Fiscal Year 2017
Chemical Vapors Communication Activities
Quarterly Report #4
July – September 2017

washington river protection solutions

An AECOM-led company with Atkins and AREVA

C&PR
COMMUNICATIONS & PUBLIC RELATIONS

Introduction

Washington River Protection Solutions (WRPS) is committed to the timely and transparent release of information related to chemical vapors in the Hanford tank farms. The information in this report represents an accounting of WRPS' efforts to increase engagement with the workforce and stakeholders on the chemical vapors issue.

In support of furthering Department of Energy (DOE) mission goals, WRPS has and will continue to pursue a variety of vapors-related initiatives. By increasing awareness of those goals, and the progress made toward meeting them, WRPS aims to bring greater understanding of chemical vapor hazards and how those risks are mitigated. Worker involvement and feedback is a key aspect in communications planning and delivery.

WRPS relies on a number of tools to inform workers and stakeholders on the topic of chemical vapors protection and strategy. Those tools include, but are not limited to:

- Employee meetings
- All-employee email messages
- Weekly newsletter articles
- Regular posts to the Hanford vapors website
- Participation in the employee-driven Chemical Vapors Solutions Team (CVST) and various subcommittees
- Public meetings
- Tours

By communicating openly and often through a variety of means, WRPS intends to create an understanding of what is happening, where we are going in the area of vapors and chemical protection initiatives and what it means to our employees, our families and our community.

In this report: Fiscal Year 2017 – 4th Quarter highlights

- New data sets posted to the Hanford vapors website
- All-employee messages communicate waste-disturbing activities and related vapor controls
- All-employee survey seeks input on WRPS' safety culture and ways to improve trust and communication with the workforce
- Field team looks to improve the speed and ease of respiratory equipment issuance at the on-site stations, including use of a new computer-based system to log and track inventory
- WRPS continues to develop and test technologies to monitor and detect chemical vapors
- WRPS makes progress on recommendations collected during a Lean Management Rapid Improvement Event designed to improve vapors-related communication with the workforce

About us

Washington River Protection Solutions is a limited liability corporation owned by AECOM and Atkins, with AREVA as its primary subcontractor. The company's mission is to reduce the environmental risk posed by 56 million gallons of radioactive and chemical waste stored in 177 underground tanks near the center of the 586-square-mile Hanford Site in southeastern Washington state. For more, visit www.wrpstoc.com.

July 2017

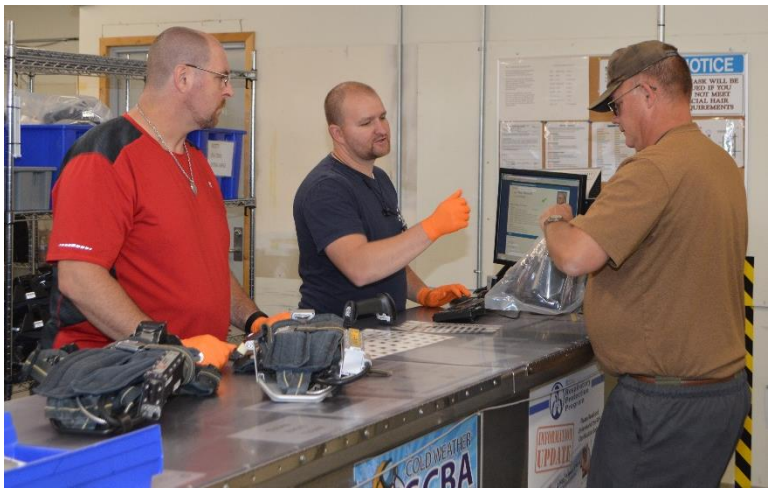
Chemical Vapors Solutions Team (CVST) meetings
July 12
July 26

CVST communications subcommittee meetings
July 10
July 24

- Communications & Public Relations worked with the Chemical Protection Program Office (CPPO) to collect and post a number of updated data sets to the Hanford vapors website. Updates included:
  - Vapors weekly update – July 12
  - Vapors weekly update – July 20
  - CPPO weekly report – July 27, 2017
  - CPPO weekly report – July 13, 2017
  - CPPO weekly report – July 6, 2017 (includes Q3 Summary Report)

- An all-employee email solicited participation in an all-employee safety culture survey. The confidential survey, conducted by an independent party, seeks worker feedback on strengths in WRPS' Integrated Safety Management System and opportunities for improvement, including how the company responds to and communicates information about emerging challenges and concerns, such as tank farms vapors. All employees, including subcontractors and construction trades, were given the opportunity to participate. Results will be shared with the workforce once available. A newsletter article also highlighted the survey.

- A photo in the Solutions newsletter highlighted a July visit from Roger Jarrell, DOE-HQ Environmental Management, Senior Advisor to the Secretary of Energy. Jarrell received a briefing on AP Farm activities, vapor abatement activities and vapor equipment testing in addition to other topics of interest at Hanford.



Implementation of the automated Respiratory Equipment Tracking System, or RETS, has streamlined the equipment issuing process.

- A July 17 newsletter article highlighted efforts by a team of individuals to improve the speed and ease of respiratory equipment issuance at the on-site stations. A new computer-based system helps log and track inventory to facilitate equipment distribution and workflow efficiency.

- An all-employee email was sent notifying workers of the successful completion of the first 242-A Evaporator operating campaign of the year. The email described the team's commitment to safety and the collaboration that took place within the Chemical Vapor Solutions Team and with HAMTC leadership in developing the comprehensive industrial hygiene control strategy for the campaign. A Solutions article also highlighted the accomplishment.

"I want to particularly recognize the Industrial Hygiene (IH) staff who supported the campaign. The IH control plan placed a lot of emphasis on monitoring during this campaign. The IHTs, IH staff and their leadership did a great job collecting and evaluating all that data which was used to brief personnel on the IH conditions throughout the campaign."

-Kent Smith, WRPS Production Operations manager

- A Solutions newsletter article provided an update on the pilot-scale demonstration of WRPS' Vapor Monitoring and Detection System (VMDS) at Hanford's A and AP tank farms. The system is designed to provide continuous, real-time measurements of tank farm vapors, meteorological conditions, and the ability to visualize this information for response. Information collected is being used to determine which pieces of equipment will be maintained as part of the overall VMDS and which will not.

- A July 31 newsletter article highlighted initial testing of a technology that aims to eliminate chemical vapors. WRPS is supporting NUCON International as it develops a thermal oxidation demonstration project based on an internal combustion engine. The unit works by pulling tank vapors into the engine's induction system and combusts them in the engine cylinders, destroying 95 percent of the vapors fed into the system.

August 2017

- Website posts:

Vapors Weekly Updates:

- Vapors weekly update – Aug. 2
- Vapors weekly update – Aug. 10
- Vapors weekly update – Aug. 17
- Vapors weekly update – Aug. 24
- Vapors weekly update – Aug. 31

CPPO weekly reports:

- CPPO Weekly Report – Aug. 3, 2017
- CPPO Weekly Report – Aug. 9, 2017
- CPPO Weekly Report – Aug. 17, 2017
- CPPO Weekly Report – Aug. 24, 2017
- CPPO Weekly Report – Aug. 31, 2017

CVST agendas/minutes:

- CVST Agenda – July 12, 2017
- CVST Agenda – July 26, 2017
- CVST Minutes – July 26, 2017
- CVST Minutes – July 12, 2017
- CVST Minutes – June 28, 2017

Other posts:

- Updated non-personal sampling data (Non-personal headspace/source sampling data, 2008 to 2017 and Percent of OEL 2008 to 2017)
- FY 2017 Chemical Vapors Communication Activities Q3
- Stoneturn preliminary report on air-purifying respirator cartridge testing and use
- A new section on abatement technologies, including a link to *SRNL-STI-2016-00484, Hanford Tank Farms Vapors Abatement Technology and Vendor Proposals Assessment*,

Chemical Vapors Solutions Team (CVST) meetings
Aug. 23

CVST communications subcommittee meetings
Aug. 7
Aug. 21

found here: https://hanfordvapors.com/protect-workers/vapors-management-strategy/engineered-controls/

- A new section on the Chemical Vapor Initiative, found here: https://hanfordvapors.com/enhancing-vapor-identification/mobile-laboratory/

- A series of all-employee emails announced waste removal from tank C-105 would resume. WRPS and HAMTC worked together to develop appropriate controls to address chemical vapor concerns. C-105 retrieval operations began on nights and weekends, then moved to 24/7 operations with access controls as IH sampling data warranted. Sampling included ventilation-stack monitoring, IH monitoring and sampling, and strategically placed air monitoring instruments. A mobile laboratory also took air samples from areas around the tank farms for analysis. Workers in the farm used appropriate protective gear as outlined in the work package. A map was provided to workers outlining the industrial hygiene monitoring and control strategy for C-105 retrieval. An article on the topic also appeared in the Solutions newsletter.

- A series of employee messages were sent to alert workers about the transfer of supernatant waste between two double shell tanks. A vapor control strategy map was provided to workers to illustrate the controls put in place.

- A newsletter article highlighted several projects nominated for AECOM Excellence Awards, including the AP Ventilation Upgrade project. Upgrading the ventilation system at AP Farm is a crucial milestone in supporting the transfer and disposition of Hanford's tank waste. The new ventilation system continuously draws air from the eight tanks in AP Farm and has the ability to ventilate at a rate 429 percent higher than before. It also provides redundant mechanical systems and other safety features. The new system has made waste transfers from single-shell tanks and between double-shell tanks much safer and more reliable while protecting workers from chemical vapors.

AP Farm exhauster

- An article in the employee newsletter highlighted an air-line respirator field trial in AP Farm that began in late July and continued into August. In addition to this field trial, two new Self-Contained Breathing Apparatus (SCBA) models were set for testing this summer inside A/AX Farm and during Liquid Observation Well activities. A report summarizing the equipment evaluations, results and recommendations related to potential future air-line and new SCBA gear use will be produced by the end of the year.

- Congressional staffers visited the tank farms in August. WRPS hosted the visitors at AP Farm, where managers provided an overview of the vapors monitoring and detection technology being tested in the field.

- WRPS representatives gave presentations on two key tank farms projects at the Hanford Advisory Board's Tank Waste Committee meeting. Doug Greenwell, WRPS Retrievals manager, updated the committee on single-shell tank C-105. He discussed the tank's waste characteristics and retrieval history, as well as the retrieval and respiratory protection strategies for removing the remaining waste from the tank. Jordan Follett, an engineer with the WRPS Retrieval Process Engineering group, provided an update on double-shell tank AY-102 video inspection activities. His presentation highlighted the use of a high-definition camera system that confirmed two primary leak sites on the floor of the primary tank. He also discussed the most likely causes of the leaks determined by a panel of tank integrity experts.

- A Solutions article highlighted development of a Strobic Air Tri-Stack® ventilator test unit that that could lead to the technology being used in the future in Hanford tank farms. The system uses a fan to combine outside air with ventilation exhaust to reduce vapor concentrations in the work space. The Strobic ventilator is one of the engineering controls being evaluated for use as part of WRPS' comprehensive vapors management strategy at the Hanford tank farms.

- A newsletter article in August highlighted progress toward a second operating campaign at the 242-A Evaporator. The work has been coordinated with the Chemical Vapor Solutions Team and HAMTC leadership to develop a comprehensive industrial hygiene control strategy for the campaigns. Information regarding work schedule and planned controls has been shared with workers.

- An employee newsletter article highlighted a Lean Management Rapid Improvement Event held that aimed to identify more effective means of exchanging information between chemical-vapor subject-matter experts and the WRPS workforce. The event, sponsored by the CPPO, focused on finding ways to increase face-to-face communication with subject-matter experts, strengthen the use of the CVST as an effective communication tool, and improve the workforce's access to web-based vapors resources. The Lean event identified 19 potential improvements, 13 of which have been completed. All items are expected to be completed by the end of calendar year.

Employees participated in a Lean Management Rapid Improvement Event held that aimed to identify more effective means of exchanging information between chemical-vapor subject-matter experts and the WRPS workforce.

"We have lots of industrial hygiene information available through all-employee messages, Solutions articles, the Hanford vapors website, the CVST and the CPPO Notebook. However, it's sometimes hard for our employees to find needed information, interpret technical data and, most important, engage in two-way communications. This process aims to improve those mechanisms."

- Rob Gregory, Chemical Protection Integration manager

September 2017

- Website posts:

Vapors Weekly Updates:

- Vapors weekly update – Aug. 31
- Vapors weekly update Sept. 21

CPPO weekly reports:

- CPPO Weekly Report – Aug. 31, 2017
- CPPO Weekly Report – Sept. 7, 2017
- CPPO Weekly Report - Sept. 14, 2017
- CPPO Weekly Report - Sept. 21, 2017

CVST agendas/minutes:

- CVST Agenda - Sept. 13, 2017
- CVST Minutes - Sept. 13, 2017

Other posts:

- AOP-015 EIR-2017-13
- AP Stack Weekly Report (Dec. 28-2016 – Jan. 4, 2017)
- VMDS Weekly Report (Feb. 22 - March 1, 2017)
- VMDS Weekly Report (March 15-22, 2017)
- Mobile Lab Monthly Report - January 2017
- A new section on abatement technologies, including a link to *SRNL-STI-2016-00484, Hanford Tank Farms Vapors Abatement Technology and Vendor Proposals Assessment*, found here: https://hanfordvapors.com/protect-workers/vapors-management-strategy/engineered-controls/
- A new section on the Chemical Vapor Initiative, found here: https://hanfordvapors.com/enhancing-vapor-identification/mobile-laboratory/
- Hanford Tank Farm Occupational Exposure and Risk Assessment Plan, PNNL-25791
- PNNL-26041 Analysis of Respirator Cartridge Performance Testing on Hanford Tank SY-102\
- PNNL-26131 Analysis of Respirator Cartridge Performance Testing on Hanford Tank A-101
- PNNL-26180 Analysis of Respirator Cartridge Performance Testing on Hanford Tank BY-108
- PNNL-26243 Analysis of Respirator Cartridge Performance Testing on the 702-AZ Primary Exhauster for the Hanford AY/AZ Tank Farms
- PNNL-26254 Analysis of Respirator Cartridge Performance Testing on Hanford Tank AX-101
- PNNL-26317 Analysis of Respirator Cartridge Performance Testing on a Hanford AN Tank Farm Exhauster Slipstream
- PNNL-26337 Analysis of Respirator Cartridge Performance Testing on a Hanford AW Tank Farm Exhauster Slipstream

Chemical Vapors Solutions Team (CVST) meetings
Sept. 13
Sept. 27

CVST communications subcommittee meetings
Sept. 18

- Technology Maturation Plan for the Tank Farm Vapors Monitoring and Detection System (RPP-PLAN 59972, Rev. 0)
- AP Stack Weekly Report (Dec. 7-14, 2016)
- AP Stack Weekly Report (Dec. 21-28, 2016)
- Mobile Lab PTR-MS Monthly Report February 2017
- Mobile Lab PTR-MS Monthly Report January 2017

- WRPS sent an all-employee email message to alert workers about the transfer of supernatant waste between two double shell tanks. A vapor control strategy map was provided to workers to illustrate the controls put in place.

- A newsletter article highlighted the results of a recent safety culture survey that asked for participation from WRPS employees. The final report will provide specific recommendations to address opportunities for improvement, including ways to build trust between management and the workforce and more effectively communicate on a variety of topics, including chemical vapors.

- WRPS published an employee newsletter article announcing the completion of the second of two operating campaigns at the 242-A Evaporator. The work was coordinated with the Chemical Vapor Solutions Team and HAMTC leadership to develop a comprehensive industrial hygiene control strategy for the campaigns. Area direct-reading instrumentation readings in the general work areas during the campaign were well below action and occupational exposure limits.