



washington river protection solutions

CPPO

### Ammonia smelling salts

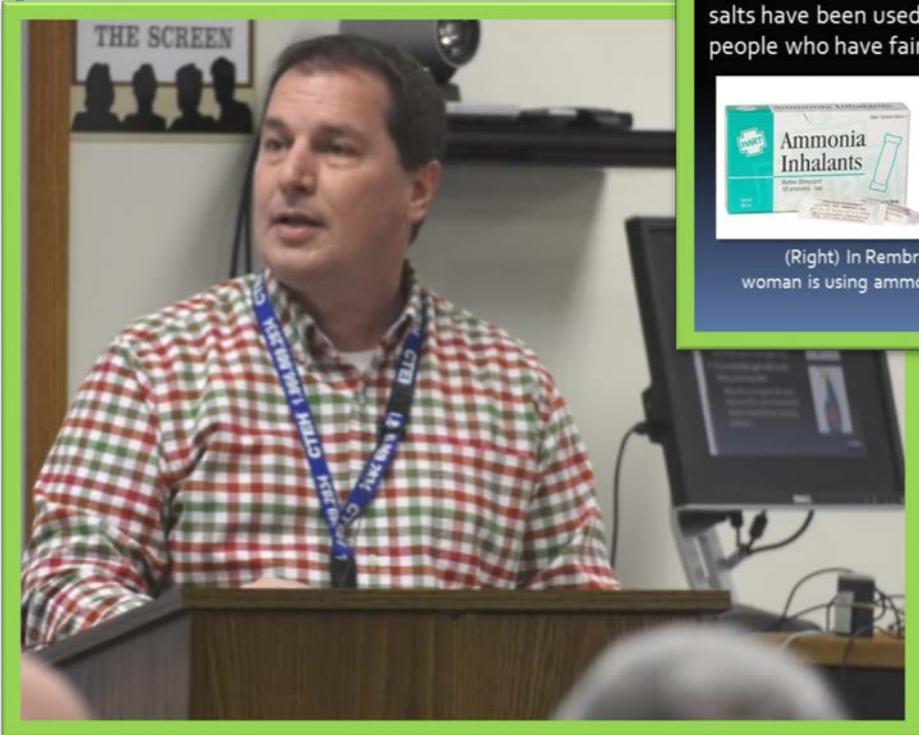
Ammonia has a sharp, piercing odor that can be detected at low levels (40 ppb to 4 ppm).

For hundreds of years, ammonia smelling salts have been used as stimulants to treat people who have fainted.




(Right) In Rembrandt's *Unconscious Patient*, a woman is using ammonia smelling salts to revive a man who has fainted.

CTEH



*Dr. Michael Lumpkin, CTEH Toxicologist, presented Ammonia, Parts 1 and 2, an April CPPO Notebook, to the April 11, 2018, Chemical Vapors Solution Team Meeting.*

**Tank Operations Contract**  
**Chemical Protection Program Office**  
**April 26, 2018**

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

The CPPO *FY2018 Vapors Communication Survey* was distributed to 702 randomly selected members of the workforce in January; 235 responses were received – a return rate of approximately 33%. The results and draft recommendations were presented to the voting members of the CVST with a request for comments and input. The analysis and resulting recommendations will be reported to WRPS, ORP and to the workforce. The draft report has been reviewed and comments are being dispositioned.

### CPPO Oversight and Tracking

#### **CPPO Notebook**

The CPPO Notebook is distributed on a weekly basis to aid managers in providing vapor-related information to staff on current topics of interest. In March, the CPPO concluded distribution of a series of Notebooks prepared in collaboration with WRPS Industrial Hygiene (IH), covering the IH exposure assessment process. As part of that effort, five Notebooks were released in March:

- IH exposure assessment: Risk characterization - QRA
- IH exposure assessment: Risk management – Hierarchy of controls
- IH exposure assessment: Risk management – Work boundaries
- IH exposure assessment: Continuous improvement
- Industrial hygiene chemical vapor technical basis

The use of the Notebooks is tallied via email ‘voting’ replies sent in response to the distribution email. Since the Notebook may be used weeks after distribution, the data regarding the utilization of individual editions may change over time (and is reflected in updates to monthly reporting). The data for March, to date, show that an average of 19 managers reported making use of Notebook each week. This number has remained fairly steady with between 20-22 managers reporting Notebook use each week for many months.

Utilization of the CPPO Notebooks by subject and transmission date is shown in **Figure 1**. Since the beginning of FY2018, the data shows WRPS managers reported utilizing the Notebooks to present vapors-related information to the workforce 458 times.

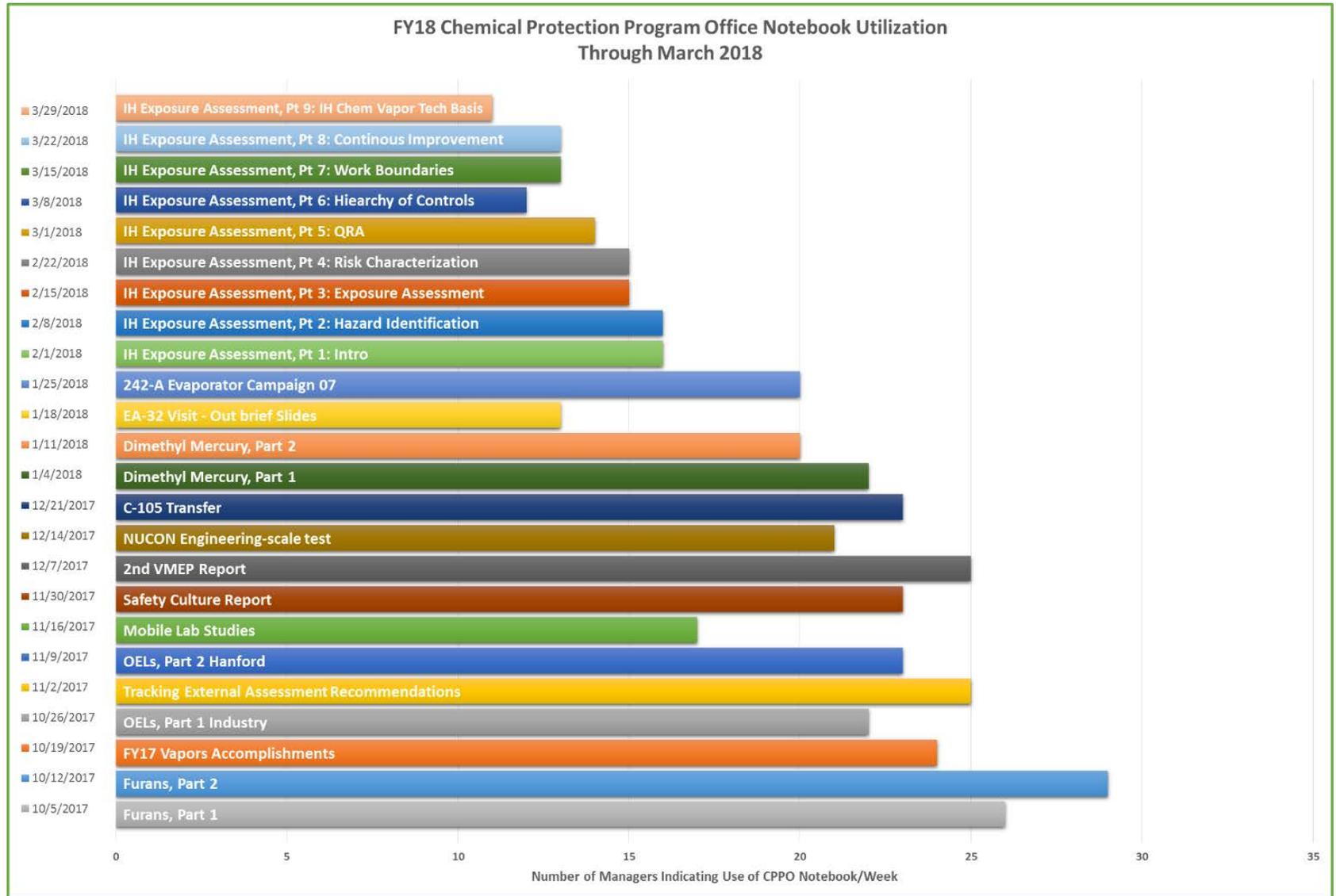
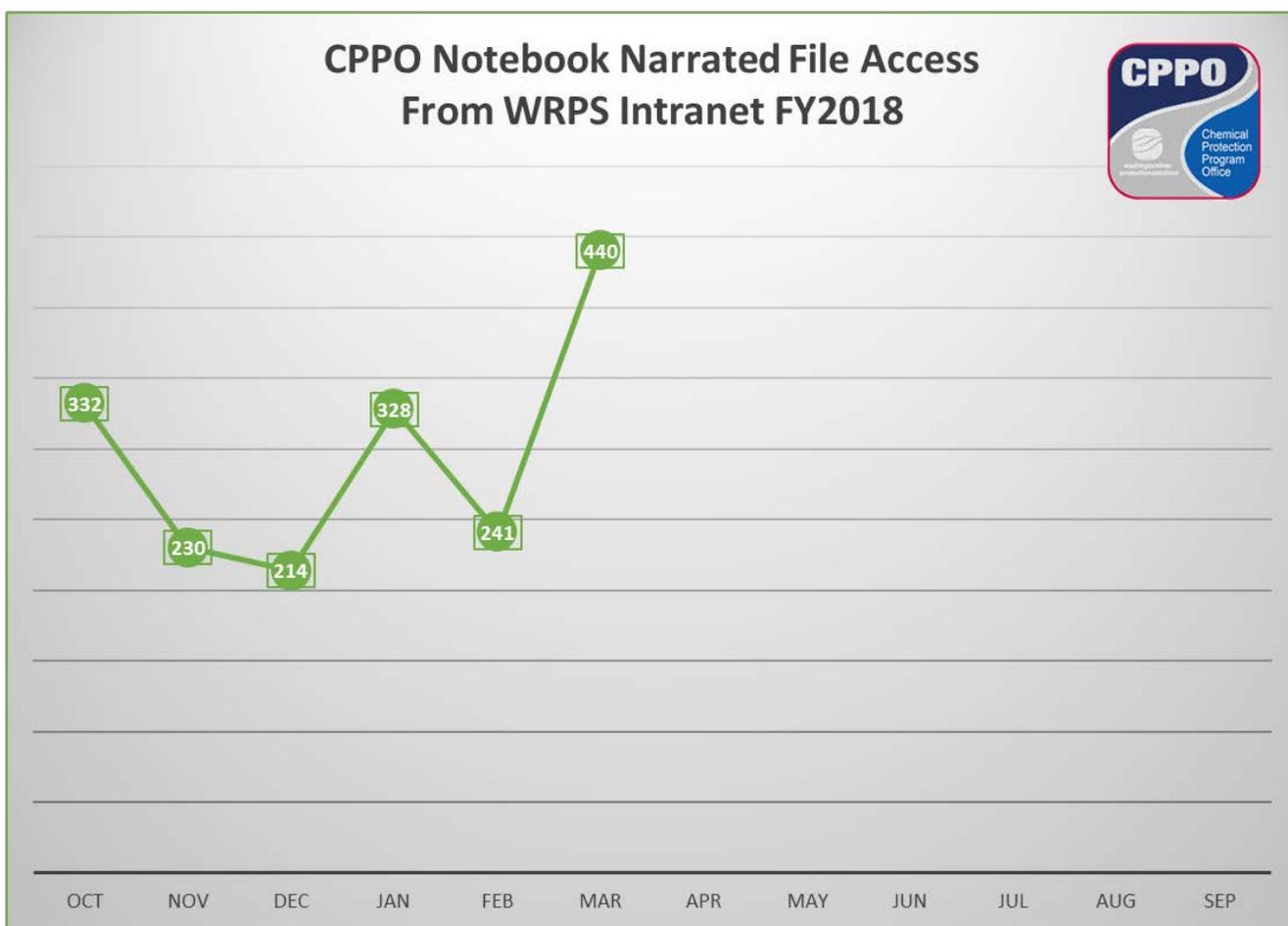


Figure 1. FY2018 CPPO Notebook Utilization through March 2018

The Notebook material is provided in multiple formats, including an SME narrated/video presentation which is posted to the intranet in a Multimedia Library and available to all WRPS staff. **Figure 2** shows monthly website statistics for visits to the CPPO Multimedia Library since the beginning of the fiscal year, during which the user accessed a variety of the Notebook audio files hosted on the WRPS intranet. This data suggests a larger reach than what is self-reported by the management distribution list. While the March self-reporting by managers is slightly lower than the previous month, the use of the narrated videos is significantly higher, and represents the largest usage this fiscal year to date.



**Figure 2. CPPO Notebook Narrated File Access from WRPS Intranet FY2018**

### CPPO 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. The vapor-related materials produced by the CPPO over the course of March and the three month trend is shown in **Table 1**. In addition to the CPPO Notebook and CPPO Weekly Report, several report/data summaries were delivered this month, along with one article for *Solutions*. These materials are intended to provide vapors-related information to a variety of audiences and are distributed via email, and internal and external websites.

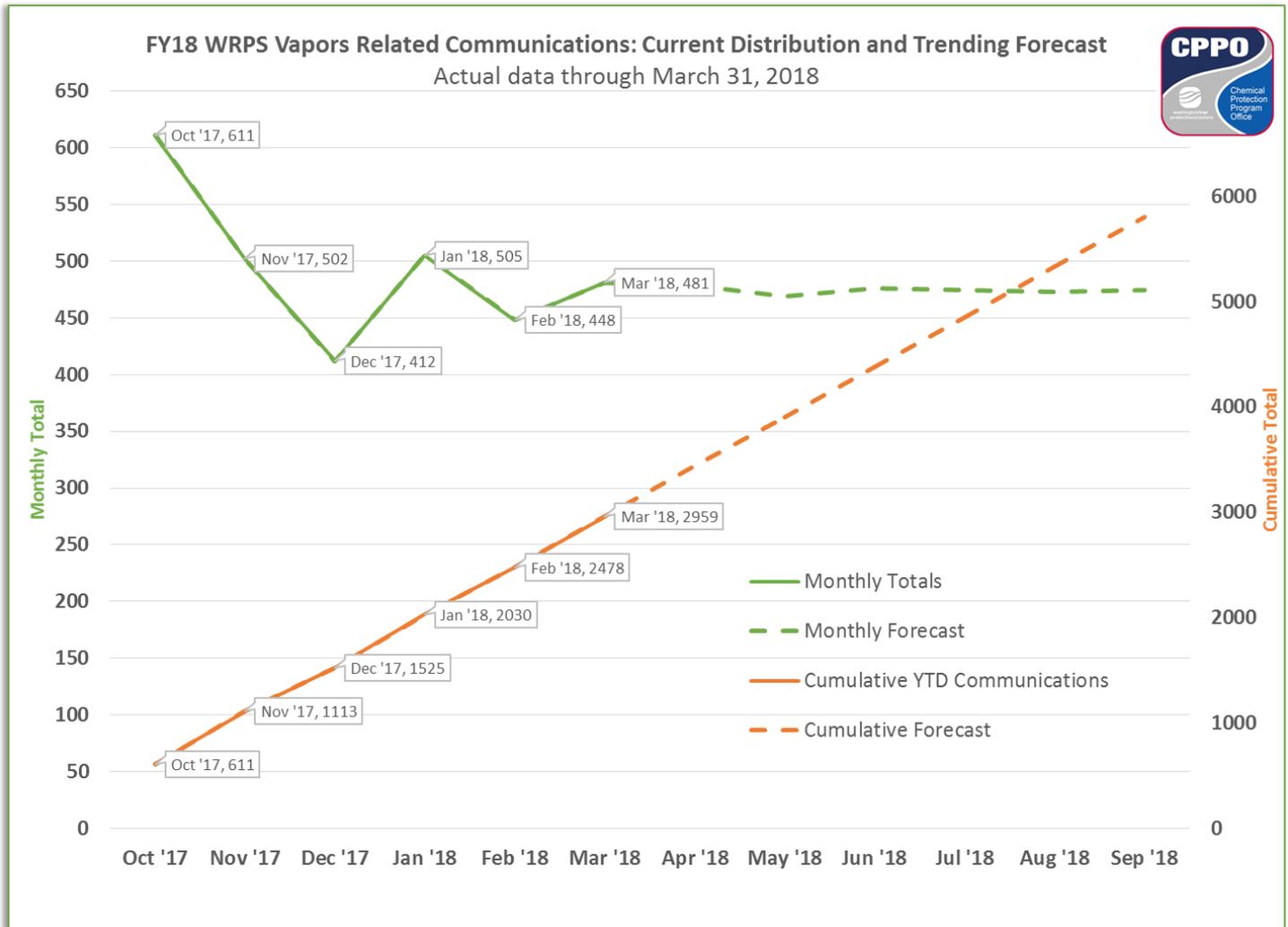
**Table 1. CPPO Vapors Information Products Completed FY2018-to-Date**

CPPO Vapors Information Products Completed FY18	January	February	March	FY-to-Date Total
Data Report (Monitoring Data)	3	6	5	20
Presentations (includes CPPO Notebook and CVST)	4	4	5	24
CPPO Reports and Weekly Report	3	4	4	22
Information Requests	1	0	0	1
Articles, Summaries, and Message Maps	5	0	1	11
Surveys, Focus Groups, and Recommended Actions	1	0	0	5
Website Requests/Site Updates	0	1	0	1
Videos	0	0	0	0
<b>Monthly Totals</b>	<b>17</b>	<b>15</b>	<b>15</b>	<b>84</b>

**Table 2. WRPS Vapors Information Distribution Avenue**

WRPS Vapors Information Distribution Avenue	January	February	March	FY-to-Date Total
All Employee Email/Meetings & ESHQ Comm.	1	7	1	22
CPPO Notebook*	77	55	73	524
CPPO Report and Weekly Report	3	4	4	22
Fact Sheet & Information	0	0	0	0
Meeting - CVST *	1	1	1	7
Meeting - CVST Sub-team meeting *	2	4	4	22
Meeting - Hanford Advisory Board Briefing *	0	0	0	0
Meeting/Briefing*	1	3	2	18
Meeting -Morning/Pre-Shift Brief*	410	346	392	2231
Presentation*	0	0	0	0
Safety Start	1	0	0	1
SOEN	0	5	0	10
Solution Article	3	1	2	12
Survey and Focus Group	1	0	0	2
Tours*	0	0	0	0
Website/Individual Inquiry †	0	0	0	0
Vapors Weekly Update or Website Post	5	22	2	88
Video	0	0	0	0
<b>Monthly Totals</b>	<b>505</b>	<b>448</b>	<b>481</b>	<b>2959</b>

### WRPS Vapors-Related Communications Distribution



**Figure 3. FY2018 WRPS Vapors-Related Communications: Current Distribution and Trending Forecast**

The total number of documented WRPS vapors-related communications provided to the workforce FY2018-to-date is shown in **Table 2**. The data for March is slightly higher than February and in line with the monthly metrics for the fiscal year-to-date. March data includes 481 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. The forecast for delivery of WRPS vapors-related communications to the workforce in FY2018, including monthly and cumulative estimates, is shown in **Figure 3**. The data trend indicates that at this rate, WRPS is on track to deliver almost 6,000 vapors-related communications to the workforce in FY2018 - largely through briefings and face-to-face interactions with the workforce.

## 2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters

### KPP 1. Engagement and Effective Measurement

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

Last week, the CTEH team attended onsite Plan-of-the-day staff meetings with personnel from Maintenance Ops, Production Ops, and the Sampling Group. CTEH met with the HAMTC Safety Representative at the HAMTC/CPPO Meeting held every Wednesday on site. CTEH held dozens of one-on-one interviews with Industrial Hygienists and Leads the last three weeks, eliciting feedback on the state of vapors at Hanford since CTEH's initial assessment published November 2016.

#### Chemical Protection Engagement: Chemical Vapors Solutions Teams

The CVST Fugitive Emissions Sub-team met on April 19, 2018, to status on-going fugitive emissions activities, and review the proposed work plan (including schedule and cost estimate) for the fugitive emission investigation at 4th and Buffalo. Additionally, the meeting served to receive the CVST Sub-team concurrence before moving forward with a presentation to the CVST. Representatives from CTO, DOE, CPPO, PNNL, WRPS Project Management, WRPS Health and Safety, WRPS Process Engineering, Operations, Sampling and HAMTC were in attendance. The presenter guided the attendees through the process to investigate the 4th and Buffalo area, and also reviewed the preliminary schedule and budget for completing the investigation. Numerous questions and feedback were provided by the attendees. The main feedback focused on accelerating monitoring activities to take advantage of the upcoming seasonal conditions (late spring/early summer) when vapor monitoring is optimal. Suggestions were also provided on how this acceleration could be implemented.

#### Chemical Protection Engagement: Communications

Last week's CPPO Notebook is titled *Ammonia, Part 2*, created by CTEH.

*Solutions*, Issue 433, published April 16, 2018, reported on the second phase of the Vapor Monitoring Detection System testing stating, "[t]he successful completion of testing was the result of many tank farm organizations, including the CVST."

The success of the VMDS testing was further communicated through the April 18, 2018, *Hanford Tank Vapors, Vapors Weekly Update*. The weekly update reported that the goal of the VMDS is "to provide a toolbox of equipment that can then be

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

deployed as needed to monitor vapor sources, vapor control boundaries, and targeted work areas in near real-time.”

On April 18, 2018, an all WRPS employees email was distributed detailing the 242-A Evaporator campaign. “Final preparations are underway to commence the next 242-A Evaporator campaign,” stated the email. The email detailed at length the vapor control strategy for the Air Lift Circulator (ALC) operation and evaporator campaign.

#### Chemical Protection Engagement: Hanford Vapors Website Updates

- Vapors Weekly Update 4-18-18

#### Chemical Protection Engagement: Effectiveness Measures

The CPPO *FY2018 Vapors Communication Survey* was distributed to 702 randomly selected members of the workforce in January; 235 responses were received – a return rate of approximately 33%. The report with survey results and associated recommendations has been drafted and reviewed. Comments are being dispositioned prior to issuing the report.

#### Chemical Protection Engagement: Workforce Engagement

The CPPO recently completed an employee vapors information effectiveness survey in which a large 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 recent CPPO/HAMTC Safety Representative interface meeting, it was suggested that CPPO visit the various teams to educate the workforce about CPPO. A draft schedule of the site visits was sent to management to solicit their interest in CPPO site visits. All of the site managers (area and work week managers) contacted expressed their interest in having CPPO visit. The next step is to finalize the schedule for the site visits, with the first visit currently scheduled for the week of 4/23 with the AN Team.

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

#### IH Manual and Technical Basis

##### **Update:**

Industrial Hygiene continues to add to a growing body of IH Technical Basis and IH program updates. TOC-IH-58435, *Industrial Hygiene Manual*, saw updates to Section 1, *Introduction*; Section 2, *Practices of the Industrial Hygiene Program*; and Section 4, *Tank Waste Chemical*

#### **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.

Vapors, of the *IH Chemical Vapor Technical Basis*, and all have been published on the Industrial Hygiene website. Section 3, *Reporting Occupational Exposure and Medical Monitoring*, is approved and was issued to the IH website too. Section 5, *Reporting Occupational Exposure and Medical Monitoring*, and Section 6, *Emergency Response*, are in internal review. The following procedures have been issued:

- TFC-ESHQ-S\_IH-C-66, *Identifying Chemicals of Concern in Hanford Tank Farms*
- TFC-ESHQ-S\_IH-C-67, *Maintenance of the Industrial Hygiene Chemical Vapor Technical Basis*
- TFC-ESHQ-S\_IH-C-48, *Managing Tank Chemical Vapors*
- TFC-PLN-174, *Industrial Hygiene Chemical Vapor Technical Basis Program Plan*
- TFC-ESHQ-S\_IH-C-63, *Modeling/Mapping Procedure*
- TFC-PLN-34, *Industrial Hygiene Exposure Assessment Strategy*

#### Health Process Plan (HPP)

##### **Last update 4/12/2018:**

The HPP process has transitioned into the TFC-Charter-71, *WRPS Internal Review Panel, and External Review Panel Process for Review of Health Process Plan Recommendations*, which provides for assessing both the technical and the economic feasibility of implementing study findings and recommendations. The following HPP studies have been developed and are being reviewed and revised under the TFC-Charter-71 process: *Proposed OELs for Chronic Exposures – COPCs with Regulatory Guidelines, Proposed Acute Exposure Limits for COPCs with Regulatory Guidelines, Proposed Risk-Based Approach for Nitrosamine Chemical of Potential Concern, Recommendations for Sampling and Analysis of Hanford Waste Tank Vapors, and Hanford Tank Vapors FY 2017 Chemicals of Potential Concern Update*. An External Expert Committee (EEC) was convened in March to review and comment on the following studies: *Proposed OELs for Chronic Exposures – COPCs with Regulatory Guidelines, Proposed Acute Exposure Limits for COPCs with Regulatory Guidelines, and Proposed Risk-Based Approach for Nitrosamine Chemical of Potential Concern*. Three studies, *Proposed Occupational Exposure Limits for Furans, Proposed OELs for Chronic Exposures – Nitrile Class COPCs and 2,4-Dimethylpyridine, and Assessing the Potential for Chronic or Acute Health Effects from Exposure to COPC Mixtures*, have been developed to Revision A status, and are being held for further development in FY2019.

##### **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.

### Leading Indicators

#### **Last update 4/12/2018:**

During the 2<sup>nd</sup> Quarter, the leading indicators study focused on three candidate compounds: ammonia, mercury, and nitrous oxide. Evaluation methods were developed to compare paired data, data in which two or more samples were taken simultaneously, to various chemical concentrations, including reference concentrations of ½ of the occupational exposure limit (OEL), the OEL, and the excursion limit (3 times the OEL). The leading indicators study draft report (Rev A) was completed and is presently awaiting review and comment by WRPS IH. A *Leading Indicators* CPPO Notebook was published and HanfordVapors.com has more information.

### Air Dispersion Modeling

#### **Last update 4/12/2018:**

The Air Pollutant Graphical Environmental Monitoring System (APGEMS) modeling software (version 1.0) and accompanying draft report were completed and delivered to WRPS by the Dispersion Modeling Project Team in March. The report describes the APGEMS software and discusses the technical limitations of the current version. It is presently awaiting review and comment by WRPS IH. Three tests cases illustrating model performance were presented by the project team in which actual date-specific meteorological conditions were modeled for the AP, AW, and AN Stacks, as well as the 242-A Evaporator. The test cases were selected to provide model predictions of ammonia and mercury air emissions during low, medium, or high wind conditions. Further refinements of the APGEMS software are underway.

### Central Residence for Industrial Hygiene Technicians (IHT)

#### **Last update 4/12/2018:**

A centralized mobile office (MO) building is slated to house approximately 100 Industrial Hygiene Technicians (IHTs). This new space is designed to be large enough to house the retrieval IHTs and their first-line supervisors. Plans are to install the MO in 200 East area on 4th Street near 218A across from PUREX. KPP 3 advocates a central location for IHTs that is commensurate with other technician level employees. The trailer design has been approved by Washington State Labor and Industries.

## KPP 4. Engineering Controls

### A Farm Exhausters

#### **Update:**

The A Farm Exhauster pad construction continued over the last two weeks. The exhauster slab retaining wall footings were formed, poured, and cured, and the rebar installation was completed. Rebar and concrete forms for the retaining walls commenced installation. Work on the A Farm ventilation duct isolation made progress as well, as *The High Pressure Low Volume Hand Pump to Isolate the 2" Drain Lines Proof-of-Concept* was largely completed.

#### **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.

### AW Stack Extension

#### **Update:**

Fabrication of the AW Farm stack extension continued, with the following being accomplished during in the last two weeks:

- Efforts continued on preparing the non-radiological and radiological permit application.
- Efforts started on preparing the foundation and fabrication submittals.

**Correction:** In the 2<sup>nd</sup> Quarter Summary, CPPO reported that the contract to fabricate the AW Farm stack was awarded, and that efforts were initiated on awarding the installation contract. In fact, both the fabrication and installation activities were awarded to FE&C at the end of March.

### AN Stack Extension

#### **Last update 4/12/2018:**

Engineering evaluations are being performed to determine the optimum height required for the stack and whether the existing superstructure can support that stack height increase.

### <sup>1</sup>Strobic® Air Dilution Fan

#### **Update:**

Efforts focused on off-site testing of the Strobic air dilution fan, with the following accomplished the last two weeks:

- The Strobic® unit used in the factory acceptance testing was shipped to Hi-Line in support of the off-site test. Upon inspection, there was some noted shipping damage to the unit and a Non-Conformance Report was prepared. Strobic® gave Hi-Line permission to repair damage.
- The draft test plan to support off-site testing was submitted for review.

## 2NUCON® Thermal Oxidation Vapor Abatement Unit (VAU)

### **Update:**

Development of the engineering-scale testing continued, with the following accomplished over the last two weeks:

### **TerraGraphics:**

- Test and Design engineers provided support for VAU startup and training activities. This included confirming power requirements and working to repair leaks on the Diesel Particulate Filter.
- Continued work on the Technical Demonstration conceptual design for BY-108. Received initial round of comments on the 60% conceptual design package and started disposition of comments. In parallel, started work on the 90% conceptual design package.
- Received and resolved final comments on the Site Selection Report, which was subsequently issued.

### **NUCON®:**

Nucon provided technical support for VAU startup and training activities.

### **PNNL:**

Continued developing the analytical equipment needed to support the engineering-scale test. Efforts focused on the following:

- Receiving the Fourier transform infrared (FTIR) and preparing for testing.
- Completing the proton transfer reaction-mass spectrometry functional test, which is ready for testing.
- Drafting the test procedures, which are nearing completion.
- Completing the *Data Management Plan*.
- Ordering supplies in support of N-nitrosodimethylamine (NDMA) testing.

Completed preparing the injection, sampling and calibration systems.

### **WRPS:**

WRPS issued a contract change request to provide additional funds to maintain work at PNNL. Additionally, WRPS performed a QA pre-test surveillance on VAU and PNNL documentation.

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

### Permanent Installation of VMDS Equipment in AP Farm

#### **Last update 4/19/2018:**

In FY2017, WRPS identified viable VMDS components for use in the Tank Farms, and the turnover of AP Farm UV-FTIR to Operations was initiated. Turnover activities continue into FY2018. Since the beginning of April, activities include the following:

#### **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.

- The *Phase 2 Pilot-Scale Report* draft, a report summarizing the results of the FY2017 pilot-scale activities, was completed. Comments have been resolved. The report is in the approval cycle.
- Work continued on the modification of the Autosampler, including preparing a report summarizing the development and selection of test gases. After this report is complete, it is anticipated that the remaining Autosampler activities will be deferred until FY2019.
- The UV-FTIR installed at AP Farm is in the process of being turned over to Operations. The on-going activities supporting the turnover include the following:
  - Finalizing the review of the functions-and-requirements (F&R) document, RPP-RPT-60580, and entering the document into SmartPlant for final approval.
  - Finalizing several calculations used to support AP Farm turnover. The calculations included the heat trace verification, sample pump flow verification, and heating/cooling verification.
  - Continuing to prepare the test plan for startup activities.
  - Continuing preparation of the uncertainty and testing concentration calculations. Comments have been incorporated to the 90% draft calculations. The document will be submitted to SmartPlant after the final review.
  - Obtaining quotes for the test gases and preparing a draft statement-of-work to purchase the gases.
  - Continuing efforts to complete the *Operational Readiness Checklist* items.

#### Stack and Boundary Monitors

##### **Last update 4/19/2018:**

In addition to the turnover of the AP Farm UV-FTIR stack monitor to Operations discussed above, other stack and boundary monitoring activities are planned. The work scope includes installing stack monitors on the AW, AX (two), AN, and 702-AZ Exhausters. Activities since the beginning of April include:

- Performing fabrication and factory acceptance testing of the Ultra Violet Differential Optic Absorption Spectrometry (UV-DOAS) units.
- Completing final reviews and incorporating comments on the draft 702-AZ and AN Farm stack monitor designs.
- Continuing development of the AW Farm stack design revision.
- Continuing preparation of the AX Farm 90% design installation package.
- Preparing draft work packages and procuring equipment to support 702-AZ installation activities.

### Establishing Safe Unrestricted Boundaries

#### **Last update 4/12/2018:**

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

Coordinated with ORP, a draft paper, tentatively titled *Comprehensive Vapor Action Plan KPP 5 - Defining the Unrestricted Work Boundary*, was developed clarifying how WRPS will define work boundaries in and around the Tank Farms. This document provides a regulatory basis for the implementation of the Tank Farm boundaries moving forward for the IH Program and provides defense in depth. It is in final review by ORP and WRPS IH program staff.

### Public Address (PA) System

#### **Last update 4/19/2018:**

Activities since the beginning of April include the following:

- Continuing activities to support turnover of the second set of PA systems (AW, AN, AP and C Farms).
- Continuing efforts for the next set of PA systems (B, S, T, and U-Farms). Started preparing the statement-of-work that will be used to procure conduit installation support.

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

### Pilot SST Stewardship Program

#### **Last update 4/19/2018:**

Activities completed since the beginning of April include the following:

#### **SST Remote Monitoring Equipment:**

#### **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.

Efforts continued on the TY Farm temperature and surface level design packages. The contract for the TX Farm was awarded and a kick-off meeting was held to initiate activities.

#### **FY2015 LEAN Report:**

The *SST Stewardship Execution Strategy Document* has been entered into SmartPlant for final reviews and approvals.

## **KPP 7. Hierarchy of Controls**

### **✚ Cartridge Testing and SCBA**

#### Alternatives

#### **Last update 4/12/2018:**

During the 4<sup>th</sup> quarter of FY2017, WRPS and HAMTC agreed upon the implementation and use of Full-Face Air-Purifying Respirators (FFAPR). In the 1<sup>st</sup> Quarter of FY2018, WRPS and HAMTC jointly agreed to expand the use of FFAPRs to 241 SY Tank Farm for specific work evolutions. On December 14, 2018, WRPS implemented FFAPRs use in 241 SY Farm, and limited their use to low hazard work during non-waste disturbing activities (SEG 1 and SEG 2). However, on February 7, 2018, WRPS issued an *IH Safety Flash* entitled "Revision to Use of FFAPR in AP Farm." This *IH Safety Flash* indicated a new report from Stoneturn Consultants (STC), the independent third party reviewer selected by HAMTC, had been received, recommending that WRPS no longer approve the use of FFAPRs in AP Farm. STC's reason for this recommendation is based on the review of sample data collected from within the AP Exhauster (source data) that shows >50x the OEL for NDMA and >8x the OEL for furans. It is important to note that STC's decision does not take into consideration WRPS engineering controls (active ventilation and extended stack height). STC's decision is also based on the lack information on the adequacy of FFAPR cartridges on furans. WRPS and STC are working to a resolution that will take into consideration WRPS engineering controls and cartridge test data. Headspace sampling at BY Farm was completed the weekend of February 9, 2018. On the weekend of February 24, cartridge testing was conducted at BY-108 (**Figure 4**) and BY-110, and included PAPER and APR cartridge testing.



**Figure 4. Headspace sampling at BY-108, February 2018. ((Photo courtesy of Ms. Parks-Beyer.)**

### Mobile Laboratory

#### **Update:**

RJ Lee Mobile Laboratory worked to resolve issues that prompted a stop work. To implement lessons learned, all previous mobile laboratory operating procedures were combined into a single procedure with a nearly continuous flow. A walk-through of the new procedure was conducted in the presence of WRPS QA and resulted in additional improvements. After the improvements were implemented, the stop work was lifted, sampling in support of the *Spring Background Study* resumed, and the study nears completion.

### Personal Vapor Monitor

#### **Update:**

Since the beginning of April, the following was accomplished:

- The <sup>3</sup>ChromAir<sup>®</sup> ammonia badges were received for supporting upcoming field trials, while the <sup>4</sup>ToxiRAE Pro and <sup>5</sup>Ventis<sup>™</sup> Pro V are still on order. The field trial will start with detectors available at the time, with the other detectors being phased into the testing as they are received.
- The WRPS workforce fabricated the mounting plate that will be used to secure the ammonia sensors. The <sup>6</sup>C<sub>2</sub>Sense<sup>®</sup> detectors are communicating with the support of Mission Support Alliance, to the C<sub>2</sub>Sense<sup>®</sup> server via cell phone hot spot, which is a non-permanent configuration.
- The procedures and work packages needed to support the C<sub>2</sub>Sense<sup>®</sup> field trial were completed.
- The IHT training was completed.

## **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.

<sup>1</sup>Strobic Air is a registered trademark of MPC Inc., Wilmington, Delaware.

<sup>2</sup>NUCON is a registered trademark of Nucon International, Inc., Columbus, Ohio.

<sup>3</sup>ChromAir is registered to Morphix Technologies, Virginia Beach, Virginia.

<sup>4</sup>RAE Systems by Honeywell, San Jose, California.

<sup>5</sup>Ventis<sup>™</sup> Pro5 Multi-Gas Monitor is a registered trademark by Industrial Scientific in Pittsburgh, Pennsylvania.

<sup>6</sup>C<sub>2</sub>Sense is a registered trademark by C2Sense, Inc., Cambridge, Massachusetts.