



OFFICE OF INSPECTOR GENERAL

U.S. Department of Energy

SPECIAL REPORT

OIG-SR-17-01

November 2016

**DEPARTMENT OF ENERGY'S ACTIONS
TO ADDRESS WORKER CONCERNS
REGARDING VAPOR EXPOSURES AT THE
HANFORD TANK FARMS**



Department of Energy
Washington, DC 20585

November 10, 2016

MEMORANDUM FOR THE SECRETARY

A handwritten signature in blue ink, appearing to read "Rickey R. Hass".

FROM: Rickey R. Hass
Acting Inspector General

SUBJECT: INFORMATION: Special Report on the “Department of Energy’s
Actions to Address Worker Concerns Regarding Vapor Exposures at
the Hanford Tank Farms”

BACKGROUND

For decades, the Department of Energy has been storing and managing millions of gallons of chemical and radioactive wastes in the Hanford tank farms, in Washington State. Approximately 56 million gallons of this waste are stored in dozens of aging tanks. Tank operations routinely occur to manage the waste, to transfer waste from old or leaking tanks, to perform evaporation activities, and to perform other actions that are referred to as “waste disturbing activities.” Tank waste generates vapors as heat and radiation break down chemical compounds. From time to time, workers at the tank farms are exposed to these vapors. When inhaled at high enough concentrations, according to an independent panel of experts, some of these vapors may represent a serious occupational hazard to the tank farm workforce. Due to the hazards associated with vapors, the Department and its contractors have engaged in various activities in an attempt to minimize the risk of human exposure. Since 2014, the Department and its tank operations contractor, Washington River Protection Solutions, LLC (WRPS), have been engaged in renewed activities to measure, minimize, and mitigate exposure. Nevertheless, incidents of worker exposure to vapors continue to occur.

We were informed that some workers may not feel comfortable expressing their concerns about vapors due to fear of retaliation from management. Accordingly, we initiated this special review to assess whether a problem with fear of retaliation existed and to assess the status of actions that are underway to address the risks posed by vapors.

RESULTS OF SPECIAL REVIEW

Seven of the 52 workers we interviewed indicated that they had concerns with reporting, communicating, reprisal, or fear of retaliation related to potential vapor exposures. One of the workers had filed a formal complaint regarding retaliation. The remaining workers we spoke to generally told us that they felt free to discuss their concerns about vapors without fear of retaliation. Additionally, while we found that a number of actions were underway to address the

risks posed by vapors, such as evaluating technologies in the tank farms, we found that improvements in communication are needed to inform workers about the status of actions and to ameliorate continuing fear of retaliation on the part of some workers.

Further, we noted that the hazards associated with tank farm vapor exposures have been evaluated through multiple studies and evaluations. We observed that these activities have resulted in various recommendations and that actions were underway to address issues identified in those reviews. Our assessment did not identify concerns with the current status of these actions, which, according to WRPS information, largely appear to be on schedule. However, we noted that a major labor union issued a letter demanding that additional measures be taken to further protect the workforce, including extending hazard zones, changing worker schedules, and increasing mandates for the use of supplied air respiratory protective equipment inside the tank farm fences. We are aware that WRPS and the union reached an agreement to resolve these concerns. Our review identified areas where we believe management can take steps to improve its issue resolution process, such as tracking and reporting of underway corrective actions and communicating with the workforce. In our view, improving these areas is critical to ensuring that actions taken to resolve the recommendations for improvement are transparent to members of the workforce and other interested parties.

Assessment of Perceptions Regarding Retaliation

During our review, we assessed whether workers at the tank farms felt free to discuss their concerns about vapors without fear of retaliation. Assessing the fear of retaliation within a large organization is inherently difficult and relies upon both quantitative and qualitative data, including the expressed opinions of workers. Although we structured our interviews so that they were voluntary and would obtain a variety of opinions, our review may not have fully captured all perspectives. Specifically, there was a risk that employees chose not to respond to our requests for voluntary and anonymous interviews because they were not confident that they would remain anonymous and may then be retaliated against. Also, workers may have felt intimidated by the idea of speaking with our review team for reasons other than fear of retaliation. Further, individuals who fear retaliation may or may not have verifiable reasons for that fear. For these reasons, the results of our interviews provide indicators and insights on retaliation but may not fully capture this issue.

Nevertheless, our interviews with 52 workers revealed that they generally felt free to express their concerns with management on vapor risk, were not discouraged from reporting potential vapor exposures, and had not experienced retaliation for discussing concerns. However, seven workers indicated that they had concerns with reporting, communicating, reprisal, or fear of retaliation related to potential vapor exposures. In particular:

- One worker filed a formal complaint in June 2016 to address concerns regarding retaliation.
- Another worker “sort of” perceived a form of reprisal because management openly discussed the worker’s exposure with coworkers, which the worker believed may have caused others to fear reporting vapor issues.

- One WRPS Employee Concerns program record disclosed concerns regarding retaliation as a result of bringing forward vapor concerns. Employee Concerns program officials took steps to investigate this issue and the concern was subsequently closed.
- In addition to the one employee concern record cited above, three additional workers told us that they perceived some fear of retaliation. For example, one worker was afraid filing a worker's compensation claim would put the worker "in a bad position," and another worker wanted us to be discreet with the information provided because they "feared possible retaliation by management."
- One worker stated that they did not feel they could discuss vapor issues or concerns with management. According to the worker, the problem was that the managers would either "blow off" their concerns or would ignore them.

Of these seven concerns, one is being processed through formal procedures with the Department of Labor and one was processed through WRPS' Employee Concerns program. In another instance, we discussed in detail, the options available to address employee concerns, including use of the Office of Inspector General hotline. As for the remainder of the group of seven employees, some of the information provided appeared to be based only on perceptions of retaliation. We were unable to pursue these concerns due to a lack of specific information provided by those employees, preventing us from taking follow up actions.

As previously noted, our interviews included 52 workers who had been trained to enter the tank farms. Some workers were "walk-in" interviewees, who chose to speak with our team after we had engaged in an outreach campaign to encourage workers to speak with us about any concerns they had with vapors, management actions, and fear of retaliation. Additionally, we selected several samples of workers whom we directly contacted, to ensure our conclusions were not reliant upon only walk-in interviews. These samples included (1) a small group of workers who had checked into a medical clinic after vapor exposure, (2) a random sample of workers who had been trained to enter the tank farms, and (3) a select group of union workers, such as safety representatives, who work at the tank farms.

We also spoke with the union president and State officials. The union president told us that he believed that the majority of workers felt that issues could be brought up to management without fear of retaliation. The union president further stated that the union had some concerns about a few management officials on the Hanford Site who may react negatively to workers who want to voluntarily upgrade to full self-contained breathing apparatus gear in the tank farms. However, the union president did not volunteer specific information regarding the union's concerns with specific management officials. As discussed later in our report, WRPS is in the process of expanding personal protective equipment policies, among other actions. Our discussion with officials from the State of Washington Department of Ecology revealed that their main concern was related to the *Clean Air Act*, but at the time of our review, there was no indication of violations. However, in September 2015, the State of Washington Attorney General filed a lawsuit against the Department and WRPS, seeking, among other things, that they take all actions necessary to eliminate any present and future endangerment associated with vapor releases at the Hanford tank farms.

Reviews to Address Vapor Risks

Over the years, numerous studies have been performed on various aspects of vapor hazards. One class of studies focused on questions surrounding industrial hygiene parameters, such as reviews to establish screening values, acceptable exposure limits, and industrial hygiene technical basis for certain chemicals found in vapors. Another class, assessments and independent reviews, focused on management actions to address vapor hazards. Relatively recent work in this area includes the following:

- *Independent Review Panel Report on Chemical Vapors Industrial Hygiene Strategy* (Hanford Concerns Council, September 2010)
- *Tank Farms Review Assessment Report: Management Assessment FY2013-PMO-M-0117* (WRPS, August 2013)
- *Hanford Tank Vapor Assessment Report* (Savannah River National Laboratory, October 2014)
- *Office of Enterprise Assessments Targeted Review of Work Planning and Control at the Hanford Tank Farms* (Department of Energy, April 2015)

Of these reviews, the *Hanford Tank Vapor Assessment Report* proved to be the most significant. This report identified 10 overarching issues and made 47 detailed recommendations that the Department and WRPS plan to address using a 2-phased approach.

Two additional reviews that focused on vapors were underway at the time of our review. One review, which began in June 2016, was being conducted by the Department's Office of Enterprise Assessments at the direction of the Secretary of Energy. The objective of the review is to determine the progress in addressing tank farm vapor issues identified in the *Hanford Tank Vapor Assessment Report*. The Enterprise Assessments team will evaluate the technical solutions that are proposed to address vapor releases and worker exposures. The second review was being conducted by the Centers for Disease Control and Prevention's National Institute for Occupational Safety and Health, which plans to evaluate (1) policies and procedures for evaluating worker health concerns; (2) programs in place for monitoring worker exposure to chemical contaminants; (3) safety and health program management, including how issues regarding exposure monitoring are communicated and resolved; and (4) exposure control, including engineered controls, administrative controls, and personal protective equipment.

Management Actions to Address Vapor Risks

To address the findings of the *Hanford Tank Vapor Assessment Report*, the Department and WRPS management developed and launched a major project designed to address the identified issues. The initial activities for this project had approximately \$45 million in funding. At the time of our review, Phase I activities were scheduled to be completed by the end of FY 2016.

Phase II activities are scheduled to be conducted in FY 2017 and 2018 and will be funded with about \$26 million per year, for a total project funding approaching \$100 million. The following are a few examples of actions that were underway at the time of our review:

- Developing and deploying a vapor monitoring and detection system to detect and model vapors at the tank farms using real-time modeling capabilities. WRPS plans to make the data from this system available to workers.
- Evaluating technologies, including infrared cameras that can detect chemical vapors in work areas, portable area sensors equipped with multiple chemical sensors that can detect specific vapors, in-stack and area vapor detection equipment, infrared and ultraviolet spectrometers, portable air sampling equipment, and transportable meteorological stations to monitor local weather conditions in work areas.
- Deploying what the vendor describes as a state-of-the-art vehicle with advanced chemical detection equipment that drives around the tank farms performing analysis.
- Expanding personal protective equipment policies requiring personnel in high-hazard areas to wear the most protective equipment, the self-contained breathing apparatus.
- Promulgating policies regarding voluntary personal protective equipment, whereby any worker can choose to upgrade the protective equipment required in lower hazard zones to a more protective form.
- Engaging in outreach activities to tank farm workers, enabling workers the ability to see various vapor detection, monitoring, and sampling technologies that are being piloted, giving the workforce opportunities to learn about and ask questions about these devices and their uses.
- Maintaining WRPS' Web site www.hanfordvapors.com, which was launched in June 2016. This publicly available site is dedicated to communicating industrial hygiene information pertaining to tank farm vapors and will be regularly updated.

Further, the Department convened a tank vapor management expert panel in March 2015, which reports to the Department's Office of River Protection and is responsible for evaluating the effectiveness of the underway actions to implement the tank vapors implementation plan, as well as assuring that actions related to new, emergent issues are being carried out and are effective in protecting workers from potential vapor exposures. This team consists of experts such as a former manager of the Richland Operations Office, a former director of the Washington State Department of Ecology, a physician, a National Institute for Occupational Safety and Health toxicology fellow, a former Occupational Safety and Health Administration administrator, as well as others. The Department required that this team have the requisite expertise and integrity to increase confidence that known and emergent tank vapor issues are being satisfactorily addressed. The team was contracted to issue semiannual reports. At the time of our review, the first semiannual report was expected in November 2016.

Because many of the actions were not yet complete at the time of our review, it was too early to assess the efficacy of the efforts to deal with vapor issues. Our review, however, did not reveal significant issues with regard to the Department's and WRPS' strategy and ongoing actions to address vapor risks. We did, however, identify concerns related to monitoring and tracking actions taken and communication with the workforce.

Corrective Action Management System

We reviewed the actions taken to address five tank vapor assessment team recommendations and did not identify any concerns with the timeliness of actions taken, which appeared to be on schedule, according to WRPS information, at the time of our review. Furthermore, we tested the status of actions for the five vapor assessment team recommendations and found objective evidence that claimed corrective actions had occurred, but because of the reasons previously noted, we did not perform work to evaluate the efficacy of corrective actions.

However, we identified a concern related to monitoring and tracking of actions taken to resolve the recommendations identified in the *Hanford Tank Vapor Assessment Report*. Specifically, we noted that the 10 overarching issues and 47 recommendations identified in the report were not managed in the WRPS Problem Evaluation Request (PER) system, the corrective action management system used by WRPS. This system is intended to track, report on, and close all safety or operational issues that are identified, including those that may affect the tank farm workers or operations. In our view, the WRPS policy clearly indicated that the issues in the *Hanford Tank Vapor Assessment Report* should have been managed in the PER system. When we discussed our concern about the tracking of actions with management, we were told that management consciously chose to manage the issues outside of the PER system, as a separate project. Nevertheless, we concluded that there is value to tracking and reporting these issues in the PER system as well, because this process has rigorous standards for issue management and closure, and it requires objective evidence of actions prior to closure. Also, notably, the PER system is available to the workforce, providing the ability to view the underway actions to address the issues and recommendations—possibly providing a valuable communication tool to keep the workforce up-to-date on corrective actions.

Such transparency was not readily apparent to us for one of the reported corrective actions we chose to test. In that case, WRPS management took nearly a month to produce and deliver objective evidence that corrective actions were complete. During an update meeting with Office of River Protection and WRPS officials, management acknowledged this issue and committed to consider tracking and reporting the *Hanford Tank Vapor Assessment Report* recommendations in the PER system. We also noted that the status of corrective actions were not publicly available on the WRPS worker and public outreach portal, www.hanfordvapors.com.

Communication Issues With the Workforce

Department and WRPS leadership have taken action to improve communication with the workforce on issues pertaining to vapors. For example, they have engaged in outreach campaigns, launched publicly available Web sites, and taken other actions to share facts about vapors, hazards, detections, and underway actions. However, in our discussions with workers,

we concluded that management could take more steps to improve communication. In particular, many workers were aware that proposals had been made and studies had been performed on a number of “engineered controls” to mitigate hazards associated with vapors at the tank farms. However, most of these workers did not understand why these proposals were not implemented. During our review, we learned that there were technical reasons why certain proposals had not been acted upon, yet, in July 2015, the Office of River Protection issued an updated revision to a finding to WRPS regarding a notable absence of documentation regarding the actions taken or considered for controlling emissions from single-shell tanks. Nevertheless, it is crucial that management improve its communication with workers so workers understand what had been proposed, studied, and decided, and why these proposals had not been implemented. When we discussed this with Department and WRPS management, they acknowledged the value of improved communication in this area.

At the time of our review, tension existed between WRPS and the union representing workers. Correspondence had been exchanged between the two, which led to a union-initiated “stop work” order at the tank farms—which lasted nearly two months. The union made seven demands that included performing waste-disturbing activities at the tank farms on backshifts and weekends, as well as having all workers inside the tank farm fences wear mandatory supplied air respirators. WRPS was working to create a special shift for the waste-disturbing activities. In the past, WRPS had taken similar actions where workers performed waste-disturbing activities on backshifts and weekends at their regular straight-time pay. However, WRPS did not believe that a technical basis existed for using mandatory supplied air respirators in double-shell tank farms. WRPS supported and accommodated employees who requested to voluntarily upgrade to supplied air respirators. On August 31, 2016, WRPS and the union reached an agreement to lift the stop work. During the stop work, the Office of River Protection told us that it had no official opinion on the disagreement between the union and the contractor.

RECOMMENDATIONS

Given the importance of addressing the concerns associated with vapors at the tank farms, it is imperative that the Department continue to implement the actions identified by external reviews and to learn from additional reviews. It is also crucial that the underway actions continue to be a high priority and receive continued support from Department leadership. The Office of Inspector General will continue to monitor the evolving situation pertaining to vapors, actions taken to address vapor risks, and any concerns that are expressed regarding retaliation. To address the issues identified in this assessment, we recommend that the Manager, Office of River Protection, working with WRPS:

1. Take action to input all vapor issues into the WRPS PER system, to ensure adequate tracking, closure, and visibility of corrective actions.
2. Take steps to improve communication with the workforce about prior proposals to address vapor hazards that have been studied and not acted upon, to explain the rationale for these decisions.

3. Continue to reinforce the Office of Environmental Management safety culture principles where:
 - a. Employees feel responsible for safety,
 - b. Leaders demonstrate commitment to safety,
 - c. Trust towards each other is a signature of the organization, and
 - d. Decision making reflects safety as the overriding priority.

MANAGEMENT RESPONSE

Management concurred with our recommendations. Specifically, management committed to (1) taking steps to strengthen the tracking and closure of vapor issues using the WRPS PER system, (2) working with WRPS to summarize prior and ongoing engineering control evaluation reports and to share these with the workforce and the public, and (3) continuing to develop and sustain a strong safety culture by using the Chemical Vapors Solution Team and numerous mechanisms for employees to raise safety concerns.

AUDITOR COMMENTS

We consider management's comments and planned actions to be responsive to our recommendations. Management's formal comments are attached.

Attachments

cc: Deputy Secretary
Assistant Secretary for the Office of Environmental Management
Chief of Staff

OBJECTIVE, SCOPE, AND METHODOLOGY

OBJECTIVE

The purpose of this review was to assess whether a problem with fear of retaliation existed and to assess the status of actions that are underway to address the risks posed by vapors.

SCOPE

This review was performed from May 2016 through November 2016. We conducted the review at the Department of Energy's Office of River Protection in Richland, Washington, and at the offices of Washington River Protection Solutions, LLC, in Richland, Washington. This review was conducted under the Office of Inspector General project number A16RL044.

METHODOLOGY

To accomplish the objective of this review, we:

- Assessed the status of actions to address recommendations made by earlier related reviews and independent assessments pertaining to tank vapors, with a particular focus on the *Hanford Tank Vapor Assessment Report* (October 2014);
- Reviewed the key policies and processes associated with preventing, controlling, and responding to worker vapor exposures; and
- Interviewed key stakeholders, including Department officials, Washington River Protection Solutions management, representatives from the State of Washington Department of Ecology, HPM Corporation Occupational Medical Services, and various union representatives.

Additionally, we engaged in a rigorous outreach campaign in order to speak with tank farm workers directly to listen to their concerns about vapors and management's responses. To this end, we arranged for flyers to be distributed throughout the tank farm work areas inviting workers to speak with Office of Inspector General (OIG) representatives, and we arranged for several email notifications to be sent on various dates to all tank farm employees inviting them to speak with OIG representatives. Further, we "cold-called" various groups of tank farm workers, inviting them to speak to OIG representatives. These calls went out to a selected group of union representatives, a small sample of workers who had checked into a medical clinic after vapor exposure, and a random sample of workers who had been trained to enter into the tank farms; the universe of these workers was approximately 3,000. In all, we interviewed 52 employees during this outreach campaign. During our discussion, we inquired about the following:

- Whether the employee had been exposed to vapors;
- Whether the workers believed the processes to protect them were sufficient;

- What additional ideas workers had for improving worker safety; and
- Whether the employees had experienced any form of retaliation.

An exit conference was held with management on October 24, 2016.

RELATED REVIEWS

Industrial Hygiene Reviews

- *Screening Values for Non-Carcinogenic Hanford Waste Tank Vapor Chemicals that Lack Established Occupational Exposure Limits*, PNNL-15640 (Pacific Northwest National Laboratory, February 2006)
- *Proposed Approach to Establishing Acceptable Limits of Exposure to Hydrocarbon Vapors Emitted from Underground Waste Storage Tanks at the Hanford Site*, RPP-RPT-29404 (CH2MHill Hanford Group, Inc., March 2006)
- *Proposed Occupational Exposure Limits for Non-Carcinogenic Hanford Waste Tank Vapor Chemicals*, PNNL-15736 (Pacific Northwest National Laboratory, March 2006)
- *Industrial Hygiene Chemical Vapor Technical Basis*, RPP-22491, Revision 1, (CH2MHill Hanford Group, Inc., May 2006)
- *Independent Review Panel Report on Chemical Vapors Industrial Hygiene Strategy* (Hanford Concerns Council, September 2010)

Assessments and Independent Reviews

- *Tank Farms Review Assessment Report: Management Assessment FY2013-PMO-M-0117* (Washington River Protection Solutions, LLC, August 2013)
- *Hanford Tank Vapor Assessment Report*, SRNL-RP-2014-00791 (Savannah River National Laboratory, October 2014)
- *Office of Enterprise Assessments Targeted Review of Work Planning and Control at the Hanford Tank Farms* (Department of Energy, April 2015)

MANAGEMENT COMMENTS



Department of Energy
Washington, DC 20585

OCT 13 2016

MEMORANDUM FOR GEORGE W. COLLARD
DEPUTY INSPECTOR GENERAL
FOR AUDITS AND INSPECTIONS
OFFICE OF INSPECTOR GENERAL

FROM: MONICA C. REGALBUTO 
ASSISTANT SECRETARY
FOR ENVIRONMENTAL MANAGEMENT

SUBJECT: Management Response to the Office of Inspector General Draft Audit
Special Report, *Department of Energy's Actions to Address Worker
Concerns Regarding Vapor Exposures at the Hanford Tank Farms* (IG-
A16RL044)

The U.S. Department of Energy (DOE), Office of River Protection (ORP) appreciates the opportunity to review the Office of Inspector General's (OIG) draft special report: *Department of Energy's Actions to Address Worker Concerns Regarding Vapor Exposures at the Hanford Tank Farms*. The recommendations provided in the draft special report align with ORP's ongoing initiatives for management of chemical vapors at Hanford's tank farms and we accept the recommendations.

ORP and its Tank Operations Contractor, Washington River Protection Solutions LLC (WRPS) are committed to the safety of its workers, the public, and the environment. There continues to be increased focus at Hanford tank farms to detect, characterize, and mitigate the risks associated with chemical vapors to further protect our workforce. Numerous improvements have been made in the tank farms including the use of more robust active ventilation systems with taller stacks to disperse vapors away from workers; an extensive vapor sampling and monitoring program to measure and identify vapors, assess potential hazards, and determine protective actions; and an enhanced, more comprehensive industrial hygiene program to keep worker exposures to chemical vapors as low as reasonably achievable, consistent with ALARA principles.

In September 2014, Savannah River National Laboratory led an independent review of the Hanford tank farms chemical vapors program. The Tank Vapor Assessment Team (TVAT) was comprised of experts from industry, academia, other federal agencies, and the Hanford Atomic Metal Trades Council. A report was released in late 2014 outlining 10 overarching recommendations and encompassing 47 specific recommendations.¹

In response to the TVAT report, on February 9, 2015, ORP directed WRPS to begin a two-phased implementation plan to address the overarching recommendations and sub-recommendations from the report (SRNL-RP-2014-00791). The primary focus of Phase 1 is data collection and the results will be used to inform Phase 2 actions.

¹ SRNL-RP-2014-00791, 2014, *Hanford Tank Vapor Assessment Report*, Rev. 0, Savannah River National Laboratory, Aiken, South Carolina, October 30.



Several ongoing activities are underway and include:

- Performing a systematic and comprehensive review of the tank farms to identify the origins of fugitive emission;
- Continuing a pilot-scale test of new state-of-the-art technologies to detect and monitor vapors, identify the origins of any such emissions, and sample any detectable vapors at AP Tank Farm (a double-shell tank farm) and A Tank Farm (a single-shell tank farm);
- Utilizing a mobile laboratory with scientific instrumentation to help locate and monitor vapor plumes, monitor general tank farm areas, identify volatile organic compounds, and provide real-time analysis of those chemical vapors constituents within the analytical spectrum of the mobile laboratory instruments; and,
- Sampling of tank head space and stacks with newer technology and improved analytical methods to obtain data and assess potential changes in the concentration of chemicals in those locations.

A summary of the results from Phase 1 actions as well as technical reports associated with each of the recommendations will be documented in a WRPS report.

As requested, below are ORP's response to the three OIG recommendations. Technical comments and simple wording changes are being provided in a separate response as directed by the Office of Inspector General.

OIG Recommendation No. 1: *Take action to input all vapor issues into the WRPS PER system, to ensure adequate tracking, closure, and visibility of corrective actions.*

The Problem Evaluation Request (PER) system will continue to be used to capture emergent concerns, issues, and opportunities for improvement, including non-TVAT vapor topics. As noted in OIG's report, ORP and WRPS management have closely monitored TVAT implementation progress as a separate project with deadlines and deliverables, but management agrees that there is value to track items related to vapor issues in a corrective action management system. Accordingly, ORP and WRPS have taken steps to strengthen the tracking and closure of TVAT implementation plan actions utilizing the WRPS Problem Evaluation Request (PER) system. Efforts are currently underway to input all appropriate documentation of the actions taken to address TVAT recommendations into the PER system by December 31, 2016.

OIG Recommendation No. 2: *Take steps to improve communication with the workforce about prior proposals to address vapor hazards that have been studied and not acted upon, to explain the rationale for these decisions.*

As a part of its oversight responsibilities, ORP requested a briefing from WRPS on the evaluation of prior proposals and studies regarding engineering controls. WRPS has provided a presentation on prior proposals and studies that evaluated the feasibility of potential engineering controls to ORP and the Vapor Management Expert Panel (ORP's independent external panel to assist with oversight of Phase 1 activities) during an engineering workshop in March 2016. This prior engineering controls evaluation information will be expanded upon in the vapor implementation plan Phase I analysis, which considers the deployment of new or modified technologies currently under review.

ORP will work with WRPS to summarize these prior and ongoing engineering controls evaluation efforts (including referenced sources) and inform the workforce and public through WRPS's vapor publicly available website no later than December 31, 2016.

OIG Recommendation No. 3: *Continue to reinforce the Office of Environmental Management safety culture principles where*

- a) Employees feel responsible for safety,*
- b) Leaders demonstrate commitment to safety,*
- c) Trust towards each other is a signature of the organization, and*
- d) Decision making reflects safety as the overriding priority.*

Developing and sustaining a strong safety culture is a fundamental value at ORP and across the entire DOE Office of Environmental Management (EM) Complex. Improvements have been made in safety culture, and ORP and WRPS leaders will continue to work together to reinforce safety culture principles and build upon the progress to date that supports our continued commitment to a strong safety culture.

In addition to the Chemical Vapor Solution Team efforts, there are numerous mechanisms for employees to raise safety concerns and improvements. For example, the ORP Organizational and Safety Culture Improvement Council, the WRPS Problem Evaluation Request System, and joint ORP-WRPS Employee Concerns Program and the Differing Professional Opinion Processes are available to workers to raise safety concerns. ORP will work with WRPS to provide easy reference and description of these mechanisms on the WRPS vapor website by December 31, 2016. Additionally, WRPS will submit to ORP a Safety Conscious Work Environment (SCWE) self-assessment, consistent with best practices, by December 31, 2016.

The protection of our workforce continues to be a high priority for DOE. As discussed above, substantial progress has been made related to addressing vapor concerns at Hanford's tank farms. ORP and WRPS are committed to continuing and improving the response to vapor concerns.

DOE-EM appreciates the opportunity to submit this response for inclusion in the final audit report. If you have any questions, please contact me or Mr. Kevin W. Smith, Manager of the Office of River Protection.

FEEDBACK

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