OFFICE OF INSPECTOR GENERAL

U.S. Department of Energy

AUDIT REPORT

DOE-OIG-21-01 October 2020

RESPIRATORY EQUIPMENT MAINTENANCE AT THE PORTSMOUTH SITE

Department of Energy
Washington, DC 20585

October 20, 2020

MEMORANDUM FOR THE MANAGER, PORTSMOUTH/PADUCAH PROJECT OFFICE

FROM: John E. McCoy II
Deputy Assistant Inspector General
for Audits
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Respiratory Equipment Maintenance at the Portsmouth Site"

BACKGROUND

The Department of Energy's Portsmouth Site (Portsmouth) includes one of three large gaseous diffusion plants in the United States initially constructed to produce enriched uranium to support the Nation's nuclear weapons program and, in later years, enriched uranium used by commercial nuclear reactors. In 2001, enrichment operations were discontinued at Portsmouth. In 2011, decontamination and decommissioning of Portsmouth's gaseous diffusion plant commenced.

Fluor-BWXT Portsmouth LLC (FBP) is the Department's contractor responsible for the decontamination and decommissioning of Portsmouth's gaseous diffusion plant. The decontamination and decommissioning activities require workers to be protected from hazards such as uranium, hydrogen fluoride, and asbestos. 10 Code of Federal Regulations (CFR) 851, *Worker Safety and Health Program*, establishes federal regulations and standards applicable to Portsmouth's Respiratory Protection Program and directs compliance with Occupational Safety and Health Administration (OSHA) standard 29 CFR 1910. OSHA standards contained in 29 CFR 1910.134, *Respiratory Protection*, require employers to develop and implement a written respiratory protection program with worksite-specific procedures and elements for required respirator use. As a result, FBP's workers are required to use respiratory protection equipment for work activities. Therefore, to meet these OSHA standards, FBP developed multiple internal procedures that required respirators be maintained. Specifically, among other things, respirators are required to be maintained by checking for proper air flow; inspecting for tears, cracks, or other defects; and sending radiologically contaminated respirators to FBP's respiratory cleaner, UniTech, for cleaning and radioactive decontamination, when needed. FBP's Respiratory Protection Program provides different types of respirators such as Full-face Air Purifying respirators, Supplied Air respirators, and Powered Air Purifying Respirators (PAPRs). According to FBP, there were over 1,300 respirator users at Portsmouth as of December 2018.

We initiated this audit to determine whether Portsmouth was adequately maintaining respiratory protection equipment to protect workers from exposure to hazardous materials. This report is one in a series of reports at select Office of Environmental Management sites.

RESULTS OF AUDIT

Portsmouth had not adequately maintained respiratory protection equipment. Specifically, we identified significant weaknesses in the decontamination of radiologically contaminated respirators that could increase the risk that workers would be exposed to radioactive contamination and potentially inhale radioactive particles. Specifically, we identified the following:

- FBP's cleaning contractor, UniTech, was not in compliance with its contract requirement to ensure respiratory protection equipment did not contain radioactive contamination. Issues with the UniTech contract occurred because FBP's corrective actions were inadequate to address the root cause of contaminated respirators being shipped to FBP, recurring issues were not reported to the Department's Occurrence Reporting and Processing System (ORPS), FBP's oversight of UniTech did not ensure all contractual requirements were being met, and the Department did not hold FBP accountable for the UniTech contract issues.

- FBP's mitigating controls were inadequate to ensure respiratory equipment returned from UniTech was not radiologically contaminated. Mitigating controls were inadequate because of lack of communication between FBP's Radiation Protection managers and the FBP Director of Environment, Safety, Health, and Quality (ESH&Q) on changes made to a respiratory equipment procedure.

- FBP did not always ensure respiratory protection equipment was safeguarded from loss. Equipment was not safeguarded because FBP had not established an adequate inventory system to track respiratory equipment from purchase to disposal.

UniTech Not in Compliance with Contract Requirements

FBP's cleaning contractor, UniTech, was not in compliance with its contractual requirement to ensure respiratory protection equipment did not contain radioactive contamination before returning the items to FBP. OSHA standards contained in 29 CFR 1910.134, *Respiratory Protection*, require employers to develop and implement a written respiratory protection program with worksite-specific procedures and elements for required respirator use. Using a respirator that has been insufficiently decontaminated increases the risk that an employee will be exposed to contamination and the inhalation of radioactive particles. To ensure the respirators were cleaned, FBP contracted with UniTech, an offsite cleaning contractor for respiratory protection equipment. UniTech was required by its contract's statement of work to clean the contaminated respirators and ensure that all respirator parts being shipped back to FBP did not have any

radioactive contamination above the 10 CFR 835, *Occupational Radiation Protection Program*, limits of 5,000 disintegrations per minute[1] fixed and 1,000 disintegrations per minute removable.[2]

Despite these important safety requirements, UniTech sent respirator equipment back to FBP that was radiologically contaminated above the contract limits of 5,000 disintegrations per minute fixed and 1,000 disintegrations per minute removable. Specifically, our review of reports from FBP's issues management system identified that UniTech returned 81 pieces of radiologically contaminated respirator equipment to FBP above the contract limits between November 2016 and November 2018. For example, in December 2017, UniTech, after having already cleaned the respiratory equipment, returned to FBP a PAPR helmet with radioactive contamination of over 29,000 disintegrations per minute fixed (well above the 5,000 limit) and 3,900 disintegrations per minute removable (well above the 1,000 limit). In another example, in November 2018, a respiratory equipment item was found to have 41,760 disintegrations per minute of fixed radioactive contamination.

An FBP official stated that since January 2019, UniTech's performance had improved. However, because of two significant changes made by FBP, we could not substantiate that UniTech's performance had, in fact, improved. For example:

- FBP issued a new policy in September 2018 that respirator parts with fixed contamination above the 5,000 disintegrations per minute limit would no longer be reported in its issues management system. Instead, the fixed contamination would be brought to the attention of the Respirator Protection Supervisor and Laundry Manager. This had the effect of lowering the number of radiologically contaminated items reported in FBP's issues management system without any assurance that returned respiratory equipment was actually not contaminated. For example, in January 2019, FBP's issues management system contained only one instance of radiologically contaminated respiratory equipment returned from UniTech. However, when we analyzed the January 2019 reviews on the respiratory equipment performed by FBP, we identified five instances where contamination was identified over the contamination limits, but only the instance of removable contamination was reported in FBP's issues management system due to the September 2018 internal policy change, which no longer required reporting items that were over the fixed contamination limits. In fact, in November 2018, an FBP respiratory worker reported in the issues management system that employees were instructed to report fixed contamination events to management versus putting them into FBP's issues management system. The same report noted that this policy had the effect of discouraging those who identify the contamination from submitting reports to document problems with UniTech.

[1] Disintegrations per minute means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[2] Surface contamination (referred to as fixed contamination or removable contamination in report) values are measured on a per unit area (i.e., 100 cm^2).

- FBP stopped performing 100 percent review of all respirator equipment returned from UniTech and instead decided to review 25 percent of the returned equipment, and would increase the review to 50 percent if contamination was found, and then to 100 percent if additional contamination was found after that. There was no technical justification performed to support this change in testing rates. This change was concerning because the radiologically contaminated respiratory equipment was identified when FBP was performing nearly 100 percent reviews of equipment returned from UniTech during the summer and fall of 2018. By mid-March 2019, FBP was generally performing 25 percent reviews of the respiratory equipment being returned from UniTech, making it difficult to draw any conclusion on whether UniTech's performance was getting better because we could not compare two equally sized samples. However, despite only reviewing 25 percent of the respirator equipment returned from UniTech, we found that those reviews identified that radioactive contamination continued to be identified by FBP as late as June 2019. As stated above, these contaminations were not always reported in FBP's issues management system due to the new policy implemented in September 2018 to only report on removable radioactive contamination. As a result, we question FBP's assertion that UniTech is returning less radioactive respiratory equipment, and we are concerned that additional pieces of radiologically contaminated respiratory equipment would have been identified if FBP had continued to perform 100 percent reviews on all respiratory equipment being returned from UniTech and that the contaminated respiratory equipment may have been issued to employees.

Issues with the UniTech contract occurred because FBP's corrective actions were inadequate to address the root cause of contaminated respirators being shipped to FBP, recurring issues were not reported to the Department's Occurrence Reporting and Processing System, FBP's oversight of UniTech did not ensure all contractual requirements were being met, and the Department did not hold FBP accountable for the UniTech contract issues. As a result, workers were at increased risk of being issued and using radiologically contaminated respiratory equipment.

UniTech's Inadequate Corrective Actions

FBP did not always identify root causes of problems during its assessments or ensure UniTech's corrective actions resolved the root causes of problems identified. Specifically, between October 2016 and May 2019, FBP completed six assessments on UniTech. Our review of those assessments identified that the corrective actions taken by UniTech did not fully resolve the weaknesses identified in FBP's assessments, as evidenced by the repeating issues over a 2-year timespan. For example, in October 2016, FBP identified that UniTech had inadequate work instructions for cleaning respirator equipment. At that time, no corrective actions were requested because the finding was resolved by the time the report was released. However, another UniTech assessment performed in February 2017 by FBP identified that, while UniTech's operations and quality assurance programs were adequate to provide clean laundry items specified in the statement of work, another respiratory equipment cleaning procedure was lacking. Similar issues with inadequate cleaning instructions were again identified in June 2019. These and other assessments also identified repeat findings on instrumentation and calibration of equipment used to detect radioactive contamination, and use of unapproved or improperly

prepared cleaning solutions. These examples demonstrate that while FBP was performing assessments and identifying significant issues with UniTech, FBP was not always identifying the root causes of the issues.

Contamination Issues Were Not Properly Elevated

FBP did not report recurring issues in the Department's ORPS. The Department's ORPS is used by contractors to provide timely notification to the Department of complex events that could adversely affect, among other things, public or worker safety. Our review of the Department's ORPS found that none of the radiologically contaminated respirators returned from UniTech were reported in ORPS. After we brought this to FBP's attention, FBP determined that contaminated items received from UniTech were not an ORPS reportable condition because it was not a recurring issue. To support this assertion, FBP management provided us with a draft report on FBP's evaluation of contaminated respirator equipment returned from UniTech (which was not performed until after we brought the issue to FBP's attention). The report concluded that the returned radiologically contaminated respirators were not a recurring condition based on mitigating actions taken.

Specifically, FBP used a Recurrence Determination Flowchart developed by the Department and the Energy Facility Contractor's Group to help determine whether this issue was recurring. Part of the flowchart included questions on whether the condition represented an unacceptable near term risk of a serious event/consequence, or represented increased probability that a more significant event or consequence would occur. The report answered "no" to these questions because FBP had developed a mitigating action to review all respiratory equipment returned from UniTech. The report specifically stated that reviewing all respiratory equipment returned from UniTech eliminated any serious risk or consequence to the workers. However, these reviews were lowered from 100 percent to reviewing only a sample of 25 percent of the respiratory equipment returned from UniTech (a change that occurred without any technical justification and was not disclosed to the report's developers). Lowering the percentage of equipment reviews significantly diminished the value of the mitigating action, undermining FBP's position that the radiologically contaminated respirators returned from UniTech were not a recurring issue and did not need to be included in ORPS.

Inadequate Oversight by FBP

FBP's oversight of UniTech did not ensure all contractual requirements were being met. Specifically, since October 2018, UniTech has been contractually required to perform quality control checks upon completion of cleaning the respiratory equipment. These quality control checks were to specifically scan for radioactive contamination on the respiratory equipment. Documentation of the quality control check was to be included with each shipment of respiratory equipment back to FBP. However, our review identified that UniTech had not sent the required quality control documentation that identified that quality control checks were completed. In fact, when we asked for the quality control check documentation, FBP had to request several months of documentation from UniTech. This was concerning because having UniTech's quality control checks would have allowed FBP to compare them with its reviews of respiratory equipment to identify discrepancies and potential quality control problems. While required since October

2018, a February 2019 FBP assessment identified that UniTech did not have approved procedures for the operation of new tools and therefore did not adequately implement quality control checks in the work instructions that help identify contaminated equipment. This brings into question whether UniTech was performing quality control checks as required and the adequacy of quality control checks.

The Department Did Not Hold FBP Accountable

The Department did not hold FBP fully accountable for the issues regarding contaminated respiratory equipment from UniTech. Specifically, the *GPRA Modernization Act of 2010* required that the Department develop performance objectives to measure FBP's overall performance, and the objectives are to align with meeting the overall mission goals. The Department's performance objective for FBP was to demonstrate that it was meeting ESH&Q and regulatory requirements for the contract scope of work. However, we noted that the Department's award fee results for FBP did not include rating the issues regarding UniTech sending radiologically contaminated items above the contract limits. Instead, the award fee results highlighted improvements in a safety performance assessment from the prior assessment, a reduction in vehicle incidents, and support that FBP provided in retuning a parcel of land to the community.

Workers at Increased Risk of Using Contaminated Respirators

FBP workers were at increased risk of using contaminated respirators and inhaling radioactive particles. Specifically, UniTech's continuous shipments of contaminated respiratory protection equipment parts above the authorized limits increased the risk that contaminated respiratory protection equipment could be released to workers. In June 2018, respiratory equipment was recalled after it had been released from the Respirator Facility. While the released respiratory equipment was not used, it was reported that the respiratory equipment may have been contaminated after it had been released for use. While FBP took action by recalling the respirators to the Respirator Facility, the employee who submitted the issues management report identified that FBP should no longer send protective equipment offsite for cleaning, and there should be more care for the workforce by providing better cleaning abilities for safe personal protective equipment.

While FBP has not identified and corrected the root cause of UniTech's noncompliance with contractual requirements, FBP did develop a pilot plan for workers to perform cleaning and maintenance on PAPR helmets onsite instead of sending them to UniTech. According to an FBP official, as of October 2019, the pilot plan for the PAPR helmets was implemented to validate the new practice. While FBP was still seeking feedback, the official was confident that by the end of calendar year 2019, FBP will be sending fewer PAPR helmets to UniTech. However, FBP will continue to send all other pieces of respiratory equipment to UniTech for cleaning.

Inadequate Mitigating Controls

FBP's mitigating controls were inadequate to identify potentially radiologically contaminated respiratory equipment being returned from UniTech. Specifically, when the issues with radiologically contaminated respirators were identified in February 2017, FBP appropriately responded by reviewing all respiratory equipment returned from UniTech for radioactive contamination before it was issued to workers. However, in September 2018, FBP substantially changed, without any technical justification, their method for reviewing respiratory equipment returned from UniTech. Specifically, upon receipt of a UniTech shipment, instead of continuing to look at all respiratory equipment, FBP would now only sample 25 percent of each group of respirator equipment (e.g., PAPR helmets, hoses, blowers, and belts). If no contamination was found on the 25 percent sample, FBP would release the other 75 percent of the respirator equipment to be used by FBP workers.

We question the appropriateness of only sampling 25 percent of respirator equipment returned from UniTech, a company which had a history of, and continued to provide, radiologically contaminated respiratory equipment to FBP. Because radiologically contaminated respirator equipment continues to be returned from UniTech as of June 2019, it is our judgement that FBP should discontinue the use of a 25 percent sample and revisit a policy of reviewing all respiratory equipment returned from UniTech.

Lack of Communication

FBP developed inadequate sampling of respiratory equipment returned from UniTech because there was a lack of communication between FBP's Radiation Protection managers and the FBP Director of ESH&Q on changes made to a respiratory equipment procedure. Specifically, our review identified that the Director of ESH&Q was unaware that the Radiation Protection managers had made changes to the method of reviewing respiratory equipment returned from UniTech. This is concerning because FBP's Contract Assurance Organization used the mitigating control of reviewing all respirator equipment returned from UniTech as justification to not report the issue of repeatedly contaminated respiratory equipment into the Department's ORPS, unaware that the mitigating control had been changed to reviewing only 25 percent of the respiratory equipment.

Increased Risk of Inhalation of Radioactive Particles

By not performing reviews of all respiratory equipment returned from UniTech, FBP workers are at increased risk of using contaminated equipment and inhaling radioactive particles. Specifically, due to UniTech's inadequate quality controls, a sample of only 25 percent does not provide assurance that the other 75 percent of respirator equipment is not radiologically contaminated and should not, in our judgement, be used as justification to release essential safety equipment to FBP workers.

Respirators Were Not Properly Safeguarded from Loss

FBP did not always ensure respiratory protection equipment items were safeguarded from loss. FBP's procedural document, *Respiratory Protection Program*, required maintaining an inventory of its respiratory protection equipment. Despite this requirement, FBP was unable to produce an inventory of all respiratory equipment in its possession. This made the task of identifying whether respiratory equipment was properly safeguarded from loss nearly impossible. We did find at least one major instance of missing respiratory equipment, and we could not definitively determine how it went missing nor could FBP provide an explanation. Specifically, in 2015, over 400 PAPR helmets went missing from FBP's Respirator Facility. FBP officials became aware of the 400 missing respirators when a shortage of respirators for FBP workers occurred in April 2015. Without an inventory, FBP had to determine the number of respirators that were purchased between 2012 and 2015 and then compare it to the physical count of respirators found in the Respirator Facility and their cleaning contractor at the time, Smokey Mountain Solutions. The results of that work identified that approximately 400 respirators were unaccounted for, and FBP had no records that could substantiate the location of these respirators.

FBP officials assumed that the respirators had been disposed of by Smokey Mountain Solutions. However, the only documentation that FBP could provide us with were cleaning invoices that included disposal costs from Smokey Mountain Solutions. The invoices were dated after the respirators went missing and did not include itemization of disposed equipment units. As a result, we could not confirm whether the 400 respirators were actually disposed or if they were missing for another reason.

Lack of an Effective Respiratory Equipment Tracking System

Respiratory protection equipment was not always safeguarded from loss because FBP had not established an adequate inventory system that could track respirators from purchase to disposal, despite the inventory losses identified in 2015. While FBP does have an inventory system that is capable of performing inventory accountability, many of the inventory system controls such as equipment listing, tracking, and checking out to employees were not being utilized, and action had not been taken by FBP officials to improve its functionality. Instead of contacting the inventory system developer for assistance, FBP put reliance on its security personnel to perform random checks of respiratory equipment to prevent loss. However, this method does not provide adequate assurance that the inventory will be safeguarded from purchase to disposal.

Risk of Theft, Uncontrolled Costs, and Negative Productivity

Respiratory protection equipment that is not safeguarded from loss increases the risk of theft, uncontrolled costs of equipment, and negative impacts to productivity. Specifically, respiratory equipment is of high value, even in a used state, and uncontrolled inventory practices put FBP at risk of theft. In addition, costs are not controlled when inventory is not tracked. Further, loss of respiratory equipment can negatively impact productivity by creating shortages, as shown when 400 respirators went missing from FBP's Respirator Facility.

RECOMMENDATIONS

To improve FBP's Respiratory Protection Program to protect worker health and safety, and prevent recurrences, we recommend that the Manager of the Portsmouth/Paducah Project Office:

1. Conducts a causal analysis to determine the causal factor(s) involving UniTech's shipments of contaminated respirator parts to FBP.

In addition, we recommend that the Manager of the Portsmouth/Paducah Project Office ensures FBP:

2. Holds UniTech accountable for issues with radiologically contaminated respiratory equipment;

3. Reports recurring events of potential safety concern in the Department's ORPS;

4. Confirms all contractual requirements for UniTech are being met;

5. Establishes better communication on significant changes to procedures impacting respiratory equipment; and

6. Implements an inventory system capable of tracking respiratory equipment from purchase to disposal.

MANAGEMENT RESPONSE

Management generally concurred with our recommendations and stated that corrective actions have already been completed, or will be completed no later than December 31, 2020. Management stated that the Department is committed to protecting worker health and safety. In addition, Management stated that the issues with receiving contaminated respiratory equipment from the subcontractor were self-identified by the Department's Portsmouth/Paducah Project Office and in late 2018 proactively began to address the concern. Management comments are included in Attachment 3.

AUDITOR COMMENTS

Management's comments and planned corrective actions are responsive to our recommendations. In our original Recommendation 2 (now Recommendation 1), management provided an alternative action to have the Portsmouth/Paducah Project Office perform the assessment versus FBP. This meets the intent of our recommendation so we updated the Recommendation to change the responsible party, which resulted in a renumbering of our recommendations. In addition, while we agree that the Department's Portsmouth/Paducah Project Office self-identified the issues with receiving contaminated respiratory equipment from the subcontractor, we found that actions taken by the Department had not corrected the problem or addressed the associated risks. Therefore, the problem requires additional attention.

Attachments

cc: Deputy Secretary of Energy
Chief of Staff
Under Secretary for Science
Associate Under Secretary for Environment, Health, Safety and Security
Principle Deputy Assistant Secretary for Environmental Management

OBJECTIVE, SCOPE, AND METHODOLOGY

OBJECTIVE

We initiated this audit to determine whether Portsmouth Site was adequately maintaining respiratory protection equipment to protect workers from exposure to hazardous materials. This report is one in a series of reports at select Office of Environmental Management sites.

SCOPE

This audit was conducted between June 2018 and March 2020 at the Portsmouth Site in Piketon, Ohio. We focused on respiratory protective equipment maintenance, medical and training records, and inventory controls between 2015 and 2018. This audit was conducted under Office of Inspector General project number A18AL037b.

METHODOLOGY

To accomplish our audit objective, we:

- Reviewed applicable policies, procedures, laws, and regulations pertaining to respiratory protection equipment.
- Reviewed reports issued by the Office of Inspector General, Government Accountability Office, and other entities, such as external audit firms.
- Obtained and reviewed Portsmouth Site contractors' internal Respiratory Protection Program assessments.
- Interviewed key personnel from the Department of Energy's Portsmouth/Paducah Project Office and Portsmouth Site contractors.
- Obtained and reviewed UniTech contract, statement of work, and procedures to ensure respiratory protection equipment was cleaned and maintained to requirements.
- Reviewed the radiological survey and respiratory equipment issuance processes to ensure quality measures were taken before equipment was released for use.
- Obtained and assessed whether Fluor-BWXT Portsmouth LLC (FBP) fire department's emergency-use respiratory protection equipment was maintained in accordance to Occupational Safety and Health Administration requirements.
- Judgmentally selected a sample of 22 issuance logs using Respirator Request Sheets dated 8/8/2018, 10/25/2018, 11/19/17, and 11/10/17, to assess whether FBP had adequate accountability controls over respiratory equipment by users of such equipment. Because

our selection was based on a judgmental sample, results and overall conclusions are limited to the items tested and cannot be projected to the entire population or universe of issuance logs.

- Judgmentally selected a sample of 22 medical and training records from dates 8/8/2018, 10/25/2018, 11/19/17, and 11/10/17, to assess whether users were medically qualified and trained to use respirators. Because our selection was based on a judgmental sample, results and overall conclusions are limited to the items tested and cannot be projected to the entire population or universe of medical and training records.

- Obtained and reviewed FBP's supplier surveillance reviews of UniTech.

- Obtained and reviewed FBP's Problem Reports to identify the corrective actions taken in response to respiratory protection equipment issues.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, we assessed significant internal controls and compliance with laws and regulations necessary to satisfy the audit objective. In particular, we assessed the implementation of the *GPRA Modernization Act of 2010* and found that the Department had established performance measures related to employee safety and health. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of this audit. We conducted a reliability assessment of computer-processed data relevant to our audit objective and found the data was not reliable for inventory tracking purposes. Therefore, we did not use any data from the FBP's EPOCH system related to equipment.

An exit conference was held with management on June 24, 2020.

PRIOR REPORT

Special Report on *Department of Energy's Actions to Address Worker Concerns Regarding Vapor Exposures at the Hanford Tank Farms* (OIG-SR-17-01, November 2016). The report disclosed that 7 of 52 workers interviewed indicated that they had concerns with reporting, communicating, reprisal, or fear of retaliation related to potential vapor exposures. While a number of actions were underway to address the risks posed by vapors, such as evaluating technologies in the Tank Farms, the Office of Inspector General 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. In addition, although not directly related to respiratory maintenance, the report also stated that a labor union president had some concerns about a few management officials at 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. Management concurred with the Office of Inspector General's recommendations and committed to (1) taking steps to strengthen the tracking and closure of vapor issues using the Washington River Protection Solutions' corrective action management system, (2) working with Washington River Protection Solutions 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.

MANAGEMENT COMMENTS

DOE F 1325.8
(3/02)

United States Government **Department of Energy**
Portsmouth/Paducah Project Office

memorandum

DATE: September 10, 2020

REPLY TO ATTN OF: PPPO: Edwards PPPO-03-10006014-20

SUBJECT: **MANAGEMENT RESPONSE TO THE OFFICE OF INSPECTOR GENERAL'S DRAFT AUDIT REPORT ON RESPIRATORY EQUIPMENT MAINTENANCE AT THE PORTSMOUTH SITE**

TO: Mr. John E. McCoy II, Deputy Assistant Inspector General for Audits, IG-301.2

Reference: Memorandum from J. McCoy to R. Edwards, "Draft Audit Report on 'Respiratory Equipment Maintenance at the Portsmouth Site,'" (A18AL037b), dated April 29, 2020

This memorandum provides the Department of Energy (DOE) Portsmouth/Paducah Project Office (PPPO) response to the Office of the Inspector General's (OIG's) "Draft Audit Report on 'Respiratory Equipment Maintenance at the Portsmouth Site'," dated April 29, 2020.

DOE is committed to protecting worker health and safety. DOE's actions, as described in the attached response, support that commitment and address the concerns raised by the OIG. DOE PPPO self-identified the issue of receiving contaminated respiratory equipment from the subcontractor and in late 2018 proactively began to address the concern. DOE PPPO has performed more frequent assessments of the cleaning facility, identified and addressed programmatic issues, and strengthened the associated contractual Statement of Work. DOE PPPO also will assess the contractor's respirator inventory tracking system to ensure that respirators are tracked from purchase to disposal.

The actions being taken on OIG's recommendations, and comments on the issued draft report, are described in the attachments. Thank you for the opportunity to provide DOE's perspective on the draft report. If you have any questions or require additional information, please contact me at (859) 219-4002.

Robert E. Edwards Digitally signed by Robert E. Edwards
Date: 2020.09.10 13:04:02 -04'00'

Robert E. Edwards, III
Manager
Portsmouth/Paducah Project Office

Attachments:
1. Management Response
2. DOE Comments

cc w/attachments:
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Management Response
Office of the Inspector General "Draft Audit Report on 'Respiratory Equipment Maintenance at the Portsmouth Site,'" (April 29, 2020)

Recommendation 1: To improve Fluor-BWXT Portsmouth LLC's (FBP) Respiratory Protection Program to protect worker health and safety, and to prevent recurrences, OIG recommends that the PPPO Manager ensures FBP holds UniTech Services Group, Inc. (UniTech) accountable for issues with radiologically contaminated respiratory equipment.

Management Response: Concur

DOE PPPO confirmed that UniTech's Statement of Work (SOW) has been amended to comply with the release criteria contained in 10 CFR 835, *Occupational Radiation Protection Program*, Appendix D, Surface Contamination Values. DOE PPPO also confirmed that UniTech's contract has been amended to require a 100 percent survey of all cleaned respiratory equipment and a 25 percent Quality Control (QC) check on monitored respiratory equipment, prior to releasing equipment back to FBP. Also, FBP has completed a statistical analysis on the graded approach of the 25 percent QC check. The 25 percent survey yields a confidence level greater than 95 percent. These actions have been completed and DOE PPPO deems this recommendation closed upon issuance.

Estimated Completion Date: Completed

Recommendation 2: To improve FBP's Respiratory Protection Program to protect worker health and safety and to prevent recurrences, OIG recommends that the PPPO Manager ensures FBP conducts a root cause analysis to determine the causal factor(s) involving UniTech's shipments of contaminated respirator parts to FBP.

Management Response: Concur

DOE PPPO will perform a causal analysis to determine the causal factor(s) involving Unitech's shipments of contaminated respiratory equipment to FBP.

Estimated Completion Date: September 30, 2020

Recommendation 3: To improve FBP's Respiratory Protection Program to protect worker health and safety and to prevent recurrences, OIG recommends that the PPPO Manager ensures FBP reports recurring events of potential safety concern in the Department's Occurrence Reporting and Processing System (ORPS).

Management Response: Concur in Principle

DOE PPPO conducted an analysis to determine if the collective events met the criteria for an ORPS reportable issue, as defined in DOE Order 232.2A, Occurrence Reporting and Processing of Operations Information. Based on this review, DOE PPPO determined that the events collectively did not meet the reporting requirements from an ORPS perspective, and instead, determined that the events are most appropriately managed through the PORTS Integrated Tracking System and through enforcement of the contractual requirements with UniTech. Due to the OIG's concern for the lack of reporting the contaminated respiratory equipment into ORPS, DOE reviewed the recurrence determination as set forth in FBP's procedure FBP-QP-

PRO-00020 and concluded that the events were not reportable under ORPS. The recurrence determination flowchart from FBP-QP-PRO-00020 was jointly developed by DOE and the Energy Facility Contractor's Group (EFCOG) and was incorporated into FBP's procedure in June 2015. These actions have been completed and DOE PPPO deems this recommendation closed upon issuance.

Estimated Completion Date: Completed

Recommendation 4: To improve FBP's Respiratory Protection Program to protect worker health and safety and to prevent recurrences, OIG recommends that the PPPO Manager ensures FBP confirms all contractual requirements for UniTech are being met.

Management Response: Concur

DOE PPPO will assess the contractual obligation between FBP and Unitech to ensure that all requirements are being met. This issue is being closely monitored and will conclude with a formal evaluation to ensure all contractual obligations are being met.

Estimated Completion Date: September 30, 2020

Recommendation 5: To improve FBP's Respiratory Protection Program to protect worker health and safety and to prevent recurrences, OIG recommends that the PPPO Manager ensures FBP establishes better communication on significant changes to procedures impacting respiratory equipment.

Management Response: Concur

DOE PPPO will assess the contractor's procedures and the SOW with Unitech to ensure that any changes in programmatic responsibilities are communicated between the responsible entities.

Estimated Completion Date: September 30, 2020

Recommendation 6: To improve FBP's Respiratory Protection Program to protect worker health and safety and to prevent recurrences, OIG recommends that the PPPO Manager ensures FBP implements an inventory system capable of tracking respiratory equipment from purchase to disposal.

Management Response: Concur

DOE PPPO will assess the current contractor's respirator inventory tracking system to ensure that respirators are tracked from purchase to disposal. The contractor is currently reviewing other options to improve barcoding and tracking of respiratory equipment.

Estimated Completion Date: December 31, 2020

DOE Comments
Office of the Inspector General Draft Report, "Draft Audit Report on 'Respiratory Equipment Maintenance at the Portsmouth Site,'" Dated April 29, 2020

The Department of Energy (DOE) Portsmouth/Paducah Project Office (PPPO) provides the following technical comments on the Office of the Inspector General's (OIG's) "Draft Audit Report on 'Respiratory Equipment Maintenance at the Portsmouth Site,'" dated April 29, 2020.

1. OSHA Standards 29 Code of Federal Regulations (CFR) 1910.134, Respiratory Protection is referenced. Due to Fluor-BWXT Portsmouth LLC (FBP) serving in the role as a DOE contractor, the report should reference 10 CFR 851 and its associated reference standards. Note that under the scope of 10 CFR 851, it does not apply to radiological hazards (§851.2). Therefore, 1910.134 incorporated by reference in 10 CFR 851 does not apply to contamination. The correct driver is 10 CFR 835, which should have provisions in the associated Radiation Protection Program to prevent exposure to individuals.

2. The OIG report states that workers were at increased risk of inhalation or internal contamination. Although DOE recognizes that there were multiple issues associated with the contractual compliance between FBP and UniTech Services Group, Inc. (UniTech), the Department could not substantiate an increased risk of inhalation or internal contamination. FBP provided the audit team with bioassay results which documented zero internal dose. Additionally, DOE PPPO reviewed all contaminated respiratory equipment surveys, and did not find any surveys with surface contamination (fixed or removable) on the interior of any Powered Air-Purifying Respirator (PAPR) helmet or full-face respirator. It is not uncommon for fixed contamination to be present on personal protective equipment (PPE) used in contaminated areas, after decontamination is performed on the exterior of the respiratory equipment (that is, the surface that does NOT come into contact with the worker). DOE considers this to be an administrative problem.

3. Page 2 of the draft report states "Portsmouth has not adequately maintained respiratory protection equipment to protect workers from exposure to hazardous materials." DOE recommends changing the term "hazardous material" to "radioactive material." Of additional note, there were no Personnel Contamination Events (PCEs) associated with contaminated respiratory equipment. The report does not reflect any discussion of review or investigation regarding any PCEs; therefore, the risk or dose to the workers cannot be properly evaluated.

4. Page 3 of the draft report states "10 CFR 835, Occupational Radiation Protection Program, limits of 5,000 disintegrations per minute fixed and 1,000 disintegrations per minute removable." DOE notes that 10 CFR 835 surface contamination values are measured per unit area (i.e., 100 cm2).

5. Page 5 of the draft report states "FBP did not report recurring issues in the Departments ORPS." Occurrence Reporting Group 6 Contamination/Radiation Control criteria does not apply to this issue. Respiratory equipment is labeled as radioactive material (RAM), controlled and shipped as RAM, and received back at Portsmouth as RAM.

6. Page 6 of the draft report states "FBP workers were at increased risk of using contaminated respirators and inhaling radioactive particles." DOE could not substantiate any increased risk of inhaling radioactive particles. All bioassay results were reported as zero for internal dose,

and review of the contractor's Issues Management System did not document any PCEs due to contaminated PPE.

FEEDBACK

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