

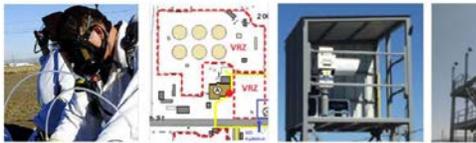


washington **river**
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washington **river** **protection**solutions **Chemical Protection Program Office Notebook** 

**Industrial hygiene exposure assessment:
 Hazard identification**



Key Performance Parameter #4
 Maintain Industrial Hygiene Program and Vapor Program Requirements

washington **river** **protection**solutions **Chemical Protection Program Office Notebook** 

Industrial hygiene exposure assessment:

**Risk management, Part 2
 Work boundaries**

Part 7 of 9



Key Performance Parameter #5
 Unrestricted Work Boundaries

Industrial Hygiene and CPPO present an overview of the IH exposure assessment process and activities specifically related to addressing chemical vapors at the tank farms in a series of 9 Notebooks, 2 of which were presented at the March 14, 2018, Chemical Vapors Solution Team Meeting (CVST). (For details, see [CPPO Engagement: CVST.](#))

Tank Operations Contract
Chemical Protection Program Office
Weekly Report
March 22, 2018

1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

In coordination with Industrial Hygiene (IH) and the Environmental, Safety, Health and Quality (ESH&Q) Chemical Protection Integration Manager, eight (8) of the nine-part presentation providing an overview of the IH exposure assessment process and activities specifically related to addressing chemical vapors at the tank farms were finalized. The last presentation is in draft.

February's draft Comprehensive Vapor Action Plan (CVAP) Dashboard, using the ranking descriptors **Exceeds**, **Meets**, **Declining**, and **Adverse** has been completed. The overall progress on draft CVAP scope, measuring the performance for all Key Performance Parameters (KPPs), is **Meets**. One measure of KPP 1 is monthly Team Vapor Representative (TVR) attendance at CVST meetings. In February, TVR attendance at the CVST meeting was ranked as **Declining**, with only 60% of the TVRs in attendance. CPPO will continue to monitor this to determine if a trend is occurring and whether any action is needed.

The TVR initiative continues. Participants of the CPPO sponsored LEAN Management Event held May 16 – 18, 2017, suggested that a mechanism be put in place to afford greater worker involvement in the vapors communications. TVRs, formerly known as Tank Vapor Representatives and now known as Team Vapor Representatives, are tasked with attending the Chemical Vapors Solutions Team (CVST) meetings, and with reporting the meeting's events to their respective teams. As the CVST has transitioned from meeting twice per month to once per month, CPPO and Communications and Public Relations (C&PR) have endeavored to provide additional vapors related information to TVRs to facilitate greater worker involvement in vapors communications. As such, TVRs are also included on distribution for the CPPO Notebooks, CPPO Weekly Report, and are included on invitation to the CVST Communications Sub-committee chaired by the WRPS C&PR Manager.

The March update of the draft CVAP Action Status Report has been posted to the CPPO Intranet site. The updated report provides detailed status of each external assessment recommendation.

The CPPO is developing the 2nd Quarter summary for 2018. The 1st Quarter summary for FY2018 was published in January and posted to HanfordVapors.com website.

A LEAN event was held March 12-15, 2018, to identify opportunities for improvement in the flow of information related to the WRPS odor response

process. The aim of the event was to develop a standard, structured, thorough process to manage odor response that is fully documented and provides timely feedback to affected workers. The LEAN event was hosted by WRPS Environmental, Safety, Health, and Quality (ESH&Q), and Production Operations. The team consisted of 11 members representing the WRPS Central Shift Office, Industrial Hygiene, Safety Programs, HAMTC, Records Management, C&PR, the CPPO, Interface Management, CVST, and HPMC. The team identified several opportunities for improvement, including clearer roles and responsibilities, better aligned procedures, and improved communications to key stakeholders and affected workers.

CPPO Oversight and Tracking

THE CPPO NOTEBOOK

The CPPO Notebook, a presentation on current vapors-related topics of interest, is distributed on a weekly basis to over 200 personnel from both WRPS and DOE personnel including WRPS managers and TVRs.

In February, the CPPO began distributing a series of Notebooks prepared in collaboration with WRPS IH, covering the IH exposure assessment process. As part of that effort, four Notebooks were released in February:

- *IH exposure assessment: Introduction*
- *IH exposure assessment: Hazard identification*
- *IH exposure assessment: Exposure assessment*
- *IH exposure assessment: Risk characterization*

The recipients of the Notebook are asked to alert the CPPO of their intention to use the Notebook with their staff via a voting button embedded in the email. Since the Notebook is frequently used several weeks after distribution, the data regarding the utilization of individual editions may change over time.

To date, the data for February shows an average of 20 managers making use of the Notebook each week. This number has remained steady between 20-22 managers reporting Notebook use each week for some time. Utilization of the CPPO Notebooks by subject and transmission date is shown in **Figure 1**. Since the beginning of FY2018, WRPS managers reported utilizing the Notebooks to present vapors-related information to the workforce 388 times.

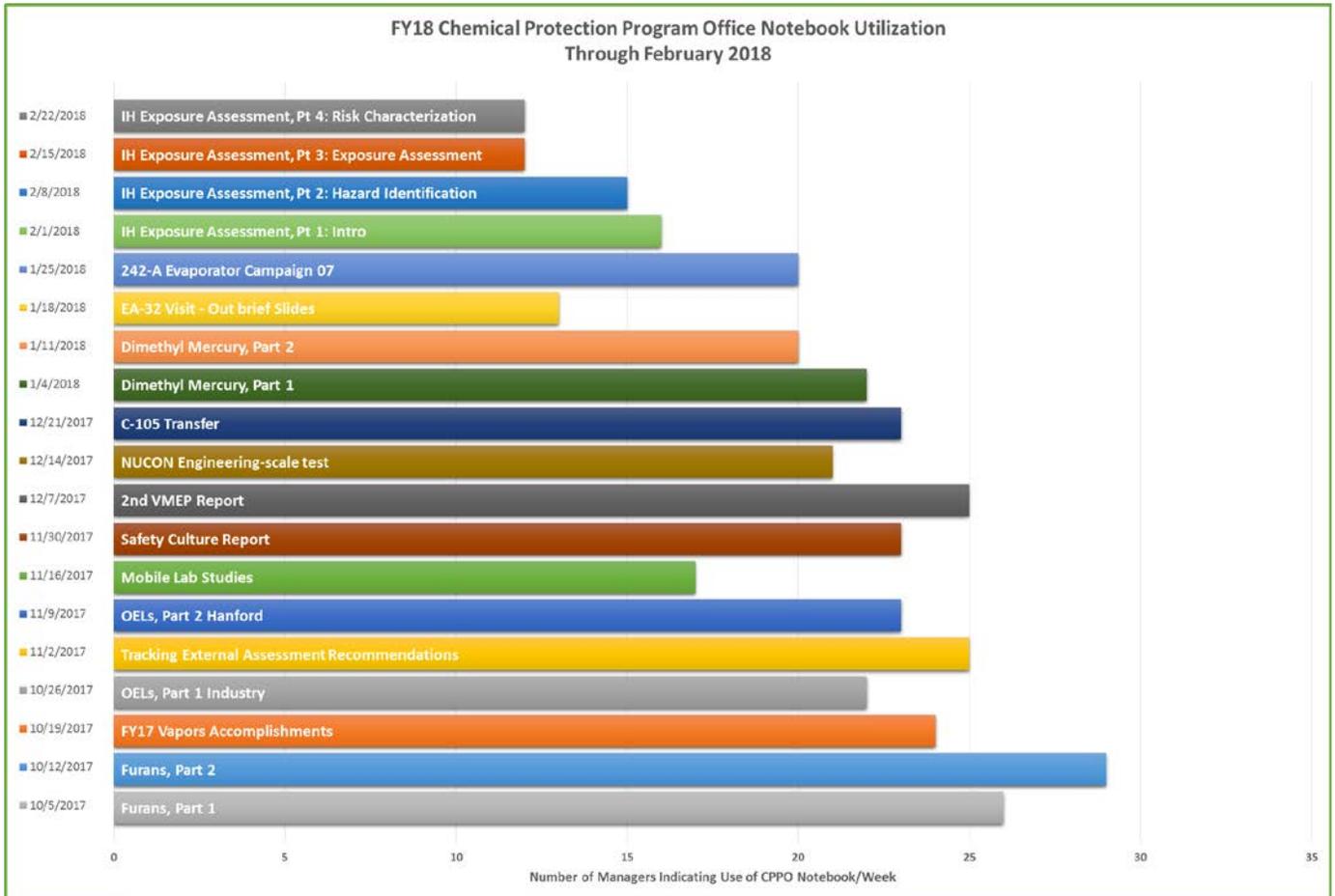


Figure 1. FY2018 CPPO Notebook Use via Manager Self-report through February 2018

Available to all WRPS staff via the Intranet, the Notebook material is provided in multiple formats, including a Subject Matter Expert (SME) narrated/video presentation. Figure 2 shows monthly website traffic statistics for visits to the CPPO Multimedia Library since the beginning of the fiscal year.

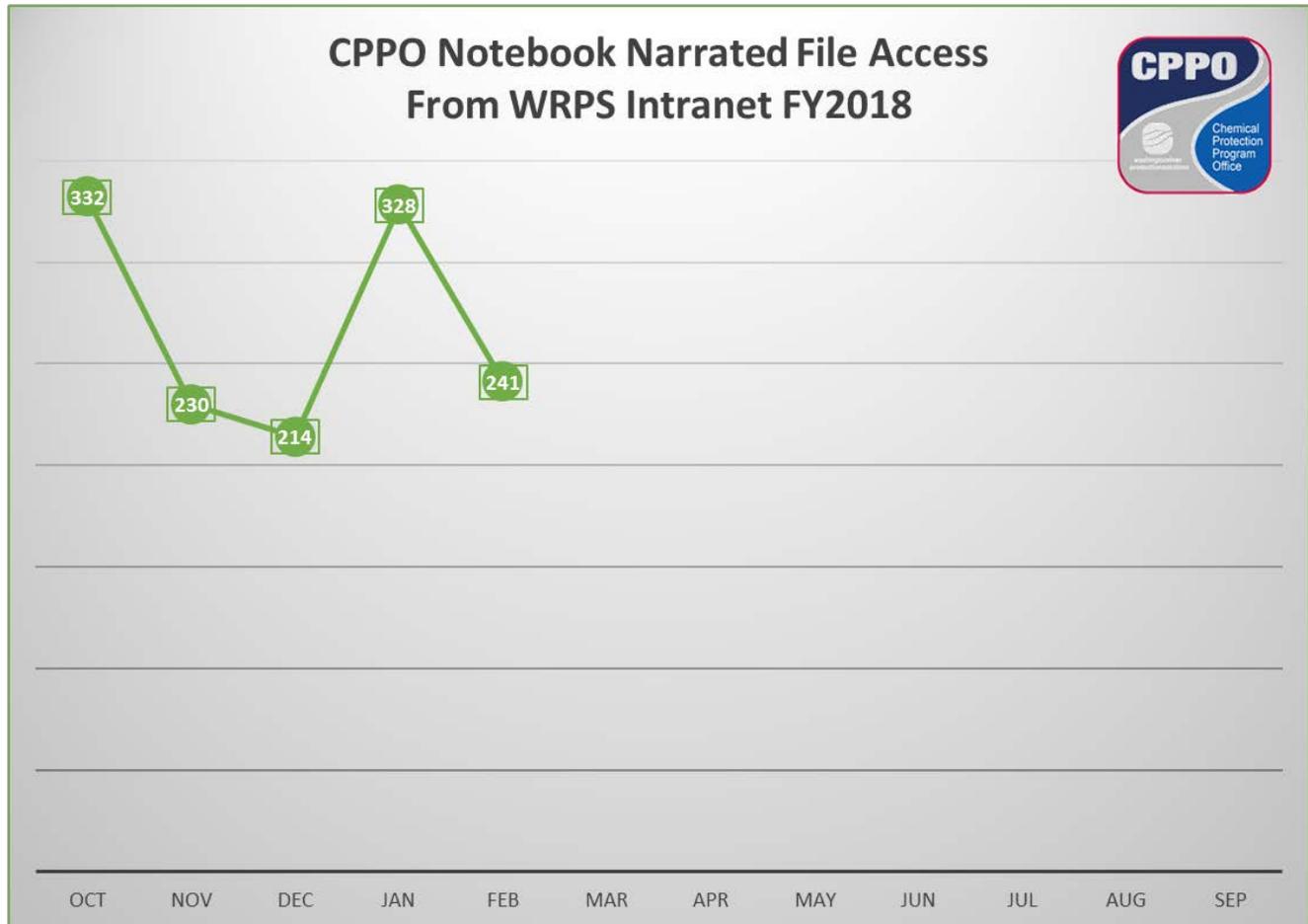


Figure 2. CPPO Notebook Narrated File Use through FY2018

CPPO REQUESTS AND PRODUCTION METRICS

The CPPO summarizes complex, technical vapors-related information and provides monitoring results, report summaries, presentations, a weekly report on WRPS vapors activities, and other information for distribution to the workforce through established mechanisms such as the *Solutions* newsletter and the HanfordVapors.com website. The last several months, CPPO utilized the *CPPO Look Ahead* tool to plan and manage production of vapors-related products. Consequently, legacy product-requests have been resolved, and the table, heretofore used to show the back-log, is no longer needed. **Table 1** shows the vapor-related materials produced by the CPPO over the course of February, and the three month trend. In addition to the *CPPO Notebook* and *CPPO Weekly Report*, several report/data summaries were delivered this month, all reporting on VMDS data.

Table 1. CPPO Vapors Information Products Completed - Three Month Trend and Fiscal Year-to-Date

CPPO Vapors Information Products Completed FY18	December	January	February	FY-to-Date Total
Data Report (Monitoring Data)	1	3	6	15
Presentations (includes CPPO Notebook and CVST)	3	4	4	19
CPPO Reports and Weekly Report	3	3	4	18
Information Requests	0	1	0	1
Articles, Summaries, and Message Maps	0	5	0	10
Surveys, Focus Groups, and Recommended Actions	0	1	0	5
Website Requests/Site Updates	0	0	1	1
Videos	0	0	0	0
Monthly Totals	7	17	15	69

Table 2. CPPO Vapors Information Distribution Avenue - Three Month Trend and Fiscal Year-to-Date

WRPS Vapors Information Distribution Avenue	December	January	February	FY-to-Date Total
All Employee Email/Meetings & ESHQ Comm.	1	1	7	21
CPPO Notebook*	73	77	55	451
CPPO Report and Weekly Report	3	3	4	18
Fact Sheet & Information	0	0	0	0
Meeting - CVST *	1	1	1	6
Meeting - CVST Sub-team meeting *	4	2	4	18
Meeting - Hanford Advisory Board Briefing *	0	0	0	0
Meeting/Briefing*	1	1	3	16
Meeting -Morning/Pre-Shift Brief*	301	410	346	1839
Presentation*	0	0	0	0
Safety Start	0	1	0	1
SOEN	0	0	5	10
Solution Article	2	3	1	10
Survey and Focus Group	0	1	0	2
Tours*	0	0	0	0
Website/Individual Inquiry	0	0	0	0
Vapors Weekly Update or Website Post	26	5	22	86
Video	0	0	0	0
Monthly Totals	412	505	448	2478

WRPS VAPORS RELATED COMMUNICATIONS DISTRIBUTION

To date, the total number of documented WRPS vapors-related communications provided to the workforce in FY2018 is 2478, as shown in **Table 2**. The numbers for February are slightly less than the numbers for January, and are approximately 10% below the monthly average for this fiscal year-to-date. February data includes 448 documented vapors-related communications. Plan-of-the-day (POD) meetings remain the primary source of vapors-related information provided to the workforce, followed by the *CPPO Notebook* and Hanford Vapors Weekly/Website posts. Managers frequently report using past editions of the Notebook each month, increasing their utilization beyond the month they are distributed.

Figure 3 shows the forecast for the delivery of WRPS vapors-related communications to the workforce in FY2018, including monthly and cumulative estimates. The data trend indicates that WRPS is on track to deliver approximately 5,700 vapors-related communications to the workforce in FY2018 - largely through briefings and face-to-face interactions with the workforce.

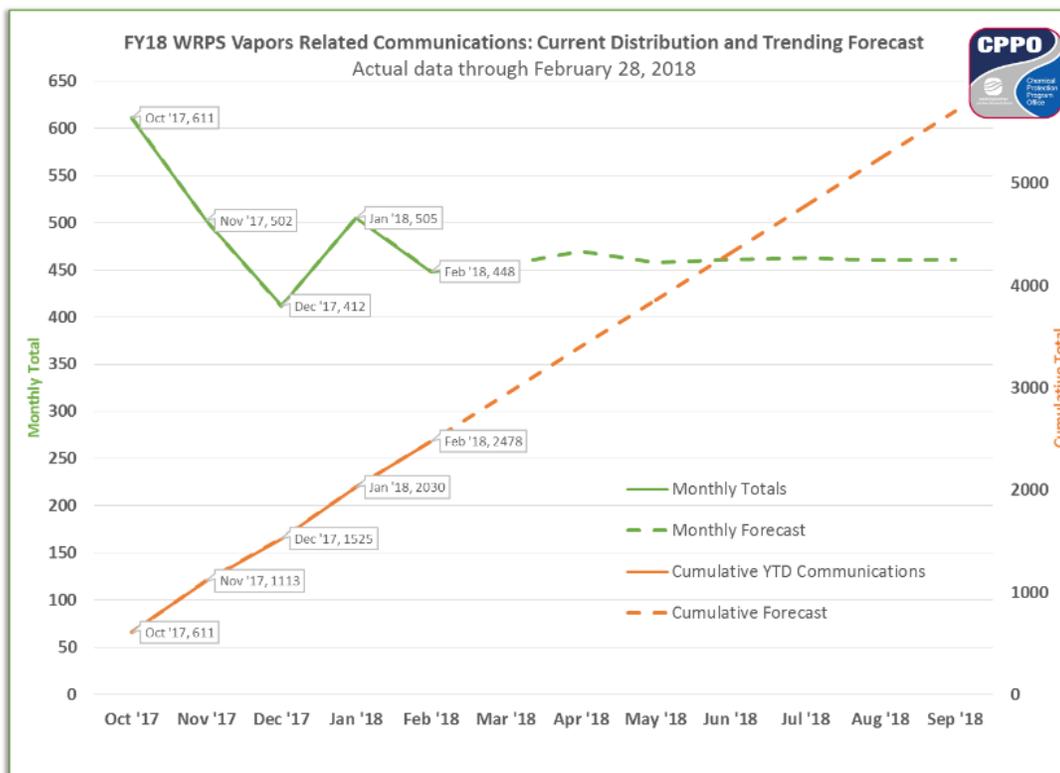


Figure 3. WRPS Vapors-Related Communications Delivery Forecast for FY2018

2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters

KPP 1. Engagement and Effective Measurement

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

In support of their ongoing assessment, the CTEH team continued to interview workers last week, focusing on the ways in which progress has been made in the vapors program. More than 20 workers have interviewed with CTEH personnel in the last 3 weeks.

Working closely with IH, the CTEH team continued to develop the nine-part CPPO Notebook presentation series introducing the workforce to the process used by IH to assess and control hazards.

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

Chemical Protection Engagement: Chemical Vapors Solutions Teams (CVST)

The CVST Communications Sub-committee held a meeting on March 12, 2018. IH Programs, Operations, HAMTC Safety Representatives, Safety, Nuclear Chemical Operators, CPPO, and the 222-S lab were in attendance, as well as a number of the Team Vapor Representatives (TVR). The meeting focused on the upcoming TVR workshop, and the Communications team lead provided an outline to facilitate discussions. Because an earlier TVR workshop was thinly attended, the Communications lead included the TVR's managers in the invitation to this workshop. Attendees agreed a main portion of the workshop should focus on what information is to be provided to the TVRs at the CVST meetings, and the best methods for flowing information to their fellow workers. Defining available resources (i.e., Subject Matter Experts (SME), websites, CPPO Weekly Report) to answer questions, discussing litigation and subsequent challenges, reviewing ongoing non-PPE controls (i.e., elimination, substitution, engineering) to the TVRs, pairing IHTs with TVRs for mentoring, and updating TVRs on current key issues through development of a bulletin were also workshop suggestions. In addition to the TVR workshop, a status was provided on Stoneturn Consultant activities for AP Farm and SCBA equipment. An alternative to SCBA was discussed: strapping cylinders on golf carts thus allowing cylinders to be relocated adjacent to work sites. This method could reduce the use of SCBA in the farms. The Safety attendee indicated he would follow-up on this activity.

The CVST New Technology Sub-committee held a meeting on March 14, 2018. In attendance were representatives from the Chief Technology Office (CTO), IH programs, IH field operations, NCOs and CPPO. Attendees requested an update on all the VMDS equipment, specifically pertaining to which equipment would be used to support full-time operations. The team leader provided detailed explanations on the path forward for the major VMDS components (i.e., Ultra-violet Differential Optical Absorption Spectrometer (UV-DOAS), Meteorological station, Autosampler). The team leader also discussed ¹Chemgard® Infrared Gas Monitor, a new technology that may be used in combination with the UV-DOAS units being installed on the stack monitors. The inclusion of the Chemgard® allows for all constituents-of-concern to be analyzed.

The CVST held a meeting on March 14, 2018, focusing largely on three topics: chemical cartridge testing, work boundaries, and hazard assessments. Two CPPO Notebooks were presented: *Industrial hygiene exposure assessment: Work boundaries* and *Industrial hygiene exposure: Hazard identification*.

Chemical Protection Engagement: Communications

Last week's CPPO Notebook is titled *Risk management, part 2 Work boundaries, Part 7 of 9, KPP 3*. This week's CPPO Notebook is titled *Industrial hygiene exposure assessment: Continuous improvement and feedback, Part 8 of 9, KPP 3*.

Chemical Protection Engagement: Hanford Vapors Website Updates

- PNNL-26821, Overview of 2016: Testing of Respirator Cartridge performance on Multiple Hanford Tank Headspace and Exhausters
- C-105 Retrieval Industrial Hygiene sampling and monitoring results
- CPPO Weekly Report - Jan. 19, 2017
- AP Stack Weekly Report (March 22-29, 2017)

Chemical Protection Engagement: Effectiveness Measures

The CPPO *FY2018 Vapors Information Effectiveness Survey* results are being tabulated, reviewed, and examined, in addition to being evaluated against the 2017 survey.

3. KPPs 2 and 3. IH Technical Basis and IH Program

IH Manual and Technical Basis

Update:

There are eight sections in the Industrial Hygiene Manual, of which Sections 1 and 4, *Introduction* and *Tank Waste Chemical Vapors*, are published on the Industrial Hygiene website. Newly complete and in review are sections 2 and 3, *Practices of the Industrial Hygiene Program* and *Sampling and Monitoring*.

Health Process Plan (HPP)

Last update 2/15/2018:

The HPP process has transitioned into the TFC-Charter-71 process implementation. The process evaluates the studies conducted in the HPP process.

The TFC-Charter 71 process conducts both technical and economic feasibility evaluation for the studies with the *Proposed TFOELs for Chronic Exposures – COPCs with Regulatory Guidelines* (PNNL-26777) and *Proposed Acute Exposure Concentration Limits for COPCs with Regulatory Guidelines* (PNNL-26850) studies scheduled for review this year.

Leading Indicators

Last update 2/15/2018:

The Leading Indicators study now focuses its evaluation on three primary leading indicator compounds. These are ammonia, mercury, and nitrous oxide. The study has developed evaluation methods that compare paired data, data in which two or more samples were taken simultaneously, to various concentrations. Specifically, the project is using the reference concentrations of ½ of the occupational exposure limit (OEL), the OEL, and the excursion limit (3 times the OEL).

Maintain Industrial Hygiene Program and Institutionalize Vapor Program Requirements

Final update:

The roll-out of the new *Chemical Worker Tier Training* is complete. *Tier 1*, which is contained in Tank Operations Contract-General Employee Training and required for all Tank Farm workers, has been completed by 2300 workers. *Tier 2*, which is a computer based training and required for all workers located past the Wye Barricade, has been completed by over 750 workers. *Tier 3*, which is classroom based and required for Tank Farm access, has been completed by over 150 workers in the 6 weeks since it was rolled out.

All courses have had good reviews from the workers on the material content and length of course. Several suggestions have been made on areas where the training

could be improved. This feedback is being collected and the courses will be revised accordingly during the normal training process for new courses. All of the courses that are required for Tank Farm Access have been offered to other site contractors and the completion numbers above reflect participation from all contactors on site. Training bulletin TB-18-01, *The New Chemical Worker Training Program*, was issued to WRPS as required reading on January 15, 2018. As the new Chemical Worker Tier Training replaces the previous *Chemical Hazards Awareness Training* (CHAT) and Enhanced CHAT classes, the CHAT classes have been discontinued with the attendees participating in the applicable level of Chemical Worker Training.

Central Residence for Industrial Hygiene Technicians (IHT)

Last update 3/8/2018:

The project to complete the centralized mobile office (MO) building for IHTs continues. The MO is slated to house approximately 100 workers. Plans are to install the MO in 200 East area on 4th Street near 218A across from PUREX. Once installed and occupied, the MO will satisfy KPP 3 goals. The trailer site design is at 90% completion and is in review. The trailer design was approved by Washington State Labor and Industries.

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 FY2018.

Air Dispersion Modeling

Last update 3/8/2018:

The Dispersion Modeling project team has revised the Air Pollutant Graphical Environmental Monitoring System (APGEMS). The new modeling system is called APGEMS-TF. APGEMS-TF is an atmospheric dispersion model that has been optimized for modeling chemical vapor source emissions from the Hanford Tank Farms. The user interface has been simplified by making known source emission rates from known Tank Farm sources available from a simple pick list. APGEMS-TF produces atmospheric simulations utilizing actual meteorological data from the Hanford Met Stations. Simulations can be run using historical or current meteorological conditions. Post modification regression tests and test cases are complete and the model is being made available to a limited distribution for acceptance testing. The draft report summarizing the model, capabilities, limitations, and quick user's guide has been delivered and is in review.

KPP 4. Engineering Controls

A Farm Exhausters

Last update 3/15/2018:

Development of the A Farm Exhausters continued. The verification activities for five of the six A Farm tank seal loops were completed. The engineering change notices allowing construction to begin on the A/AX Farm access road were completed too. The following A Farm Exhauster pad construction activities occurred over the last two weeks:

- The excavation of the exhauster slab retaining wall footings for both the south and north walls was completed.
- The subcontract to construct the exhauster slab was awarded to American Electric Inc.
- For the A Farm concrete pad, the vendor began providing submittals and initiated mobilization activities. Walk downs continued in an effort to confirm the ducting isolation activities.

AW Stack Extension

Last update 3/15/2018:

Fabrication of the AW Farm stack extension is underway. The following was accomplished over the last two weeks:

- Bids for installation of the AW Stack extension were received and are being evaluated for award.
- The non-radiological permit application continues being prepared.

AN Stack Extension

Last update 3/1/2018:

Engineering evaluations, determining the maximum height the existing superstructure can support, and whether there would be a beneficial impact to the work area based on the extension, are in progress.

³Strobic® Air Dilution Fan

Last update 3/15/2018:

Fabrication of the Strobic Air Dilution Fan continued. The following was accomplished over the last two weeks:

Key Parameter 4

Complete engineering control concept demonstrations for ³Strobic Air Tri-Stack®

and ²NUCON® International, Inc. thermal combustion in support of unrestricted work boundaries

- WRPS personnel visited Strobic®'s facility to status the progress of the factory acceptance test activities. The plenum and fan tests were completed. Although the variable frequency drive was installed, it has not been tested. WRPS personnel also supported Strobic® in developing their submittals.
- The test plan contract for Richland off-site testing was awarded to Hi-Line. Efforts continue to award the off-site testing contract.

NUCON® Thermal Oxidation Vapor Abatement Unit (VAU)

Last update 3/15/2018:

The engineering-scale test continues to be developed, and the following was accomplished since the last update:

Terragraphics

- Test and Design Engineers provided support for VAU startup and training activities.
- Work continued on the *Technical Demonstration Conceptual Design* for BY-108.
- Work continued on finalizing the *Site Selection Report*.

NUCON®

- A NUCON® technical representative was on-site to assist with VAU startup and training activities.

WRPS

- Two AreaRAE Photo Ionization Detector instruments were transferred to PNNL in order to measure volatile organic carbon during the engineering-scale test.

PNNL

- Continued developing the analytical equipment to support the engineering-scale test. Additionally, PNNL:
 - Sampled the calibration gas; sent it to 222-S for analysis.
 - Demonstrated the effectiveness of chromatography in the Lab with the calibration gases, and then moved chromatograph to the test trailer.
 - Received, unloaded, and completed testing of the Fourier transform infrared (spectrometry), and then moved equipment to the test trailer.
 - Rented a replacement quadrupole mass spectrometer for the Proton Transfer Reaction-Mass Spectrometry.
 - Received blended tracer gas (3% methane in nitrogen) to support exhaust flow measurements.
 - Continued preparing procedures for FTIR and PTR-MS.
- Continued preparing equipment and systems needed to support testing activities, including the following:

- Completed electrical retrofit for skid load and control.
- Successfully started VAU diesel engine.
- Continued construction of the sampling and injection system assembly.
- Completed plumbing injection lines into the trailer.
- Confirmed VAU flowmeter was operational and received calibration certificate.
- Shipped two ⁵DryCal® primary flow meters to Mesa Labs for calibration.

KPP 5. Administrative Controls and Monitoring

Permanent Installation of VMDS Equipment in A and AP Farms

Update:

Numerous activities were on-going last week including:

- Efforts to obtain approvals on the *Phase 2 Pilot-Scale Report* continue. Currently, the report is undergoing internal review.
- Work on the A Farm coverage maps continues.
- Work continues on preparing the *AX Farm Basis of Design* and *AN Farm Basis of Design*.
- Work continues on the AP Farm UV-FTIR turnover to Operations including:
 - Final review of the *Functions & Requirements* document.
 - Continued preparation of the ammonia set point calculation. The 90% draft is complete and is undergoing review.
 - Calculations used to support AP Farm turnover were completed. These calculations included the heat trace verification, sample pump flow verification and heating/cooling verification.
 - Efforts to complete Operational Readiness Checklist items continued.
- Continuing work on the Autosampler modifications, including:
 - Preparing the report summarizing the development and selection of the test gases.
 - Continuing the purchase of the gas standards, heated tube set, and gas generator. Procurement of the UV-DOAS, manifold electrical, and Hanford E-Skid equipment may be deferred until FY2019.
Preparing design drawings for the test bed manifold and Hanford E-Skid, as well as completing the draft E-Skid testing procedures.

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:

Activities for the reporting period included:

- The ³CEREX® Stack Monitor procurement contract was awarded.

- Internal review of the 702 AZ and AN Farm stack monitor design revisions continue.
- Initiated the AW Farm stack design revision.
- Started preparation of the AX Farm 90% design installation package.

Establishing Safe Unrestricted Boundaries

Update:

Establishing work boundaries was the topic of last week's CVST Meeting and the topic of CPPO's March 15, 2018, Notebook. When managing risks at Hanford, **administrative controls** are used to change the way workers interact with processes and work that may present a hazard. Work boundaries are an administrative control used to help manage occupational risks. Newly established are facility boundaries as described:

- Exclusion Zone – the area where workers are most likely to encounter the hazard at its highest concentrations (previously Vapor Control Zone (VCZ))
- Contamination Reduction Zone – The transition area between the exclusion zone and the clean area or support zone (previously Vapor Reduction Zone (VRZ))
- Support/Administrative Zone – the location where the “co-located worker” is allowed to perform their work unmonitored
- Industrial Zone – This is the fence line of the 200E and 200W areas where workers are made aware of the presence of increasing industrial hazards
- Site Boundary – This is the edge of the Hanford site property where public access is restricted

Public Address System (PA)

Update:

The turn-over of the east area A, AX, AY, and AZ Farms to operations is complete. Efforts continue on the turnover of the second set of PA systems (AW, AN, AP and C Farms). Work also continued on approving excavation permits for the B Farms. For the west area PA systems, work continued on preparing excavation permits for the S, T, and U Farms.

KPP 6. Tank Operations Stewardship

Pilot SST Stewardship Program

Update:

Current indications are that the TY Farm installation activities might be deferred until FY2019, while the TX Farm and TY Farm designs, along with the *SST Stewardship Execution Strategy Document (FY 2015 LEAN Report)* may still be completed in FY2018.

Activities completed in the reporting period included:

Remote Monitoring Equipment: Efforts continued on the draft TY Farm temperature and surface level design packages. Efforts were also started to procure a vendor for the TX Farm temperature and surface level design packages. The statement-of-work was completed and the request-for-proposal started.

FY2015 LEAN Report: Comments on the second draft of the *SST Stewardship Execution Strategy Document* continue to be incorporated.

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

Last update 3/1/2018:

Headspace sampling at BY Farm was completed the weekend of February 9, 2018. Cartridge testing at BY Farm is also complete. Sampling at BY-108 and BY-110 completed PAPER and APR testing the weekend of February 24, 2018. Mobilization began at AP Stack.

Mobile Laboratory

Last update 3/15/2018

Since the last update, the following was accomplished:

- A contract to R.J. Lee was issued for supporting the FY2018 Spring Background Study using the mobile laboratories. After the contract was awarded, a kickoff meeting was held with R.J. Lee to discuss details of the study.
- A meeting was held with R.J. Lee to provide feedback on their procedures from a quality assurance perspective. Edits are being made to the procedures.
- A meeting was held with the workforce as part of the weekly HAMTC/CPPO meeting. The NUCON

Key Performance Parameter 7

Provide options to promote the hierarchy of controls for chemical vapor respiratory protection beyond current use self-contained breathing apparatus.

Project Manager provided details of the FY2018 Spring Background Study. The group discussed locations where monitoring would occur. Feedback was provided by the workforce on alternate locations, which the Project Manager agreed to take into consideration.

⁴C₂Sense® Personal Vapor Monitor

Last update 3/15/2018:

During the reporting period, the following was accomplished:

- C₂Sense® shipped ammonia sensor chips for supporting upcoming field trials.
- A material requisition was prepared to procure alternative ammonia detectors for the field trials.
- The ammonia sensors and associated parts for the C₂Sense® field trial were provided to the workforce, who will fabricate the mounting plates that will be used to secure the ammonia sensors.
- Procedures and work packages needed to support the C₂Sense® field trial continue being prepared. The procedures are being prepared with support of the WRPS IH group.

KPP 8. Medical Support

The scope of KPP-8 is to support RL medical program enhancements in conjunction with other Hanford Site organizations. In the last month, the following events occurred:

- The Office of the Ombudsman visit was cancelled. No new visit has been confirmed.
- Discussions continue between the HAMTC President and committee related to revising the Access Control Entry System (ACES) exclusion note in the TFC-BSM-HR_EM-C-10, Reasonable Accommodations procedure. No agreement has been reached as of the date of this publication.
- HPMC confirmed that they are currently working on the epidemiology study comparing Tank Farm Vapor Exposures and Non-Exposed Group of Hanford Workers.

Key Performance Parameter 8
Support medical program enhancements in conjunction with responsible Hanford Site organizations and establish update to WRPS process/procedures.

¹Chemgard is a registered trademark of MSA The Safety Company, Pittsburgh, PA.

²NUCON is a registered trademark of Nucon International, Inc., Columbus, Ohio.

³Strobic Air is a registered trademark of MPC Inc., Wilmington, Delaware.

⁴CEREX trademark by TECAN SP, INC. Baldwin Park, California.

⁵C₂Sense is a registered trademark by C₂Sense, Inc., Cambridge, Massachusetts.