washington **river protection** solutions





Headspace Sampling at 241-BY, February 2018 (KPP 7). (Photo courtesy Ms. Parks-Beyer.)

Tank Operations Contract Chemical Protection Program Office Weekly Report February 15, 2018



NUCON[®] Diesel Upgrade Kit (KPP 5). (Photo courtesy Mr. George Weeks.)





1. CHEMICAL PROTECTION PROGRAM OFFICE (CPPO) ACTIVITIES STATUS

In coordination with the Industrial Hygiene and the Environmental, Safety, Health and Quality (ESHQ) Chemical Protection Integration Manager, the first four of the nine part presentation introducing the workforce to the new vapors-related Industrial Hygiene remedies were finalized. The remaining five presentations are in various stages of draft.

The draft **Comprehensive Vapors Action Plan Recommendations Status Database (CRS)** tracks the status of all the external assessments recommendations. Last week, the CRS was connected to the Problem Evaluation Request (PER) system. The CRS database now reflects the up-to-date CVAP PER status, as well as the CPPO validation status. Generated from the database is an informationally comprehensive report that is significantly easier to navigate than the PERs system, and includes the details of the recommendations and the CPPO validation status as shown in **Figure 1** below. CPPO will continue to post the *CRS Database Report* to the WRPS intranet under the CPPO tab.

CVAP Identification No.: 14		Key Performance Parameter: 7A		
Recommendation	Source: WRPS-1604060.1 E	Enclosure 10, Page 240, para. 5, Repo	ort Rec No: 2	
instrument, PTR-Qi-TOF, is ci elemental compositions. It a report. Such an instrument v of the current data. An inter	apable of mass resolving fura lso has a factor of 10-20 time vould greatly simplify data in mediate option is the TOF-10 Jltra incorporates the lon bo	end PTR-MS systems that has exception an from isoprene and NDMA from me es improvement in sensitivity over the nterpretation and help answer many 000 Ultra system rather than the basi poster funnel technology. A second re plution and sensitivity.	ethyl acetate or other comp e TOF-1000 used in the mea of the questions that arose ic TOF-1000. The difference	ounds of different asurements for this in the evaluation between these
WRPS-PER-2017-2157.1	Owner: Vitali, Jason R	Actionee: Weeks, George E	Date Due: 11/29/2017	Status: Closed
<u>Action</u> Install and test the new IONI	CON TOF-4000 system.			
Deliverables				
1) Report on the results usin	g the IONICON TOF-4000 sys	item.		
Evaluation Clarifying Comm	ents Documented in PER (Bk	ank if None)		
CPPO Closure Notes	<u></u>	AT Action Carried Forward Into CVA	<u>P:</u>	
The TOF-4000 has been insta reports, indicating the instal		r FY17 monitoring campaigns. Objecti	ve evidence includes the fir	st 4 monthly
Objective Evidence	<u>Validated</u>	Evidence Validated By: KER		
61485 Final Monthly Report	1 Rev. 00			
61485 Final Monthly Report				
61485 Final Monthly Report				
61485 Final Monthly Report	4 Rev. 00			

Figure 1. Example Page from the CVAP Recommendations Status Report





CPPO Oversight and Tracking Cost and Schedule Metric

Ongoing vapor projects supporting the draft Comprehensive Vapor Action Plan (CVAP) Key Performance Parameters (KPP) are still moving forward as planned. There are a few projects such as Strobic[®] testing, Vapors Monitoring Detection Systems, trailer procurements, and single shell tank (SST) farm automation that will cause a gradual increase in performance through the summer months. **Table 1** below shows that in FY2018 to date, \$12.6M has been spent implementing the CVAP KPPs. Forty-six million dollars (\$46.1M; 97.5%) of WRPS's revised CVAP not to exceed (NTE) value of \$47.3M has been spent. Monthly costs are expected to remain at about \$4M per month for the remainder of the year.

Table 1. FY2018 Draft CVAP Costs







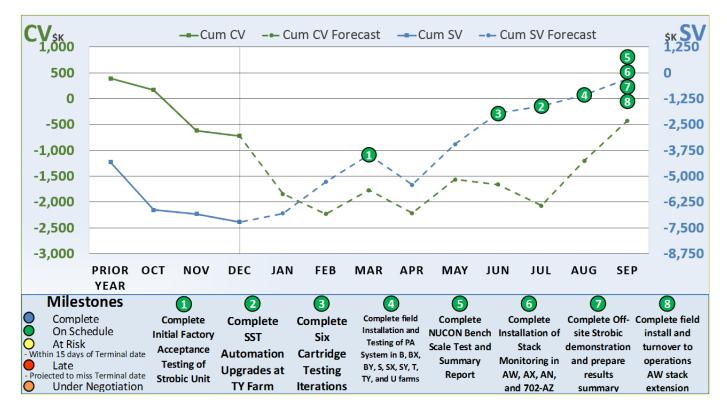


Figure 2. FY2018 Cost and Schedule Variances for the Draft CVAP

2. COMPREHENSIVE VAPOR ACTION PLAN Key Performance Parameters KPP 1. Engagement and Effective Measurement

<u>Chemical Protection Engagement: Center for Toxicology and</u> <u>Environmental Health (CTEH)</u>

Working closely with Industrial Hygiene, the CTEH team continued to develop the nine part CPPO Notebook presentation series introducing the workforce to the new vapors-related Industrial Hygiene remedies.

Chemical Protection Engagement: Chemical Vapors Solutions Teams (CVST)

The CVST Cartridge Sub-committee held a meeting on February 7, 2018.

The CVST Communications Sub-committee held a meeting on February 5, 2018.

Key Performance Parameter 1

Establish a comprehensive vapor management communication plan, engagement processes, and effectiveness measurements.





Chemical Protection Engagement: Communications

Last week's CPPO Notebook is titled *Industrial hygiene exposure assessment: Hazard identification, KPP 3.* This week's CPPO Notebook is titled *Industrial hygiene exposure assessment: Exposure assessment, part 3 of 9, KPP 3.*

An *Industrial Hygiene Communication* all-employee email was published February 5, 2018, informing WRPS that "the term Similarly Exposed Groups (SEG) was changed to Risk Classification (RC)."

The SOEN System alerted the Hanford community of a significant operational issue on February 5, 2018, at 3:26 p.m., reporting, "[i]nitiated EIR-2018-009 '702AZ AOP-015 Event'. CSM."

An all-employee email was issued on February 5, 2018, at 3:55 p.m., reporting "[o]dors reported inside 702-AZ exhauster building."

The SOEN System alerted the Hanford community of a significant operational issue on February 5, 2018, at 9:52 p.m., reporting, "[e]xited AOP-015 for odors in 702AZ building. IH samples have been analyzed; there were no chemicals above action levels. Normal access is restored to 702AZ. CSM."

The SOEN System alerted the Hanford community of a significant operational issue on February 6, 2018, at 10:48 a.m., reporting, "[e]ntering AOP-015 for odors on the exterior north/northwest side of SY Farm. Stay clear of this area. CSM."

The SOEN System alerted the Hanford community of a significant operational issue on February 6, 2018, at 11:04 a.m., reporting, "[i]nitiated event investigation for the SY Farm emergency shower AOP-015 event. Stay clear of this area. CSM."

An all-employee email was issued on February 6, 2018, at 12:19 p.m., reporting "[o]dors reported outside SY Tank Farm."

Hanford Vapors, News from Hanford Tank Vapors published on February 6, 2018, at 12:29 p.m., reported "[a]ccess restored to 702-AZ exhauster building has been restored after air monitoring and sampling results showed no chemicals above action levels."

Hanford Vapors, News from Hanford Tank Vapors published on February 6, 2018, at 3:19 p.m., reported "[o]dors reported outside SY Tank Farm."





The SOEN System alerted the Hanford community of a significant operational issue on February 6, 2018, at 5:26 p.m., reporting, "[s]ample analysis for the TF-AOP-015 event has been completed and the results are below action limits. Exiting TF-AOP-015. CSM."

An all-employee email was issued on February 7, 2018, at 10:50 a.m., reporting "[a]ccess restored to SY Farm area after report of odors."

Hanford Vapors, News from Hanford Tank Vapors published on February 7, 2018, at 4:05 p.m., reported "[a]ccess restored to SY Farm area after report of odors."

An *Industrial Hygiene Communication* all-employee email was published February 7, 2018, informing WRPS that "WRPS has received multiple reports of a strong "onion like" odor ranging from Richland to the Hanford East area. We have attempted to contact the Benton County Clean Air Agency concerning this odor. It is believed the onion odor is a result of 250,000 lbs of onions being used as compost by a farmer in West Richland."

An *Industrial Hygiene Communication* all-employee email was published February 7, 2018, informing WRPS that "WRPS has received a new report from the third party reviewers (StoneTurn Consultants (STC)) and the report recommends that we do not approve the use of FFAPR in AP Farm for SEG-2 work at this time. They also recommend we rescind the approval for the use of FFAPR in AP Farm for SEG-1 work until additional evaluations are completed."

<u>Chemical Protection Engagement: Hanford Vapors Website Updates</u>

- Odors reported inside 702-AZ exhauster building
- Access restored to 702-AZ exhauster building
- Odors reported outside SY Tank Farm
- Access restored to SY Farm area after report of odors
- <u>CVST Minutes Dec. 13, 2017</u>
- <u>CVST Minutes Jan. 17, 2018</u>
- <u>CPPO Weekly Report Feb. 8, 2018</u>

<u>Chemical Protection Engagement: Effectiveness Measures</u>

The communication effectiveness survey was distributed to approximately 700 random WRPS participants. Completed surveys began returning Monday, January 22, 2018, and tabulations have begun.





<u>Chemical Protection Engagement: Worker Feedback</u>

The CVST Fugitive Emissions sub-team is developing a gap analysis to identify historical characterization data and potential sources in and around 4th and Buffalo. The gap analysis informs the monitoring and sampling recommendations. Small group meetings have been established with workforce representatives (including operations, IHTs, and sampling) to ensure worker feedback / input is provided into the process and to capitalize on the sampling and characterization knowledge of the workforce.

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

IH Manual and Technical Basis

Last update 2/8/2018:

Sections 1 and 4, *Introduction* and *Tank Waste Chemical Vapors*, of the IH Manual were published on the Industrial Hygiene website, and 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-34, Industrial Hygiene Exposure Assessment Strategy
- TFC-PLN-174, Industrial Hygiene Chemical Vapor Technical Basis Program Plan

The *Industrial Hygiene Chemical Vapor Technical Basis Program Plan* "provides a method and process for reviewing, summarizing, updating, and implementing the *Hanford Tank Farm Industrial Hygiene Chemical Vapor Technical Basis* "(TFC-PLN-174, pg. 2).

Briefings with line organization, all-hands meetings, newsletters, required reading, and other communication avenues have been utilized to communicate the changes to the exposure assessment process, vapors management strategies in the tank farms, and the changes to the IH Technical Basis. IH is continuing to develop IH Manual sections.

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.





🖊 <u>Health Process Plan (HPP)</u>

Update:

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

process conducts both technical and economic feasibility assessments 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.

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

Update:

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 level (3 times the OEL).

Maintain Industrial Hygiene Program and Institutionalize Vapor Program <u>Requirements</u>

Last update 2/1/2018:

Training bulletin TB-18-01, *The New Chemical Worker Training Program*, was issued to WRPS as required reading on January 15, 2018. The bulletin introduced *Chemical Worker Tier Trainings*. Determining that a "tiered approach to training is more effective because less time is spent in training that is not needed for your job requirements," WRPS created three tiers of training and its commensurate refresher courses. *Tier 1: General Chemical Awareness Training*, targets all WRPS workers and is available as a standalone computer based training (CBT) for other Hanford Contractors. *Tier 1*, available since September 2017, covers general chemical and odor awareness. *Tier 2* was published this month. It targets all WRPS workers located past the Wye Barricade, is a CBT, and *Tier 1* is its prerequisite. *Tier 3*, which targets workers who enter the tank farms, is pending.





Central Residence for Industrial Hygiene Technicians (IHT) Update:

Retrieval Industrial Hygiene Technicians (IHT) and their first-line supervisors will be relocated to a centralized mobile office (MO) building. The MO is slated to house approximately 100 workers. According to retrieval field support, this new space will be large enough to house all 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. The installed and occupied MO will satisfy KPP 3 for retrieval IHTs. The trailer site is at 60% completion. The trailer design was approved by Washington State Labor and Industries.

<u>Air Dispersion Modeling</u>

Last update 1/25/2018: The Dispersion Modeling project team is currently working on Air Pollutant Graphical Environmental Monitoring System (APGEMS) regression tests and test cases; the model updates are complete, but modifications continue as they perform tests and identify fixes or opportunities for improvements, mostly in the software and graphic user interface (GUI). They are also drafting a report to summarize the model, capabilities, limitations, and to provide a quick users guide.

KPP 4. Engineering Controls

4 <u>A Farm Exhausters</u>

Update:

For the A Farm concrete pad, the vendor began providing submittals and initiated mobilization activities. Walk downs were continued in an effort to confirm the ducting isolation activities.

AW Stack Extension

Update:

The final (100%) design package was approved. The

Plant Forces Work Review (PFWR) was also completed and installation work was awarded to construction crews. Along with the PFWR, the installation statement-of-work (SOW) was approved. In parallel with these activities, efforts were started on preparing the non-rad permit application.

Key Performance Parameter 4

Complete engineering control concept demonstrations for ¹Strobic Air Tri-Stack[®] and ²NUCON[®] International, Inc. thermal combustion in support of unrestricted work boundaries





AN Stack Extension

Last update 1/18/2018:

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

<u>Strobic® Air Dilution Fan</u>

Update:

For factory acceptance testing, WRPS completed its review of the schedule, welding and nondestructive examination procedures, and drawing submittals provided by Strobic. Equipment procurement continued. Efforts to award the test plan contract for Richland off-site testing continued. Clarifications were requested and efforts are on-going to prepare the clarifications. The clarifications will be used by the vendors to re-submit their proposals for technical evaluation.

<u>NUCON® Thermal Oxidation Vapor Abatement Unit (VAU)</u>

Update:

The engineering-scale testing continues to be developed, and the following was accomplished during the reporting period:

- Terragraphics
 - Provided information to PNNL for its fire evaluation of the test trailer interior material.
 - Issued a contract to HiLine for the required skid modifications and pipe spool welding for the diesel unit.
 - Performed the final inspection of the test trailer on 2/8/2018. The trailer was delivered to the PNNL test site on 2/9/2018.
 - Continued to work on finalizing a draft of the revised *Functions and Requirements* document.
 - Continued developing the site alternatives for the technical demonstration. During the week of January 29, 2018, TerraGraphics presented the results of the site evaluation to the Integrated Project Team (IPT) and received concurrence on the selected tank, which is BY 108. During the week of February 5, 2018, continued work on the technical demonstration conceptual design at BY 108.





WUCON® Thermal Oxidation Vapor Abatement Unit (VAU) Continued

- NUCON[®]
 - Continued working on the design and fabrication of the diesel conversion kit. All drawings were completed and submitted for the kit, and the generator was shipped as shown in **Figure 3**.



Figure 3. NUCON[®] Diesel Upgrade Kit – Prepared to Ship to WRPS (Photo courtesy of Mr. George Weeks.)





4 NUCON[®] Thermal Oxidation Vapor Abatement Unit (VAU) Continued

- PNNL
 - Continued to develop the analytical equipment being used to support the engineering-scale test. Efforts focused on the following:
 - ✓ Confirming sensitivity limits for various compounds on the proton transfer reaction-mass spectrometry (PTR-MS)
 - ✓ Confirming that anticipated environmental conditions (humidity, water content, etc.) during the test will not impact operation of the PTR-MS
 - ✓ Developing operating procedures for the Fourier-transform infrared spectroscopy (FTIR) and PTR-MS
 - ✓ Fitting a cryotrap with the gas chromatograph system to evaluate and understand water management. Continuing to evaluate methods for pre-concentrating samples.
 - o Started developing procedures for operating the VAU and sampling interfaces.
 - Developed a list of measuring and test equipment, and initiated the procurement activities.
 - Started preparing the test site to receive the diesel upgrade kit from NUCON and planning for the removal of the propane engine on the current VAU.
 - o Started preparing the chemical process permit to support testing.
 - Completed the injection and sampling systems process and instrumentation drawings.

WRPS

- Received the test plan comments from the Washington State Department of Ecology and started working with PNNL to develop responses.
- Efforts are on-going to transfer two AreaRAE instruments to PNNL in support of the engineering-scale test.

KPP 5. Administrative Controls and Monitoring

Permanent Installation of VMDS Equipment in A and AP Farms

Last update 2/8/2018:

Numerous activities were on-going last week including:

- Efforts to obtain approvals on the Phase 2 Pilot-Scale Report continue. The report is currently with WRPS for general counsel review.
- Efforts are on-going to determine scope and schedule for reporting data that is being used to support VMDS technology development.

• Work continued on the AP Farm UV-FTIR turnover including:

• Development of the *Functions & Requirements* document, which was delayed after resources were reassigned.

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.





- Preparation of the ammonia set point calculation and identification of the test gases that will be used to support turnover continued.
- Calculations used to support AP-Farm turnover were started. These calculations included the heat trace verification, sample pump flow verification and heating/cooling verification.
- o Efforts to complete Operational Readiness Checklist items continued.
- Work continued on Autosampler modifications, including:
 - o Preparing report summarizing development and selection of test gases.
 - o Initiating procurement of test gases.
 - o Completion of test plan that will be used to support integrated testing activities.
 - o Procurement of items needed to support assembly of the Autosampler.
 - o Preparing design drawings for the test bed manifold and Hanford E-Skid.

<u> Stack and Boundary Monitors</u>

Last update 2/8/2018:

The majority of the AN Farm and AZ Farm design documents started formal reviews. The ³CEREX[®] stack monitor proposal was delayed after questions were submitted by the vendor. As a result of the delayed contract, the procurement of the 13 UV-DOAS units are still on hold. Additionally, the construction statement-of-work was routed for approvals.

<u>Establishing Safe Unrestricted Boundaries</u>

Update:

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. It is in final review by ORP and WRPS IH program staff. During FY2017, WRPS's subcontractor Kenexis Consulting Corporation completed three quantitative risk assessments (QRA) designed to assess the probability and likely consequences of an episodic, acute exposure. To support these planned QRAs, all comments have been received for the AN-Tank Farm Basis of Design (BOD), and the BOD for the AY/AZ-Tank Farms has been initiated. All laser scans needed to support the AN and AY/AZ QRAs have been completed, and laser scan data analysis has been initiated.

Public Address System

Last update 2/8/2018:

The final step in turning over the A Farm Complex PA system to operations is to finish the repair work on the reader boards. The vendor replaced the solenoids on





all sixteen reader boards and performed final testing; two were still identified as not functioning correctly and troubleshooting efforts are underway. Efforts continued on preparing excavation permits and crossing lists for the west area PA systems.

KPP 6. Tank Operations Stewardship

Pilot SST Stewardship Program

Last update 2/8/2018: SST Remote Monitoring Equipment:

Efforts continued on the TY Farm temperature and surface level design packages. Vendor feedback was provided by the design subcontractor who suggested a method for optimizing TY Farm equipment to support other SST farms. Although this will impact the scope of on-going design calculations and drawings, this optimization will result in a better end product. In addition to design

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.

activities, procurement of equipment needed to support temperature and surface level installation continued. *The Plant Forces Work Review*, which determines who performs installation activities, was submitted for review.

FY LEAN 2015 Report:

Comments are being incorporated to the *SST Stewardship Execution Strategy Document.*

KPP 7. Hierarchy of Controls

Cartridge Testing and <u>SCBA Alternatives</u> Update:

Headspace sampling at BY Farm was completed the weekend of February 9, 2018. Now that the headspace sampling campaigns are complete, cartridge testing can begin at BY Farm. Cartridge testing will include 3M and MSA power air purifying respirators (PPAPR) and cartridges.



Figure 6. Headspace sampling at BY Farm, February 2018 (Photo courtesy of Ms. Parks-Beyer.)





Last week, WRPS received a new report from STC. Its report recommends that WRPS refrain from implementing FFAPR use in AP Farm for SEG-2 work activities. The report also recommended that WRPS rescind the approval of FFAPRs in AP Farm for SEG-1 work activities pending further evaluation of data. A February 7, 2018, *Industrial Hygiene Flash* reported that "STC's concerns are based on the review of stack exhauster sample data (source data) data that shows >50x the OEL for N-nitrosodimethylamine (NDMA)

Key Performance Parameter 7

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

and >8x the OEL for furans in the source. This is based on a conservative assumption that the concentrations in the source could exist in the worker's breathing zone (not crediting the engineering controls of active ventilation and extended stack height). It is also based on the lack of sufficient information on the adequacy of FFAPR cartridges on furans." This pause will remain in effect until additional evaluations are completed. Implementation of FFAPRs will continue in SY Farm for SEG 1 and SEG 2 work activities.

4 <u>Mobile Laboratory</u>

Update:

During the reporting period, efforts continued on the following:

- R.J. Lee provided a proposal for continuation of the background study. However, the proposal was not responsive to the SOW and was returned to RJ Lee for correction. R.J. Lee submitted a revised proposal for continuation of the background study that was responsive to the SOW and WRPS completed the technical evaluation.
- Met with Procurement and Quality Assurance (QA) to discuss the new Mobile Lab Services contract. The initial discussions with QA indicated that TerraGraphics's QA program may not be mature enough to be awarded the contract. However, subsequent meetings determined that their QA program would probably be acceptable. Although QA and acceptance criteria reviews are still on-going, the current path forward is to complete the requisition.

4 <u>4C2Sense® Personal Vapor Monitor</u>

Update:

During the reporting period, the following was accomplished:

• A preliminary version of the C2Sense field demonstration test plan was presented to the IPT and feedback was solicited. The comments were incorporated into the draft test plan and distributed for formal review.





 A market survey was completed, which identified two commercially available, wearable ammonia detectors (with wireless capability) for consideration as candidate technologies to be evaluated in the upcoming field demonstration.

KPP 8. Medical Support

Expanding WRPS Employee Awareness of the Medical and Company <u>Return to Work Processes:</u>

Last update 2/8/2018: A meeting was held with HAMTC and building trades representatives, during which it was agreed to eliminate the ACE's exclusion note

in TFC-BSM-HR_EM-C-10, Reasonable Accommodations procedure and replace it with, "[e]mployees with minimal or no symptoms and a normal exam may be returned to work with or without restrictions while lab test results are pending." The HAMTC Safety Lead agreed to take this to the

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

HAMTC President for his concurrence. Once an agreement is reached, a communication plan will be developed and delivered to the workforce.

<u>Expanding Hanford Worker's Awareness of Existence and Role of the</u> <u>Washington State Labor & Industries (L&I) Office of the Ombudsman for</u>

Injured Workers of Self-Insured Businesses:

Last update 2/8/2018:

The Office of the Ombudsman is confirmed to be on-site February 26-28, 2018, to meet and talk with Hanford workers regarding any concerns or questions they might have. Meetings will be scheduled on-site and in town to expand the workers' awareness of the existence and the role of the Ombudsman office. This will be the second series of meetings offered to the Hanford workers. The communication and schedule will be coming from DOE/RL in the next few days so that each contractor can communicate it to their workforce.

¹Strobic Air is a registered trademark of MPC Inc., Wilmington, Delaware. ²NUCON is a registered trademark of Nucon International, Inc., Columbus, Ohio. ³CEREX trademark by TECAN SP, INC. Baldwin Park, California.. ⁴C₂Sense is a registered trademark by C₂Sense, Inc., Cambridge, Massachusetts.