments Recommendations Status

CVAP Corrective Actions Tracking Metric

The CPPO tracks vapor-related Problem Evaluation Requests (PER), with the goal of communicating PER resolution status. The performance data in **Figure 6** below are defined as follows:

-  **Current Due** – Current corrective actions due for the month
-  **Number of Completed** – Number of corrective actions completed for the month
-  **Running Total Due** – Total cumulative actions scheduled to be completed
-  **Total Remaining** – Total cumulative actions remaining to be completed
-  **Cumulative Schedule Performance** – Total cumulative actions to be completed to the Running Total Due

The 128 draft CVAP actions are captured in the PERs listed in **Figure 6** below, including the three (3) Office of Inspector General (OIG) actions captured in WRPS-PER-2016-2433 thru 2435 and four (4) Office of River Protection (ORP) Facility Representative Surveillance (17173-TF) actions captured in WRPS-PER-2018-0551 thru 0554. Sixty-three (63) TVAT actions were completed during Phase I (FY2016) and the OIG actions were completed in FY2017; its completions are documented in the Electronic Suspense Tracking and Routing System (E-STARS). The remaining TVAT actions have been rolled into the CVAP. The remaining recommendations from National Institute of Occupational Safety and Health (NIOSH), EA-32, CTEH, and the VMEP were added to the PER system and corrective actions launched. **Figure 6**, following a couple of corrective action due date extensions, depicts the status of the CVAP total corrective actions and shows that 25 actions were completed in November for a total of 27 actions being completed early over the past 13 months. In addition, approximately 45% of the total CVAP actions were completed in FY 2018. Of the remaining open actions, approximately 85% are scheduled to be completed in the first quarter of FY 2019.

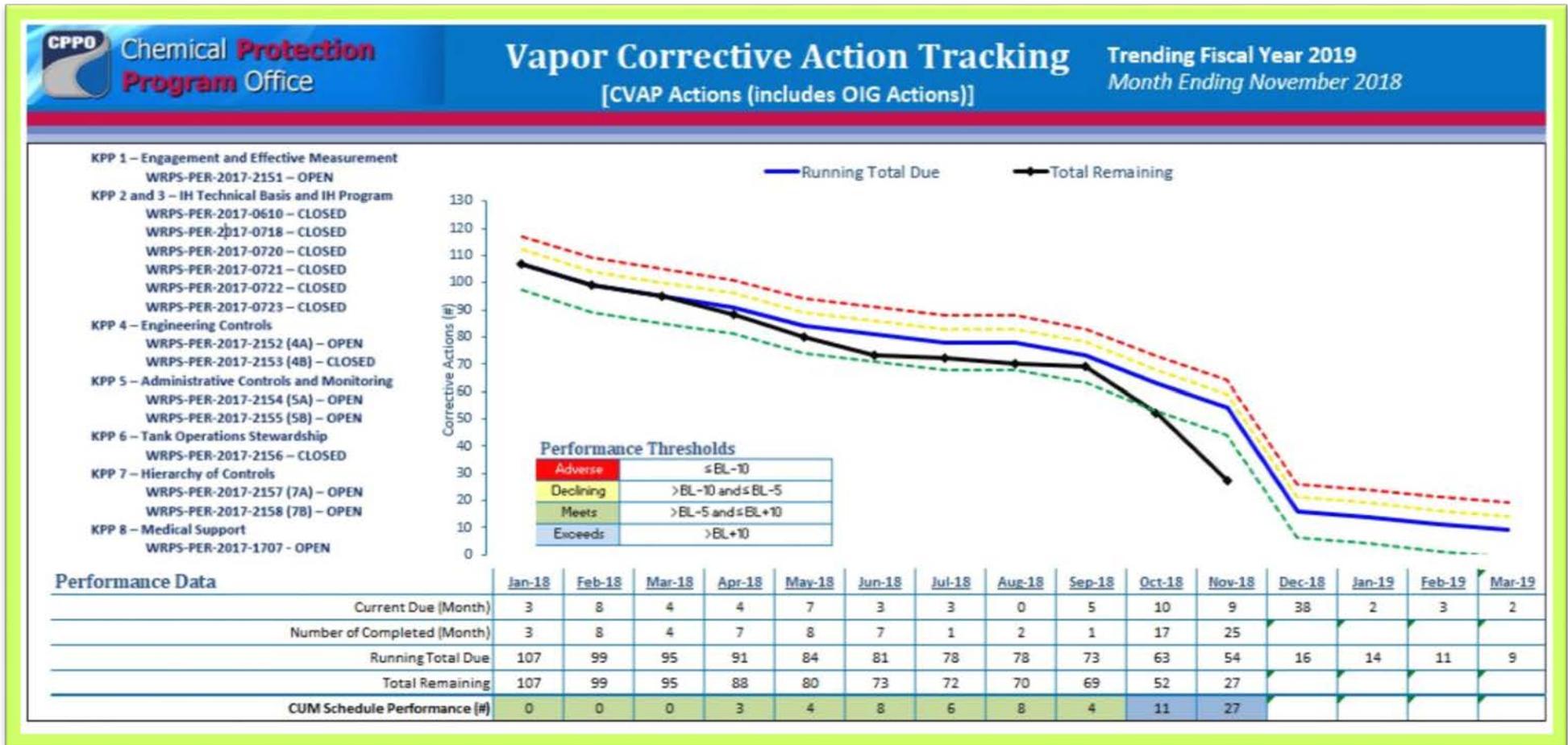


Figure 6. Vapor Corrective Action Tracking

4. Sampling and Monitoring

Mobile Lab

Update:

The mobile lab completed its four-week fall background study campaign. After completing the background study, the mobile lab underwent routine maintenance, as well as switching the Proton Transfer Reaction – Mass Spectrometry (PTR-MS) reagent ions to better detect nitrosamines and furans. The Mobile Lab performed area sampling in support of the AP Stack Monitor calibration runs, and in doing so, established the ability to run Air Pollutant Graphical Environmental Monitoring System (APGEMS-TF) software to facilitate specific lab location during ammonia injections in the AP Stack.

Cartridge Test Reports

Last Update October 2018:

Cartridge testing, to support efforts for the switch to full-face air purifying respirator (FFAPR) in the farms, was completed during FY 2018. The results of the testing were presented to the third party reviewers, Stoneturn Consultants, for review and comment. The review allowed the implementation of FFAPR in the double shell farms with the tested cartridges, but due to issues with facial charcoal dusting, the use of FFAPR is now under a stop work.

Respiratory Protection Equipment and Surfaces: Monthly Routine Testing

WRPS has a routine monthly testing program to evaluate randomly-selected Respiratory Protective Equipment (RPE) and surfaces for chemicals and bacteria. This program involves Industrial Hygiene wipe sampling on 60 randomly-selected RPE (face pieces and regulators) for chemical and bacterial presence from the three main Mask Issue and Sanitizing Stations (2704 HV, 278 AW, and MO 2256). Samples for chemical content are analyzed at ALS Labs in Salt Lake City Utah. Samples for bacterial content are analyzed at TriCities Labs, Kennewick, WA. Analytical testing results from November 2018 indicated that there were no instances of chemical disinfectant contamination on any of the RPE tested. Likewise, the results of bacterial testing on RPE and Mask Issue Station surfaces continue to indicate that they are considered *exceptionally well-sanitized*. Please note that there are no known federal standards or guidelines for “clearance” levels of either chemical (anions) or bacteria on RPE and related surfaces.

ToxiRAE³ Implementation and/or Monitoring Data Update:

In November, IH added a *ToxiRae Pro Hanford Vapors Fact Sheet* and a *Solutions* article to the ToxiRAE Pro library of published communications. IH presented a *ToxiRAE Pro Field Use* briefing to the IHT and RCT first line managers at the November 12, 2018, Monthly Seminar Meetings. Additionally, IH completed a *ToxiRAE Pro Laboratory Preparation & Calibration Training* for all Instrument Technicians (TFC-OPS-IHT-028), and a *ToxiRAE Pro Field Use Training* for all OJT/OJE Qualified IHTs. ToxiRAE was used in the SY Farm emergency drill on November 27, 2018.

¹NUCON is a registered trademark of Nucon International, Inc., Columbus, Ohio.

²Strobic Air Tri Stack is a registered trademark of Strobic Air Corporation, Bensalem, Pennsylvania.

³RAE Systems by Honeywell, San Jose, California.