U.S. Department of Energy
Voluntary Protection Program
Recertification Review of
United Cleanup Oak Ridge, LLC at
Oak Ridge, TN

Office of Environment, Health, Safety and Security
Office of Health and Safety

June 2024

EXECUTIVE SUMMARY

The Department of Energy (DOE) Voluntary Protection Program (VPP) Assessment Team (Team) from the Office of Environment, Health, Safety and Security (EHSS) conducted the triennial review of United Cleanup Oak Ridge, LLC, (UCOR) virtually from January 16-26, 2024, and onsite from February 6-15, 2024. The result of this assessment provides the Director, EHSS with the necessary information to make the final decision regarding continued UCOR participation in DOE-VPP at the Star level.

UCOR, located in Oak Ridge, TN, on the Oak Ridge Reservation, is an Amentum-led partnership with Jacobs and Honeywell, working under contract with the DOE Oak Ridge Office of Environmental Management. Teaming partners include RSI EnTech, StrataG, Longenecker & Associates, and EAI, LLC. Under this contract, UCOR safely deactivates and demolishes former nuclear facilities at Oak Ridge National Laboratory and the Y-12 National Security Complex. UCOR also performs surveillance and maintenance activities and operates the Oak Ridge Reservation's waste disposal facilities. The $8.3 billion task order-based contract extends at least 10 years. This contract is a follow-on contract to the $4 billion East Tennessee Technology Park/Heritage Center (ETTP) contract, which saw the first-ever cleanup of a gaseous diffusion plant ahead of schedule and under budget. The current contract also includes remediation work at ETTP.

EHSS recognized UCOR as a Star site in 2015 and recertified it as Star site in 2019. Although the prime contract changed when the ETTP contract concluded and UCOR began the Oak Ridge Cleanup Contract with new contracting partners, EHSS agreed that changes in the management team, policies, processes, and procedures were minimal. As a result, EHSS granted UCOR continued participation in the DOE-VPP and did not subject it to the transitional process identified in DOE--STD-1232-2019, *U.S. Department of Energy Voluntary Protection Program, Vol. 1-4*

UCOR has a workforce of more than 2,400 employees. The Atomic Trades and Labor Council and the Knoxville Building and Construction Trades Council collectively represent approximately 800 of those employees. The Knoxville News-Sentinel named UCOR a Top Workplace to Work for two consecutive years based on feedback from employees. In addition, UCOR received numerous safety and other awards, including the Voluntary Protection Programs Participants' Association's Innovation Award, DOE-VPP Star of Excellence, EHS Daily Advisor Safety Standout Award, National Safety Council Industry Leader Award, and a Healthiest Employer of Tennessee Award.

EHSS conducted the DOE-VPP review using a combined virtual and onsite approach to verify that UCOR meets expectations for continued participation at Star level. Safety is always a top priority at UCOR, and its injury and illness rates remain significantly lower than its comparison industry. UCOR works to maintain compliance with appropriate DOE, OSHA, local, State, and Federal safety requirements and strives to exceed those requirements.

UCOR encourages and supports employee involvement through numerous opportunities, including Local Safety Improvement Teams, Questioning Attitude Recognition Program, the Mission Ready Program, and various other campaigns to improve the safety culture within the

company. UCOR communicates to employees via its safety committees, newsletters, information monitors, and other media. UCOR stresses to employees that they have stop work authority for pausing work for clarification or a safety concern.

UCOR provides workers with the training, knowledge, and skills to perform their jobs safely. UCOR continues to support attainment of Board of Certified Safety Professionals' (BCSP) certifications. UCOR directly pays the BCSP for Safety Trained Supervisor and Safety Trained Supervisor Construction application and exam fees. UCOR also reimburses application and exam fees for employees who pursue and achieve higher level BCSP certifications.

The Team identified some opportunities for improvement that may assist UCOR’s continuing efforts to empower its workforce and recognize the strengths of its staff. The Team did not identify any programmatic noncompliance with DOE safety requirements that would preclude participation in DOE-VPP.

OPPORTUNITIES FOR IMPROVEMENT

Opportunity for Improvement	Page
UCOR has an effective WP&C process to ensure a thorough understanding and mitigation of hazards encountered during work but, with the reduced cyber security footprint, should consider implementing an electronic system for WP&C packages.	**17**
UCOR should either develop an inspection tracking tool, like the existing UCOR Injury and Illness Hazard Performance Indicator Pivot Table workbook with spreadsheets or ensure existing tracking tools can provide documentation that reflects completion of annual inspections.	**19**
UCOR should consider trending of near-misses, motor vehicle accidents and hazards identified during inspections.	**20**
UCOR should review its workplace inspection policies, procedures, training, and qualification requirements to ensure that affected workers are familiar with common safety hazards and applicable abatement methods.	**24**
UCOR should consider upgrading to Maximo® Mobile to add the capability of accessing and entering data in real time during maintenance operations.	**25**
UCOR should consider creating a peer-to-peer recognition program that does not require management approval to highlight employee's accomplishments.	**25**

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ABBREVIATIONS AND ACRONYMS

ANSI	American National Standards Institute
ATLC	Atomic Trades and Labor Council
BCSP	Board of Certified Safety Professionals
BLS	Bureau of Labor Statistics
CAIRS	Computerized Accident Incident Reporting System
CBT	Computer-Based Training
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
D&D	Decontamination and Demolition
DART	Days Away, Restricted, or Transferred
DOE	Department of Energy
EHSS	Office of Environment, Health, Safety and Security
ETTP	East Tennessee Technology Park/Heritage Center
GSA	General Services Administration
IWCP	Integrated Work Control Process
LSIT	Local Safety Improvement Team
NAICS	North American Industry Classification System
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
OSHA	Occupational Safety and Health Administration
Outfall 200	Outfall 200 Mercury Treatment Facility
PAPC	President's Accident Prevention Council
PPE	Personal Protective Equipment
RPT	Radiation Protection Technician
SA	Safety Advocate
SCWE	Safety Conscious Work Environment
SOC	Safety Observation Card
SS&S	Safety System and Services
STD	DOE Technical Standard
STS	Safety Trained Supervisor
STSC	Safety Trained Supervisor Construction
Team	DOE-VPP Assessment Team
TLP	Technical Leadership Program
TRC	Total Recordable Case
TWPC	Transuranic Waste Processing Center
UCOR	United Cleanup Oak Ridge, LLC
VPP	Voluntary Protection Program
WP&C	Work Planning and Control
Y-12	Y-12 National Security Complex

BACKGROUND

The Department of Energy (DOE or Department) recognizes that excellence can be encouraged and guided but not standardized. On January 26, 1994, the Department started the DOE Voluntary Protection Program (VPP) to encourage and recognize excellence in occupational safety and health protection. This program closely parallels the Occupational Safety and Health Administration (OSHA) VPP. Since its creation by OSHA in 1982, and implementation by DOE in 1994, VPP has shown that cooperative action among Government, industry, and labor can achieve excellence in worker safety and health.

DOE-VPP encourages DOE contractors and subcontractors to surpass compliance with DOE requirements and achieve excellence through systematic approaches emphasizing creative solutions through cooperative efforts with managers, employees, and DOE.

DOE-VPP bases program participation on the existence of comprehensive safety management systems that ensure employees are actively involved in assessing, preventing, and controlling the potential safety and health hazards at their sites. All DOE contractors may participate in DOE-VPP, including production facilities, laboratories, subcontractors, and support organizations. In keeping with DOE-VPP philosophy, *participation is strictly voluntary*. Additionally, any participant may withdraw from the program at any time.

DOE-VPP consists of three levels of participation (like those in OSHA VPP): Star, Merit, and Demonstration. The Star level recognizes outstanding protectors of employee safety and health. The Merit level is a steppingstone for participants that have good safety and health programs but need time and DOE guidance to achieve Star status. The Demonstration level allows DOE to recognize achievements in unusual situations that DOE needs to learn more about before deciding approval requirements for the Merit or Star level.

Approving an applicant for participation in DOE-VPP demonstrates DOE recognition that the applicant exceeds the basic elements of systematic protection of employees at the site. Participants receive certificates of approval and the right to use flags showing the appropriate DOE-VPP program level the contractor has achieved. Participants may also choose to use the DOE-VPP logo on its letterhead or award items for employee incentive programs.

I. INTRODUCTION

This report provides the Department of Energy (DOE) Director, Office of Environment, Health, Safety and Security (EHSS), the results of the triennial review of United Cleanup Oak Ridge, LLC, (UCOR), at the Oak Ridge Reservation (ORR), located in Oak Ridge, TN, conducted virtually from January 16-26, and onsite from February 6-15, 2024. Based on this review, the DOE Voluntary Protection Program (VPP) Assessment Team (Team) recommends that UCOR continue to participate in DOE-VPP at the Star level.

UCOR submitted its VPP application in accordance with DOE-STD-1232-2019, *U.S. Department of Energy Voluntary Protection Program, Vol. 1-4,* requirements in April 2014, and was admitted into VPP at the Star level in 2015. EHSS recertified UCOR at the Star level in 2019. EHSS conducted this 2024 triennial review to verify that UCOR continues to meet DOE-VPP expectations for participation at the Star level.

The Team conducted the review in two phases. From January 16-26, 2024, the Team utilized virtual methods to interview workers, managers, attend meetings, and review documents. The Team then performed onsite work observations, validations, and interviews onsite between February 6-15, 2024.

UCOR, located on the Oak Ridge Reservation (ORR), employs approximately 2,400 workers, 268 service subcontractors, and 18 temporary workers. UCOR is an Amentum-led partnership with Jacobs and Honeywell, working under contract with the DOE Oak Ridge Office of Environmental Management. Teaming partners also include RSI EnTech LLC, StrataG, Longenecker & Associates, and EAI. The $8.3 billion task-order-based contract extends at least 10 years. This contract is a follow-on contract to the $4 billion East Tennessee Technology Park/Heritage Center (ETTP) contract, which saw the first-ever cleanup of a gaseous diffusion plant ahead of schedule and under budget. The current contract also includes remediation work at ETTP. Once UCOR demolished the final building at ETTP in 2020, UCOR achieved the historic first-ever cleanup of a gaseous diffusion plant. UCOR transformed the site into a multi-use industrial park, national park, and conservation area transferring about 1,300 acres of land for economic development. The K-25 History Center is now open at the site.

Since its VPP recertification in 2019, the UCOR workforce has been conducting major cleanup and decontamination and demolition (D&D) activities at Oak Ridge National Laboratory (ORNL) and Y-12 National Security Complex (Y-12), as well as remedial activities at the ETTP. UCOR also operates the Transuranic Waste Processing Center (TWPC) and is constructing the Outfall 200 Mercury Treatment Facility (Outfall 200).

In the D&D space, UCOR is currently demolishing a third reactor at ORNL, the Oak Ridge Research Reactor. This activity follows demolition of the Bulk Shielding Reactor in 2022 and the Low Intensity Test Reactor in 2023. In addition, crews continue deactivating several reactors, including the Experimental Gas-Cooled Reactor. UCOR is also deactivating the facilities known as Isotope Row. After removing the west cell bank at the former Radioisotope Development Laboratory, UCOR is deactivating the “hot cell” in the east cell bank for demolition.

UCOR is cleaning up contaminated, unused facilities on the ORR. In addition to removing excess facilities, UCOR maintains facilities across ORR awaiting disposition. UCOR provides critical upgrades to extend the life of active, but aging, facilities. These activities are a continuation of the same work conducted under the former UCOR contract from 2011 to 2022.

At Liquid & Gaseous Waste Operations, UCOR continues to upgrade the infrastructure. For example, UCOR completed a new zeolite treatment system consolidating radiological and nonradiological wastewater treatment capability into one facility, reducing operational costs. The upgrade makes it possible to decommission other outdated facilities. UCOR also maintains the Molten Salt Reactor Experiment facility and provides upgrades for the 3001 Graphite Reactor, and other systems and facilities as needed.

UCOR is deactivating high-risk Y-12 facilities, including massive facilities like the more than 500,000-square-foot Alpha-4 building as well as the Alpha-2 and Beta-1 buildings, which housed four of the 11 calutron tracks used to separate uranium during the Manhattan Project. Under its previous contract, UCOR demolished the last two buildings in the Y-12 Biology Complex where 11 facilities once stood. After removal of the building slabs, UCOR returned the land to Y-12 for a future lithium processing facility.

UCOR’s commitment to safety and health programs that protect employees, and the public is strong and evident. UCOR maintains an excellent safety performance record, consistently maintaining injury rates below its comparison industry.

II. INJURY INCIDENCE CASE RATES

To maintain DOE-VPP Star status, the contractor's average for both Total Recordable Case (TRC) rates and Days Away, Restricted, or Transferred (DART) case rates for the most recent 3-year period shall be at or below the most recent specific industry national average North American Industry Classification System (NAICS) code published by the Bureau of Labor Statistics (BLS). The NAICS code for UCOR and its subcontractors is 562910, *Remediation, Cleanup, Demolition of Facilities*. However, since no BLS Table 1 Summary Data is available for NAICS 562910 for 2022, the Team reviewed the next available number for which data is available, 56291, *Remediation Services*.

The following table presents the most recent 3-year period data validated by the Team using UCOR's Occupational Safety and Health Administration (OSHA) 300 Logs, the DOE Computerized Accident Incident Reporting System (CAIRS), the Team's calculation of the TRC and DART rates, and the specific industry national average for the comparison industry.

3-Year Injury and Incidence Rates

Calendar Year	Hours Worked	TRC	TRC Incidence Rate per 200,000 hours	DART	DART Case Rate per 200,000 hours
Contractor Employees (UCOR - ETTP CAIRS Org Code 4006002 and UCOR/United Cleanup Oak Ridge, CAIRS Org Code 4006102)					
2021	3,298,592	11	0.67	0	0.00
2022	3,353,687	6	0.36	2	0.12
2023	3,661,457	9	0.49	6	0.33
	10,313,736	**26**	**0.50**	**8**	**0.16**
Subcontractor Employees (UCOR-Service Subs CAIRS Org Code 4006004 and UCOR/United Cleanup Service Subs, CAIRS Org Code 4006104)					
2021	502,922	0	0.00	0	0.00
2022	464,407	3	1.29	3	1.29
2023	559,705	0	0.00	0	0.00
	1,527,034	**3**	**0.39**	**3**	**0.39**
Total (Contractor and Subcontractor) Employees					
	11,840,770	**29**	**0.49**	**11**	**0.19**
BLS 2022 industry average for NAICS 56291 Remediation Service			**1.90**		**1.20**

3-Year *TRC Incidence Rates, including subcontractors: 0.49

3-Year **DART Case Rates, including subcontractors: 0.19

Discussion

As of January 31, 2024, UCOR employs approximately 2,400 workers, 268 service subcontractors, and 18 temporary workers. UCOR has zero TRC and DART cases for the current year-to-date. The Team did not find any incentives that would discourage workers from reporting injuries. Interviewed workers acknowledge that managers encourage the reporting of injuries, incidents, near-misses, or first aid cases and that workers do not fear reprisal for reporting.

The Team conducted a random sampling of UCOR's DOE CAIRS database cases. The results indicate that the recordkeeper is documenting all injuries and illnesses in the database as well as in an OSHA 300 Log spreadsheet. The contractor is keeping complete and accurate recordkeeping logs, as required by PROC-EH-2019, *Case Management*; PROC-PZ-1220, *Occurrence Notification and Reporting*; PROC-EH-2001, *Injury and Illness Investigation Process*, including the OSHA 300 Log Excel spreadsheet, OSHA 300A Summary, and comparable OSHA 301's. The recordkeeper posted the OSHA 300A Summary according to the recordkeeping standard during the required periods, and it remains accessible to all personnel throughout the calendar year. The logs reflect the safety and health conditions under this contractor's control. The UCOR recordkeeper has completed CAIRS training and the OSHA 7845, *Recordkeeping Seminar*, and is knowledgeable of the recordkeeping requirements.

Conclusion

UCOR's recordkeeper is adequately trained, posts the OSHA 300A Summary as required and complies with applicable recordkeeping rules and regulations. UCOR's 3-year TRC and DART rates are 74.2 and 84.5 percent, respectively, lower than the BLS comparison industry average for its NAICS code and meets the expectations for continued DOE-VPP participation.

III. MANAGEMENT LEADERSHIP

Management Leadership is a key element in obtaining and sustaining an effective safety culture and implementing the guiding principles of integrated safety management. The contractor shall demonstrate senior level management commitment to integrated safety management, occupational safety and health, and meeting the requirements of the DOE-VPP. Management systems for comprehensive planning shall address safety and health requirements and initiatives. Elements of that management system shall include: (1) clearly communicated policies and goals, (2) clear definition and appropriate assignment of responsibility and authority, (3) adequate resources, (4) accountability for both managers and workers, and (5) managers visible, accessible, and credible to employees. As with any other management system, the organization shall integrate authority and responsibility for employee safety and health with its management system and shall involve employees at all levels of the organization.

Since the 2019 DOE-VPP assessment, UCOR leadership has encountered many challenges through which managers have led an engaged and proactive workforce. UCOR was the recipient of two major contracts - Transuranic Waste Processing Center (TWPC) as an operating facility, and Outfall 200, as a comprehensive construction project. Each included aspects unique to the typical waste cleanup activities of the main UCOR Oak Ridge Cleanup Contract. The TWPC and Outfall 200 projects added to a significant, diverse workscope supporting ORNL nuclear operations and facility demolition, Y-12 facility demolition, landfill and liquid waste management, and demolition and land reclamation at the ETTPs former Manhattan Project production facilities. In 2024, the UCOR management team emphasizes a concept of "shared governance" through which all stakeholders, managers, and employees, have a seat at the table when deciding how to approach a broad workscope safely. UCOR managers and employees use a shared value system to guide decision-making as they plan towards future growth in staff and workscope.

UCOR leadership approaches safety and health policy with a Zero Accident Philosophy, i.e., the concept that all accidents are preventable. Zero Accident Philosophy relies on an engaged workforce and a safety conscious work environment (SCWE) free of reprisal for stopping work or reporting concerns. UCOR leaders apply company values, advertised on the company website, and reiterated throughout the workplace, to operations to consistently influence decision-making towards a safe work culture and accident elimination. For example, two UCOR values, "make safety a prerequisite to all work" and to "never make a profit or gain at the expense of the client, environment, or workforce," serve as guiding safety principles for which the workforce holds all leaders accountable. The Team met with managers who referenced these values as a "decision gate," meaning that if a decision does not meet the core values, then it needs to be re-evaluated. UCOR management empowers workers to report issues and leaders prioritized safety in all job planning or execution. UCOR managers apply the company values consistently to maintain employee focus on preventing accidents and working safely. The Knoxville News-Sentinel named UCOR a Top Workplace for two consecutive years based on feedback from employees. In addition, UCOR received numerous safety and other awards, including the Voluntary Protection Programs Participants' Association's Innovation Award, DOE-VPP Star of Excellence, EHS Daily Advisor Safety Standout Award, National Safety Council Industry Leader Award, and a Healthiest Employer of Tennessee Award.

UCOR outlines its compliance with Title 10, Code of Federal Regulations, Part 851 (10 CFR 851), *Worker Safety and Health Program,* using PPD-EH-1745, *Worker Safety and Health Program,* and further complies with DOE Policy 450.4A, *Integrated Safety Management Policy*, using PPD-EH-1400, *Integrated Safety Management System*. Staff can access program descriptions documents via the company intranet. UCOR leaders have taken a further step to increase policy and program requirement accessibility and share information on practical hazard control applications using UCOR-4087, *Safety and Health Handbook*. The handbook is a pocket-sized, bound booklet which supervisors or workers can easily carry on the job site. The Team observed multiple instances of UCOR staff carrying Safety and Health Handbook copies with tabbed place holders, markups, and worn covers, indicating frequent use. UCOR leaders have created a support system for line organizations spread across multiple, diverse worksites by which field-deployed safety and health professionals provide line supervisors and workers assistance when implementing the safety and health program. The Team met with UCOR staff in various settings including pre-job briefings, an engineering review board, employee-led Local Safety Improvement Team (LSIT) sessions, and job walkdowns. Line and safety organizations exhibited strong interaction and partnership when putting safety program elements into practice.

During the assessment, the Team reviewed the UCOR approach to strategic planning and its incorporation of safety and health goals. UCOR outlines a strategic plan for each of its contract scope areas (e.g. ORNL Nuclear Operations, ETTP, etc.), and leaders ensure application of the UCOR "shared governance" model by encouraging worker input on high-level strategic plans and functional area collaboration on specific projects and operations. The Team observed the results of a thoroughly planned ORNL Liquid and Gaseous Waste Operations Building 3608 piping replacement project. The Building 3608 facility had operated for many years and had become a significant operating challenge due to degrading equipment, non-standard components, lack of thorough as-built design documentation, and inefficient process flow. UCOR planned a comprehensive piping and equipment replacement project for asset management purposes, and UCOR leaders took input from key stakeholders in operations, safety, and engineering organizations to not only replace degrading systems but systematically redesign and reimagine the process. Engineering and operations staff noted the cohesive planning efforts and strong engagement from planners, designers, and craftspeople. The resulting facility upgrades, according to operations management feedback, turned a process which was a constant safety and process concern for operators and managers, into a model of efficient operations.

The Team heard similar feedback elsewhere in ORNL Nuclear Operations regarding cohesive planning efforts among operations, engineering, maintenance, and management during an engineering review board and walkdown of the new Molten Salt Reactor Experiment Continuous Purge System (undergoing final design reviews and operational testing at the time of this assessment). The Continuous Purge System replaces and improves upon the existing ventilation system not only in process safety and efficiency but maintainability. Multiple staff highlighted the key role played by operators and craftspeople partnering with designers to plan and build a robust system. UCOR leaders attribute the successful planning implementation and strong project performance to the "shared governance" model and good engagement of stakeholders at all levels of work planning.

The Team discussed with UCOR staff the adequacy of the safety and health program and the safety organization's ability to support operations. Managers in all major operational areas

highlighted the availability of safety and industrial hygiene professionals in the field. Managers noted high quality interactions between safety professionals and staff and a willingness to help workers understand the reasons behind safety requirements or initiatives. Safety programs staff centrally support all UCOR operations. The Team observed strong engagement of safety professionals facilitating LSIT forum meetings and President's Accident Prevention Council meetings, two key employee involvement and collaboration initiatives. Industrial hygiene staff apply innovative techniques such as personal thermal stress monitoring with remote data collection capabilities to not only keep workers safe but to give supervisors easy access to the information they need to take ownership of their workers' safety. Continued collaboration between UCOR operations and safety organization staff will be critical in the face of expanding workscope and personnel levels, but UCOR has established planning and feedback tools such as LSITs, Safety Observation Cards (SOC), and other work processes which encourage stakeholder engagement and give projects and the safety organization data to support right-sizing safety staffing and support levels.

UCOR line organizations take responsibility for worker safety during operations. UCOR LSITs, with at least one team dedicated for each work area or project, are heavily active in keeping employee focus on safety. SOC hard copy or electronically submitted feedback mechanisms for identifying positive safety behaviors or potential risks or hazards, are a major tool promoted by line managers, the safety organization, and LSITs to encourage line worker engagement. LSIT members and safety professionals support UCOR managers effort to overcome any stigma against turning in observations to increase feedback. The Team reviewed another mechanism, the Management Control Plan, under which line organizations can invoke specialized controls, with safety organization and employee support, to directly address project or area risks. For example, the ETTP land recovery project underwent a Management Control Plan targeted at safety improvements after a series of reportable injuries and vehicle incidents. ETTP project and operations managers worked with safety professionals, union stewards, safety advocates (SAs), and LSIT members to implement controls. For example, the ETTP management team added project mentors to improve human performance, developed traffic control plans to reduce area congestion, and increased safety and project status communications in small groups and all-hands meetings. The project injuries and traffic incidents occurred from January through September 2021, and the Management Control Plan was prepared and approved from September to October 2021. Within 6 months of Management Control Plan implementation, the TRC rate decreased significantly, motor vehicle incidents reduced to zero, SOC submissions notably increased, and the ETTP project experienced longer periods without recordable or fist aid injuries. The Team observed examples of UCOR leaders, from senior management to first line supervisors, taking ownership of safe work practices during regular activities such as pre-job briefings and using targeted mechanisms such as SOCs and Management Control Plans to ensure a safe work environment.

UCOR managers recognize that visible presence is a critical aspect of safe operations, particularly in organizations undergoing significant change. UCOR leaders at all levels spend time in the field engaging with staff, learning worksite status firsthand, and promoting safe work practices. The Team observed activities at TWPC, which had recently transitioned under UCOR management. TWPC, at the time of this assessment, had significantly reduced operations, partly attributed to administrative process changes during turnover and equipment and design basis challenges encountered after turnover. The Team observed TWPC leaders, despite waste

operations downtime in the main process facility, continue to emphasize safety focus by conducting manager-led safety basis training and thoroughly driving corrective actions and extent-of-condition evaluations. For example, leaders pursued a detailed incident response to a non-injury overhead crane component failure in which a small falling component struck a worker to meet peer organization manager scrutiny during an Issues and Corrective Action Review Board meeting. The Team also observed a heavy focus on Outfall 200 contract transition. UCOR leaders applied lessons learned from TWPC transition to pause operations, focus on workforce development, encourage safety culture and safe work practices, and fully bring Outfall 200 staff up to speed with UCOR expectations. UCOR safety and operations managers paid attention to details such as introducing new Outfall 200 LSIT chairs to the larger LSIT forum, exemplifying both the value placed on LSIT engagement and UCOR core value demonstration of safety as a work prerequisite. To permeate strong leadership practices, including workforce visibility, throughout all management levels and ensure continuity upon the departure of any individual managers, UCOR has invested time and resources into training efforts, such as the Rising Senior Leaders and Safety Trained Supervisor (STS) programs, discussed in detail in the Safety and Health Training section of this report. Workers' priorities are influenced by what they see their leaders value, and UCOR has fostered a team of leaders who understand that employee interactions and manager field presence are essential to understanding an organization's safety culture and ensuring safe operating practices.

UCOR managers work cooperatively with bargaining unit leaders, affiliated with Atomic Trades and Labor Council (ATLC) and Knoxville Building and Construction Trades Council, to maintain a SCWE and to address safety concerns. Onsite bargaining unit leaders include craft SAs, stewards, and LSIT chairpersons who receive support from senior union leadership located offsite. UCOR senior leadership shows the value it places in bargaining union employees by investing in an experienced and proactive labor relations staff and committing resources, including the UCOR president, to national labor union interactions. The Team discussed with UCOR labor relations staff and multiple managers an example of the forward-thinking approach UCOR leadership takes towards bargaining unit workers. Recognizing a worsening challenge recruiting building tradespeople, particularly laborers supporting demolition projects, due largely to local, industry-wide, and even non-construction industry competition, UCOR leaders revisited the traditional approach to existing, inflexible labor agreements which were broadly applicable to the varying scopes of all Oak Ridge contractors instead of the specific UCOR contract Office of Environmental Management needs. UCOR pursued a Project Labor Agreement, negotiating with building trades at a national versus local level, to leverage contract language which better fit UCOR and Office of Environmental Management labor needs while also providing UCOR flexibility to adapt hiring and retention incentives in a rapidly changing job market. UCOR and labor leaders were finalizing negotiations during this assessment. UCOR managers' understanding of and engagement with national labor organizations while also incurring the trust and partnership of local bargaining unit leaders highlights the importance and success of UCOR labor relations, which the Team found to be a best practice among DOE-VPP peers.

Subcontractors working for UCOR receive significant support and oversight to ensure compliance with safety expectations, safety program documents, and job-specific hazards. UCOR subcontractor oversight staff receive formal training from safety and industrial hygiene leaders to ensure working knowledge of safety programs, proposal and bid processes, subcontractor mentoring philosophy, and strategies for proactive subcontractor engagement.

UCOR ensures upfront submittal of safety documentation including the Safety and Health Compliance Verification and Inspection Plan, which outlines an inventory of all subcontractor equipment, worksite inspection frequencies, and verification requirements. UCOR typically requires subcontractors to also provide a designated safety representative as an additional layer of worker oversight. The Team observed the results of thorough subcontractor vetting during the highly specialized 3039 Stack inspection and repair project on a large brick chimney stack supporting ORNL Liquid and Gaseous Waste Operations. UCOR and the subcontractor collaborated on project safety requirements, leveraging the significant expertise of the subcontractor in brick stack repair at height, as well as UCOR fall protection program expertise. UCOR also proactively applied lessons learned from a recent tree-felling accident and fatality in Oak Ridge. UCOR safety managers recognized internal expertise and qualification in tree maintenance and quickly developed a standard process with training for staff performing various levels of tree maintenance and oversight, the documentation for which was under final approvals during the 2024 DOE-VPP assessment. UCOR recognizes the risk potential posed by the wide variety of its contract work activities and has taken thorough steps to ensure outside subcontractors are knowledgeable, indoctrinated into UCOR safety expectations, and integrated into safety planning for work.

UCOR thoroughly evaluates its safety and health programs and assesses the quality of the company's work environment and safety culture. UCOR promotes regular, constant feedback from all managers and workers using SOCs. In addition to the safety program self-assessment submitted in accordance with DOE-VPP requirements, UCOR assesses safety culture using external survey tools developed by Oak Ridge Associated Universities and participates in workplace satisfaction surveys through local news affiliates. UCOR senior leaders volunteered to pilot a DOE Safety Culture Assist Visit process. The Team discussed the Assist Visit process and outcomes thoroughly with UCOR managers. Although the Assist Visit process was new and UCOR managers and staff provided feedback on opportunities to improve the process, the Team noted consistent feedback that UCOR leaders took the results seriously, and recognized valuable takeaways they addressed and implemented in UCOR operating practices. The Team observed very strong appreciation for feedback, particularly external, and the value of data and employee input towards good decision-making and safe operations.

Conclusion

UCOR leaders recognize that, to succeed in diverse work environments and when taking on additional workscope, engagement, communication and collaboration with the entire workforce is critical. UCOR channels its safety philosophy and core values throughout the company and consistently considers decisions based on those values. UCOR plans work with safety at the forefront, takes input from all stakeholders, and ensures adequate resources are available. UCOR line organizations recognize that safety is crucial to influence strong operational performance and combine line managers trained in safety culture and safe work practices with a safety organization that provides guidance, tools, and a framework for safe operations. UCOR managers at all levels are visible to the workforce but also leverage strong bargaining unit and workforce engagement to obtain organizational feedback and promote safety. Subcontractors receive the tools, requirements, and oversight required to work safely in UCOR-managed areas. UCOR leaders take feedback in all formats seriously and regularly assess and course correct or

apply lessons learned as necessary. UCOR meets the expectations for Management Leadership and continued participation in DOE-VPP.

IV. EMPLOYEE INVOLVEMENT

Employees at all levels shall continue to be involved in structuring and operating the safety and health program and in decision making that affects employee health and safety. Employee involvement is a major pillar of a strong safety culture. Employee participation is in addition to the right to notify managers of hazardous conditions and practices. Managers and employees shall work together to establish an environment of trust where employees understand that their participation adds value, is crucial, and is welcome. Managers shall be proactive in recognizing and rewarding workers for their participation and contributions. Employees and managers shall communicate and collaborate in open forums to discuss continuing improvements, to recognize and resolve issues, and to learn from their experiences.

The DOE-VPP onsite reviews in 2015 and 2019 concluded that UCOR encouraged and supported employee involvement through numerous opportunities, including LSITs and multiple campaigns designed to improve the safety culture within the company. The Team also concluded that workers demonstrated no fear of reprisal for pausing work and that employees trusted their managers and believed safety is a value in the planning and execution of work. Employees were engaged in developing and implementing a safety conscious workforce by identifying issues, offering suggestions, and participating in safety teams.

During this assessment, the Team observed that UCOR strives to continue those values observed in the past reviews. The LSIT charter describes how the LSITs continue to provide one of many means by which UCOR direct-hire workers, staff augmentation and subcontractor personnel positively contribute to the safety culture. LSITs, comprised of a cross-functional representation of volunteers within the respective organization, work group, or physical location, meet at least monthly to review safety observation and incident statistics, develop corrective actions, and monitor the progress of issue resolution. The LSIT charter describes how the LSIT teams promote continuous safety improvement, enhance safety awareness, manage safety observations and resulting improvement initiatives, and share lessons learned. LSITs encourage worker feedback and involvement and foster open communication and mutual trust. These worker-led teams' function with a high degree of management support.

The Team observed multiple LSIT meetings both virtually and onsite and reviewed the meeting minutes from others they could not attend. Management sponsors and core team members support the energetic leaders of the 13 LSITs. The LSIT meetings are well organized, with participants actively engaging in the meeting discussions.

The LSIT members, identified by its charter, are responsible for multiple activities to ensure employees have avenues to raise concerns and provide feedback. For example, the iQuestion Program allows any UCOR manager or worker to recognize employees showing a questioning attitude towards their work activities. The LSITs evaluate identified worker concerns for resolution. LSITs also elevate iQuestion program submittals to select a monthly grand prize winner(s).

The LSITs collect, and evaluate to resolution, observations and issues submitted via SOC. All the LSIT meetings observed addressed the status of outstanding SOC issues and discussed recently closed issues. The inclusion of this continuous feedback is essential to ensuring

employee buy-in and the overall success of the SOC process. The LSITs focus on improving and increasing the use of SOCs to increase worker input.

The LSIT forum, which consists of LSIT chairs and cochairs, management sponsors, and safety and health professionals, meets monthly to evaluate methods to improve the LSIT performance. The LSIT Forum recently decided to make increasing worker SOC entry a priority and is reinforcing this effort among the LSITs. Promoting SOC observation submissions across the LSITs, directly results in improved worker engagement and communication regarding all facets of safe worker activity. In addition, the LSIT forum develops topics for individual LSITs to discuss in their monthly meetings. The LSITs continue to be an excellent tool for employee engagement at UCOR and effectively ensures employees have an avenue to raise concerns.

In February 2024, UCOR announced the establishment of its 14th LSIT representing the workers on the recently acquired Outfall 200 construction project. The chair of the LSIT Forum meeting introduced the newly selected Outfall 200 LSIT chair and co-chair members to the LSIT community during the February 2024 meeting. The Outfall 200 LSIT chair and co-chair will meet with and shadow the established UCOR LSITs to help them develop LSIT implementation ideas and methods.

During the onsite review, the Team conducted observations of work activities and interviews with the workers at all UCOR projects including ORNL D&D projects, TWPC and Y-12. All interviewees reported strong worker involvement in work planning with no concerns for workers to pause work if safety issues are identified. Workers explained that they are consistently involved in job safety walkdowns to solicit their input for safety concerns. Workers described several examples of work condition concerns that they raised to supervisors that resulted in additional review by safety and facility managers before work would continue. For example, one employee described identifying a missing floor support beam during a walkdown for D&D activities. The worker raised the concern to his supervisor, and safety professionals reviewed the concern. After consultation, the workscope was reevaluated to recognize the potential floor collapse hazard during D&D activities in that area. The safety organization recommended changing the work activity to remove workers from the D&D area and use mechanical methods to complete the D&D activity.

In another interview, a craft worker explained that UCOR engages employees through involvement in the LSITs, and The Rest of The Story initiative, an initial fact-finding process. The worker explained that The Rest of The Story process always ensures a craft SA is involved in any investigation, occurrence or near-miss to ensure The Rest of The Story committee hears and understands their perspective

After several vehicle-related incidents in 2021, UCOR reinstated the Vehicle Safey Committee. This committee started its first quarterly newsletter in January 2023 to help get the message for supporting vehicle safety out to the workforce. The Vehicle Safey Committee initiated the *360 Plus* vehicle safety walkaround program and used the committee to formally address the recent addition of vehicle telemetry added to UCOR General Services Administration (GSA) vehicles. The telemetry tracking program is a contractual requirement used to collect real time data of GSA vehicle operations to ensure safe driving. The telemetry tracking of GSA vehicles was not immediately accepted by the workforce. Hence, UCOR is using the Vehicle Safey Committee to

communicate the intention of the program, why it is beneficial to the employees, and that the information from the telemetry is not used punitively. UCOR also implemented two optional vehicle telemetry modules (excessive speeding and seat belt use) that provide audible feedback to drivers and passengers. These non-mandatory modules were implemented with a high degree of input and feedback from craft workers and staff.

The Team observed the UCOR Electrical Safety Committee meeting during the onsite review. The Team was impressed with the level of craft involvement and number of crafts represented in the meeting. In addition, the Team observed that craft workers were actively engaged in discussions and represented an excellent example of worker involvement. The Team recognized the meeting was well organized with an agenda covering old business, new business, and open items for discussion.

UCOR established the SA Program to ensure all crafts have a trusted source for reporting safety concerns outside the traditional management chain. UCOR employs seven SAs, three from ATLC and four from the Building Trades union. The SAs are workers assigned to safety positions tasked with collaborating with the craft employees in their project areas and union disciplines to improve communications and to help elevate safety concerns identified by the workforce. Interviews identified that the ATLC SAs have established roles and responsibilities defined in their contract with UCOR but the Building Trades union SAs do not. UCOR recognized the disparity and are currently working to define the roles and responsibilities for the building trades in the SA program.

UCOR created a robust mental health awareness program under the corporate sustainability program sponsored by the Chief Executive Officer (CEO) and operated under the purview of the Wellness Committee. The Wellness Committee consists of volunteers and meets monthly. The wellness program is composed of the Elevate and Navigate programs. The Elevate program has been in place for several years and focuses on physical wellness providing a healthy balance of mind, body, and spirit that results in an overall feeling of well-being for UCOR direct-hire employees and subcontractor personnel.

UCOR initiated the Navigate program, which focuses on mental health as a priority, based on employee feedback suggesting that mental health was a growing concern. After reviewing mental health programs from Los Alamos National Laboratory, ORNL, Idaho National Laboratory, and Turner Construction, UCOR initiated Mental Health First Aid training in 2023. Selected staff received training on the question, persuade, and refer concepts and intends to use the "train the trainer" approach to expand the knowledge to other staff. The question, persuade, and refer program provides information and training to selected employees on recognizing employees in a mental health crisis and steps they can take to guide the employee in need to help. UCOR provides employees, or family members related to the employee, who identify needs for counseling, six paid counseling sessions through the UCOR Employee Assistance Program.

The UCOR President's Accident Prevention Council (PAPC) leadership council evaluates the overall health of UCOR's safety culture and makes recommendations concerning improvement initiatives. The PAPC provides management and the workforce feedback and recommendations for consideration. The PAPC reviews information and communicates in the context of safety

culture focus areas found in DOE Guide 450.4-1C, *Integrated Safety Management System (ISMS) Guide*. The LSITs, As Low as Reasonably Achievable Committee, Wellness Committee, and other standing committees all report to the PAPC on a periodic basis.

Conclusion

UCOR continues to encourage and support employee involvement through numerous opportunities, including LSITs, the PAPC, the iQuestion recognition program, and other committees to improve the safety culture within the company. The SA program provides direct line of communication for bargaining unit employees to raise concerns effectively. UCOR communicates to employees via its safety committees, newsletters, information monitors, and other media. UCOR has declared that mental wellness of employees is essential, and that the mental health program will be more robust and included under the corporate sustainability program moving forward. Workers understand and feel empowered to stop or pause work for clarification or a safety concern. UCOR meets the expectations for Employee Involvement and continued participation in DOE-VPP.

V. WORKSITE ANALYSIS

Management of safety and health programs begins with a thorough understanding of all hazards that workers might encounter during work, and the ability to recognize and correct new hazards. The first two core functions of integrated safety management, *Defining the Scope of Work* and *Identifying and Analyzing Hazards*, form the basis for a systematic approach to identifying and analyzing all hazards encountered during work as work planners use the results of the analysis in subsequent work planning efforts. Effective safety programs integrate feedback from workers regarding hazards and include a system to address newly recognized hazards. Successful worksite analysis also involves implementing mitigating measures during work planning to anticipate and minimize the impact of hazards.

In 2019, UCOR had established effective programs to analyze the worksite for potential safety and occupational health hazards. The Team found that UCOR had implemented programs to identify hazards and developed a work planning and control (WP&C) system that ensured a thorough understanding of potential hazards encountered during work. UCOR continued to improve on those programs while conducting new analysis of projects under construction and coming online before the next recertification assessment.

The UCOR safety and health program continues to implement an integrated safety management system and coordinate its programs and processes to support the safe performance of work described in PPD-EH-1400, *Integrated Safety Management System*. During the onsite portion of the assessment, the Team visited the ETTP, ORNL, the TWPC, Y-12, Outfall 200, Environmental Management Waste Management Facility, Environmental Management Disposal Facility, and the ORR Landfill. The Team found the UCOR has developed Worker Safety and Health Programs, Health and Safety Plans, Construction Safety and Health Plans, and Management Control Plans as applicable to the type of self-performed work and to all tiers. The same applies to UCOR subcontractors performing work for projects at UCOR ensuring identifying hazards and controls per 10 CFR Part 851, *Worker Safety and Health Program*, and the sites PPD-EH-1745, *Worker Safety and Health Program*; PPD-EH-1500, *Subcontractor Safety and Health Program*; PROC-EH-2000, *General Safety Requirements*; UCOR-4087, *Safety and Health Handbook*; and PPD-EH-1400, *Integrated Safety Management System*.

UCOR policy document POL-UCOR-020, *Integrated Safety Management System*, and the institutionalized safety programs defined in UCOR PPD-EH-1400, *Integrated Safety Management System*, serve as the programmatic foundation for UCOR safety culture. UCOR management seeks to build on and continuously improve these programs such that workers and managers understand the connection between their individual commitments to enhancing the safety culture and maintaining a SCWE. UCOR-4625, *UCOR Safety Culture Sustainment Plan Oak Ridge, Tennessee*, describes activities performed to sustain the UCOR safety culture and SCWE in the context of the DOE's three primary safety culture focus areas (leadership, employee/worker engagement, and a learning organization). While conducting interviews and observations, the Team heard from workers that UCOR management frequently conducts work area walkthroughs and addresses issues as necessary. A vast number of interviewees did not refer to the site "safety culture," rather they called it a "family culture" because "you do what you need to do to provide your family members a safe place to work."

UCOR staff implements satisfactory work process and controls to institutional systems and procedures that appropriately integrate and coordinate D&D, nuclear operations, and TWPC as required by 10 CFR Part 851 and UCOR procedures PPD-EH-1745, *Worker Safety and Health Program*; and PROC-FS-1001, *Integrated Work Control Process (IWCP).* UCOR is currently working to fully integrate TWPC WP&C systematically and safely as discussed in DIR-UCOR-700, *Transition of Transuranic Waste Processing Center (TWPC) Performance Documents*.

UCOR designates work performed, including preventive maintenance, in accordance with PROC-FS-1001 as either integrated work control process exempt (Form-2313, UCOR Exempt List); Type 3, standard practice procedures; Type 2 (work package); Type 1 (work package), or a technical procedure. PROC-OR-2026, *Administration of UCOR ORNL Nuclear Operations Work Activities,* integrates maintenance activities at UCOR nuclear operation facilities with integrated work control process. Planners use PROC-FS-1001, Appendix C, *IWCP Flow Diagram*, Form-866, *Job Hazard Identification Worksheet*, Form-1027*, Job Hazard Analysis*, and PROC-FS-1055, *Work Package/Procedure Usage,* when developing work packages,

UCOR process document PROC-FS-1001, *IWCP*, applies a graded approach in accordance with the complexity of work activities. General maintenance work performed in non-nuclear facilities takes place after thorough evaluation of the hazards and controls for the developed scope. However, all work performed in nuclear facilities, regardless of its complexity, must undergo a review through the unreviewed safety question determination process described in PROC-NS-1001, *Unreviewed Safety Question Determination for Nuclear Category 2 & 3 Facilities.* UCOR's maintenance graded approach is a flow down from the UCOR Quality Assessment Program, defined in the PROC-PQ-1650, *Graded Approach Application.* The graded approach is a process by which the level of analysis, extent of documentation, and degree of process control rigor is applied commensurate with their significance, importance to safety, life cycle state of a facility or work, or programmatic mission.

In addition to documents and processes mentioned above, workers at UCOR use Form-851, *Pre-Evolution (PRE-EV) Briefing Checklist* to conduct prejob briefings and Form-771, *Post Job Review Checklist* to complete post job briefings. Before beginning work, workers preview the task by reading procedures, work packages, scope, task description, precautions, limitations, worker protection controls, responsibilities, critical steps apart from the task, and confirming the validity and completeness of the work document. Workers conduct pre-evolutions prior to the beginning of work to ensure all applicable subject matter experts planning the work have identified potential hazards and controls to mitigate those hazards. Post job reviews verify completion of work as planned and allows workers an opportunity to provide feedback on any aspect of the process. UCOR's subject matter experts in industrial hygiene, safety, health physics, occupational health, radiological control, security, etc., appropriately review the work control documents prior to approval by the person in charge and facility managers. The completed approved work package includes hard copies of all work control documents, permits and drawings.

The work packages reviewed by the Team appeared adequate to permit identification of hazards, as compiled from the scope of work, procedural plans, and standard operating procedures. UCOR Workers effectively implemented hazard controls developed for high-hazard work, including criticality hazards and critical lifts, and performed work per established control sets.

Radiological technicians identified task-based hazards, accomplished hazard analyses, effectively developed and implemented hazard controls in the reviewed work control documents. Supervisors used plan-of-the-day meetings and prejob briefings to authorize and release work. Workers provided verbal and written feedback as part of post job briefings. While the Team noted no significant impediment to accomplishing work safely using hard copy document work control packages, the Team saw that hardcopies can be burdensome to generate and cumbersome to carry these documents to the worksite for job walkthroughs and tabletop discussions. In addition, pending retirements for planners will make it time consuming to locate and replicate work page documents.

Opportunity for Improvement:

UCOR has an effective WP&C process to ensure a thorough understanding and mitigation of hazards encountered during work but, with the reduced cyber security footprint, should consider implementing an electronic system for WP&C packages.

Supervisors at most UCOR facilities used a prejob checklist or *Safety Task Analysis Risk Reduction Talk* card to analyze work scheduled and brief workers during the plan-of-the-day meetings. Pending consolidation to standard UCOR documentation, supervisors at TWPC use a similar card, *Safe Work Area Guide*, to conduct plan-of-the-day meetings. In the meetings observed by the Team, supervisors effectively communicated the specific work scheduled and ensured qualified personnel conducted the scheduled work. Presenters discussed PROC-EH-2018, *Stop Work*, instructions and lessons learned in each briefing. Many workers and managers stated that UCOR management is serious about providing a safe work environment by empowering and encouraging workers to pause or stop work if they feel an unsafe condition exists. Workers were attentive and engaged during the observed prejob briefings. Some supervisors conducted prework stretching routines. Presenters asked questions of the attendees, and the attendees often asked questions, demonstrating effective worker engagement.

Industrial hygienists conduct baseline qualitative exposure assessments for all UCOR facilities. Reassessments occur when prompted by changes in activities, job hazard analysis, or other WP&C documents and when required for regulatory compliance. Professionals qualified in industrial hygiene, occupational safety, occupational medicine, radiological safety, and other disciplines are involved in exposure assessments depending on the identified activity hazard. Exposure assessment policy requires industrial hygienists to follow recognized exposure assessment strategies and protocols and to analyze samples in accredited and certified laboratories.

PPD-IH-5418, *Industrial Hygiene Program*, describes the elements of the UCOR's comprehensive Industrial Hygiene Program consistent with the components of the Worker Protection Program. UCOR industrial hygienists identify and control potential chemical, physical, and biological workplace hazards by evaluating processes and job tasks using anticipation, recognition, communication, evaluation, control, and prevention strategies.

Industrial hygienists collect qualitative and quantitative measurements of potential hazards in the workplace and compare the measurements to established regulations, recommended exposure guidelines, or consensus standards. If the results indicate a possible health hazard, the Project Industrial Hygienist recommends methods for controlling the hazard. These methods may include engineering and administrative controls and appropriate practices, including but not limited to the substitution of safer materials, and/or the use of personal protective equipment (PPE). Prudent avoidance of hazards involves minimizing the number of individuals at risk of exposure, minimizing individual worker potential for exposure, and controlling exposures to chemical and physical agents within established occupational exposure limits.

PROC-IH-5560, *Workplace IH Sampling*, establishes a uniform method of performing industrial hygiene sampling to detect, quantify, and record hazardous substances and physical agents potentially encountered in work operations and processes. This method may include the collection of samples for dusts, asbestos and other fibrous materials, liquids, gases, vapors, fumes, mold, or physical agents such as noise, heat stress, and nonionizing radiation. UCOR performs over 25,000 environmental (soil, sediment, water, etc.) and over 30,000 industrial hygiene (silica, beryllium, asbestos, smear, etc.) samples annually. Sampling policy requires industrial hygienists to follow recognized exposure assessment strategies and protocols and to analyze samples in accredited and certified laboratories.

UCOR has integrated the use of job hazard analysis and activity hazard analysis into all aspects of the work control processes, including pre-use and pre-start-up analysis. Staff conduct risk management, preuse analysis, and prestartup analysis of planned, new, or newly acquired facilities, equipment, materials, experiments, and processes to identify hazards, assess risks, and plan for prevention and control. The risk management process includes assessing and screening risk to categorize it based on the impact level of the job or task.

Onsite safety and health surveys play a significant role in identifying, analyzing, and controlling hazards at UCOR. Field observations, documents, and interviews confirmed that the contractor conducts workplace inspections to identify and mitigate hazards. UCOR conducts a variety of surveys, assessments, and inspections to ensure employees work in a safe environment as required by the DOE-STD-1232-2019, Volume 4, *Voluntary Protection Program-Onsite Review*, Appendix A, IV.D., PROC-EH-5616, *Safety and Health Surveillances;* and PROC-FO-515, *Facility Management*. However, safety system and services (SS&S) staff could not provide documentation reflecting completion of annual work area inspections. While the SS&S representatives perform and document safety and health surveillances, they may invite other employees to participate. SS&S and health representatives communicate general concerns identified during surveillances to the assigned Project Discipline Lead (Environmental, Nuclear Criticality, Radiological Protection, Quality, etc.) for disposition. Safety and health surveillances resulting in actions identified in the normal course of assessments, self-evaluations, or other reviews of project or functional activities are entered into the Corrective Action Management System module in the Quality Assurance System which tracks issues and actions. Employees at visited UCOR facilities verified they were familiar with procedures for reporting hazards as discussed on the contractor’s intranet webpage, worker to closure using the electronic Issue Form process.

Opportunity for Improvement:

UCOR should either develop an inspection tracking tool, like the existing UCOR Injury and Illness Hazard Performance Indicator Pivot Table workbook with spreadsheets or ensure existing tracking tools can provide documentation that reflects completion of annual inspections.

Safety and health posters posted throughout the complex provide employees instructions on how to report hazards. Procedures for reporting hazards are also discussed in PPD-EH-1745, *Worker Safety and Health Program*; PPD-EH-1500, *Subcontractor Safety and Health Program*; PROC-EH-2000, *General Safety Requirements*; UCOR-4087, *Safety and Health Handbook*; and PPD-EH-1400, *Integrated Safety Management System*. The workforce was knowledgeable of the hazards they faced and were confident they could perform work safely. Workers can report hazards using any of the following methods: management open door policy, telling their supervisor, an SA, a LSIT Chair, a safety professional, the facility manager, or by submitting a SOC. Employees can also report anonymously using the Employee Concerns Program or SOC. Interviews with employees validate employees report hazards without fear of reprisal.

The SOC and iQuestion programs are designed to encourage worker engagement, identify, and recognize positive, safe behaviors and practices, and proactively prevent injuries and illnesses in the workplace. LSITs work with management and safety to review and identify corrective actions necessary to resolve at-risk observations. UCOR provides multiple ways to submit a SOC: printed copies across UCOR work areas with collection boxes for anonymous submissions, UCOR intranet home page, and a mobile quick response code opening an app to complete and submit the SOC. SOC mobile application use resulted in an increase of SOC submissions from 3,500 in fiscal year 2021 to over 7,000 at the end of fiscal year 2023 and a decrease in action item closure timeline from 50 days under the paper process to 35 days currently. An LSIT goal is to reach less than 30 days to closeout action items. The iQuestion program recognizes individuals nominated online for exhibiting a questioning attitude which identifies a workplace hazard or concern that might have otherwise gone unaddressed or for a suggestion or SOC submission that significantly improves the way a job is performed.

UCOR's accident and incident investigation program complies with PROC-EH-2001, *Injury/Illness Reporting and Investigation;* PROC-FO-1063, *Issue Review and Investigation Process;* PROC-EH-2019, *Case Management*; POL-UCOR-308, *Returning to Work Safely*; and PROC-PZ-1220, *Occurrence Notification and Reporting*. Personnel document and track accidents and incidents in the Issues Management module of the Corrective Action Management System. The program includes written procedures and guidance, written reports of findings and hazard correction tracking, identification of causes, and provisions for preventive or corrective actions. The system provides for a narrative report suitable for dissemination to all employees, containing root causes, analysis, and lessons learned.

PROC-FO-1063, outlines the process for conducting factfinding reviews of issues consistent with UCOR requirements. The factfinding procedure describes the responsibilities and activities

required for investigating issues that occur within the UCOR projects, sites, and facilities and the level of factfinding review necessary for those issues. Personnel use the information obtained during the factfinding to identify failed or flawed defenses; understand issue precursors; identify and determine causal factors; support subsequent investigation and causal analysis efforts; develop corrective actions that effectively mitigate, minimize, or prevent recurrence; and provide an avenue for lessons learned.

Since the 2019 assessment, UCOR has developed a comprehensive Injury and Illness Hazard Performance Indicator Excel Pivot Table workbook that enables users to sort through data points, identify specific areas for trend analysis, and develop safety campaigns or points of emphasis to address problematic areas. The spreadsheet administrator provides TRC and DART case rates and trends for inclusion in safety performance, objectives, measures, and commitments. In addition to trending TRC/DART, the spreadsheet provides trend analysis for injury and illness by type of injury, body part affected, cause, time, location, and other criteria. SS&S program managers, LSITs, and the Presidents Accident Prevention Council review results of trend analysis. While program managers track and trend accidents and incidents using the spreadsheet, near-misses, motor vehicle accidents, and hazards identified during inspections are not trended.

Opportunity for Improvement:

UCOR should consider trending of near-misses, motor vehicle accidents and hazards identified during inspections.

Conclusion

The workforce is knowledgeable of the hazards they face and are confident they can perform work safely. Field observations, document reviews, and formal and informal interviews confirmed that UCOR conducts workplace inspections, but the company needs to ensure documentation of inspections required by the DOE-VPP Standard. UCOR SS&S staff use a variety of programs and processes to identify and analyze hazards and assess employee risk. Leadership made it clear safety is paramount by providing resources to ensure employees work in a safe work environment. UCOR has an effective WP&C system to ensure a thorough understanding and mitigation of hazards encountered during work, but with the reduced cyber security footprint could implement an electronic system for work process and control packages. UCOR has established a reliable system for employees to notify management about hazards and has an adequate system for reporting and investigating accidents and incidents. UCOR meets the Worksite Analysis requirement for continued participation in DOE-VPP.

VI. HAZARD PREVENTION AND CONTROL

The third and fourth core functions of the DOE Integrated Safety Management System, *Identify and Implement Controls* and *Perform Work in Accordance with Controls*, ensure that hazards are eliminated by substitution or changing work methods once identified and analyzed or addressed by the implementation of engineering and administrative controls, or use of PPE. Equipment maintenance processes are also considered to ensure requirement compliance. Additionally, emergency preparedness plans must be implemented to respond to and mitigate the impact of incidents. Safety rules and work procedures must be developed, communicated, and understood by supervisors and employees. These rules and procedures must be followed by everyone in the workplace to prevent, control the frequency of, and reduce the severity of mishaps.

UCOR maintains qualified professionals as resources to workers for safety and health needs. Industrial safety staff includes a total of 46 employees qualified as certified industrial hygienists, certified safety professionals, and certified health physicists. In addition, UCOR has an additional 21 employees certified in other lower tier BCSP certifications, such as Construction Health and Safety Technician and Safety and Management Specialists. UCOR also supports participation in the professional certification programs by paying the associated fees and providing a quarterly stipend of $750 to employees that keep their certifications in good standing.

Employees at UCOR have access to the occupational health clinic and emergency preparedness staff for adequate medical care not only for routine concerns but also during medical emergencies. The Team confirmed via interviews and walkdowns that an adequate number of certified professionals are currently employed for the workscope and workforce size at UCOR operated facilities. Interviews with managers and workers did not raise any concerns about understaffed areas or safety initiatives due to a lack of certified resources. SS&S managers assign qualified safety professionals and industrial hygienists to facilities to perform walkdowns and identify and abate hazards. UCOR empowers employees to correct most hazards on the spot, and employees understand their responsibilities to maintain a safe work environment. Interviews with workers confirmed that certified safety professionals regularly performed safety and health walkdowns. Interviewed employees know how to reach safety professionals as needed and noted the accessibility of safety resources and other health-related programs.

WorkCare, Inc., a contracted occupational medical service provider, operates UCOR's occupational health clinic as described in PPD-MD-8003, *Occupational Medical Program*. The occupational health clinic staff include an Occupational Medical Director who is onsite every week and five fulltime medical professionals that include two nurse practitioners and three registered nurses. The occupational health clinic provides services as follows: respiratory fit-testing, injury and illness care, hearing tests, vision testing, minor injury treatment, and wellness checks. These occupational-related medical services are free-of-charge for all UCOR employees. WorkCare also administers the medical surveillance programs for beryllium, hearing conservation, respiratory, and lead among others. In addition, the occupational health clinic performs employee return-to-work evaluations.

The Team visited the UCOR medical facility during the onsite assessment and after interviewing several employees about services and staff availability and determined that medical services

appeared adequate and implemented per 10 CFR Part 851 medical program requirements. The occupational medicine service provider(s) have toured the work areas to become familiar with and remain current on operations that workers are performing. Workspace familiarity aids in diagnosing injuries and illnesses and in understanding applicable work restrictions should an employee become injured or sick on the job. The occupational medical program includes timely access to the services of licensed physicians required by applicable federal and state regulations. Medical staff and other selected personnel have received training in cardiopulmonary resuscitation, first aid, and use of automated external defibrillators. The wellness program, promoted by UCOR employees in conjunction with WorkCare, effectively engages employees to seek out ways to improve their health. UCOR occupational medicine providers also counseled employees about health or job-related concerns. The company is currently working on methods to reduce the amount of printed employee records and reduce the possibility of inadvertently sharing or exposing personal identifiable information.

UCOR procedure PPD-EP-3023, *Emergency Management Organization Program Description*, implements DOE Order 151.1C, *Comprehensive Emergency Management System*, requirements and provides an overview of the emergency management program at UCOR operated facilities. UCOR performs annual evacuation drills and biennial protective action drills, such as exercises emphasizing "take cover and shelter-in-place" threat responses, to ensure employee familiarity with emergency procedures. An example of such drills took place in July 2023, when UCOR performed an evacuation drill simulating an obstructed stairwell during an emergency. This selected scenario encouraged employees to think about different emergency evacuation routes and exposed workers to different pathways out of the buildings besides their daily egress route.

The UCOR emergency management organization presents emergency management related topics and trains employees participating at the different LSITs about the appropriate emergency procedures that must be adhered to ensure employee safety as an outreach initiative. In case of an emergency, UCOR transports injured employees needing medical treatment to the Methodist Medical Center in Oak Ridge or to the University of Tennessee Medical Center, a Level 1 trauma center, depending on injury severity. Team interviews with UCOR emergency management personnel highlighted a proactive approach to the implementation of the emergency management plan and communication of its requirements to employees.

UCOR has effectively integrated occupational safety and health controls into all levels of work from work planning to the sharing of lessons learned through the implementation of PROC-FS-1001, *Integrated Work Control Program*. UCOR uses administrative and engineering controls in conjunction with PPE as hazard prevention and control methodology to protect workers. Administrative controls include the use of permits such as lock-out/tag-out, chemical storage tracking, and a training management system that tracks employee training records to ensure that only fully qualified workers are performing hazardous work at specific work locations. Work planners describe activity PPE requirements during the hazard analysis process, which in turn dictates training requirements that workers must complete prior to performing hazardous work. Interviewed workers understood PPE requirements and knew how to get in contact with their facility safety representative, if needed. UCOR utilizes engineering controls, such as gloveboxes to minimize employee exposure to hazards throughout its facilities. Safety professionals are constantly looking for methods to eliminate hazards through the implementation of the hierarchy of controls and understand that PPE is the last line of defense in

keeping workers safe. In addition, all onsite employees are issued UCOR-4087, *Safety and Health Handbook,* which provides general hazard information and applicable control methods alongside training resources for all employees to perform assigned work tasks safely and compliantly.

UCOR uses the results of worksite analysis to eliminate or control hazards. PPE is available and worn by employees when required to prevent mishaps and manage hazard exposure. UCOR has developed, communicated, and implemented safety rules and work procedures, which all interviewed personnel understand and follow. Certified professionals are available based on potential risks on the site. UCOR shared, exhibited, and demonstrated many examples of its use of hierarchy of controls. The following few examples illustrate the implementation of the hierarchy of controls:

1. UCOR created a "Glove Book" and "Glove Standard for Safety Professionals" as reference materials to help during the selection process of adequate work gloves, allowing workers and safety professionals to properly evaluate the characteristics of available gloves and choose the most protective one for the task at hand.
2. UCOR implemented standing order SO-UCOR-2023-012, *Intro Measures for Working Heights or Overhead Equipment*, preventing workers from performing elevated work without barricading the lower-level. This control protects workers from "struck-by" hazards, one of the leading causes of accidents in the construction industry. This standing order could last up to 6 months with possible extensions granted based on work activities.
3. UCOR installed traffic mirrors at the ORR Landfield to reduce blind spots during the operation of motor vehicles, thus lowering the probability of accidents and enhancing drivers' situational awareness.
4. TWPC installed a "Photo Eye" system in Glovebox #1 located at Building 7880 to prevent the operation of the hydraulic components (drum tipper, pusher and crusher) if the employee interrupts the light beam.
5. UCOR requires employees at the ORNL Cleanup Project to wear helmets with chinstraps when working at elevated surfaces to prevent hardhats from inadvertently falling to the lower level.
6. UCOR uses fixatives to "glue down" harmful substances and prevent widespread contamination during the demolition process of Test Reactor 3005.

UCOR has implemented adequate administrative and engineering controls across the different worksites including barriers and controlled access points for asbestos and radiological contamination. Signs, policies, and procedures inform workers of hazards and appropriate controls prior to entering work areas and help to prevent unauthorized entry. The Team observed extensive use of PPE, such as reflective vests, gloves, eye protection, and hearing protection. UCOR provides prescription safety eyewear when needed free of cost to employees. The Team observed workers correctly wearing the appropriate PPE during work operations. During plan-of-the-day and prejob briefs, the Team observed workers discussing procedures and making suggestions for improvement, which work teams implemented after review. The use of these and other controls, many identified by craft workers, help reduce or eliminate workplace hazards.

The Team observed adequate tracking and trending of hazards and deficiencies during the assessment. UCOR shares lessons learned among the different work groups via a weekly Lessons

Learned Summary Report email send to employees. The Lessons Learned Program Coordinator also attends facility manager meetings and reports out on applicable Occurrence Reporting and Processing System issues and DOE-wide lessons learned.

During walkthroughs of facilities, the Team observed multiple hazards including blocked access to an electrical disconnect switch, inadequate housekeeping, and eyewash stations with electric warmer blankets connected to electrical outlets without ground fault circuit interrupter protection.

Opportunity for Improvement:

UCOR should review its workplace inspection policies, procedures, training, and qualification requirements to ensure that affected workers are familiar with common safety hazards and applicable abatement methods.

Although the Team observed a few industrial hazards and noted them to UCOR during the walkdowns, interviewed employees were able to explain the importance of pausing work activities and maintenance operations if work procedures were not clear or if they did not understand any part of the work operation.

UCOR employees perform preventive and predictive maintenance activities on schedule as prescribed by PPD-FO-1035, *Maintenance Management Program*. The Maximo® software tracks maintenance activity due dates and generates work orders with a minimum of 30 days lead time to work completion. Managers responsible for maintenance activities can access Maximo® and print upcoming maintenance tasks for their assigned systems. Maximo® breaks preventive maintenance activities down into categories for the prioritization of maintenance based on resource availability.

The Team observed a tracking and trending system of maintenance activities that relies on hardcopies of work orders and the downloading and printing of documents from Maximo®. This methodology does not promote a streamlined process of tracking and trending of issues during maintenance activities.

The implementation of Maximo® Mobile should provide workers with on-the-go access to work orders and required maintenance procedures instead of relying on physical printouts. Maximo® Mobile enables the latest procedural updates and the ability to capture field notes and potential lessons learned in real time which makes it easier to identify reoccurring equipment issues. The Team determined that preventive and predictive maintenance activities at UCOR are adequate and performed within applicable regulations but that the implementation of Mobile Maximo® could streamline the overall efficiency of maintenance activities.

Opportunity for Improvement:

UCOR should consider upgrading to Maximo® Mobile to add the capability of accessing and entering data in real time during maintenance operations.

UCOR conducted an employee survey during fiscal year 2023 to gauge employees' perceptions regarding career opportunities and recognition programs. Management utilizes the survey data to modify and improve work conditions at the company. Currently, UCOR provides noncraft employees with on-the-spot awards ranging from $250 to $500. UCOR is in the process of implementing two new employee recognition programs named "I count Awards" and "We count Awards" that are also going to be applicable to craft employees. The total amount of funds designated for these awards equals 1 percent of UCOR's employee budget. Managers must formally submit and approve all on-the-spot award nominations. The creation of a recognition program that does not require management involvement could improve the overall effectiveness of UCOR's recognition program.

The creation of such recognition program will facilitate the ability of employees to highlight each other's accomplishments without management intervention. In conjunction with the newly developed "I Count" and "We Count" Awards, peer-to-peer recognition would address one of the employee survey findings which identified that employees felt under-recognized for their work efforts. These employee recognition enhancements will help create culture of employee recognition at UCOR where both peers and supervisors are capable of recognizing employees' efforts.

Opportunity for Improvement:

UCOR should consider creating a peer-to-peer recognition program that does not require management approval to highlight employee's accomplishments.

UCOR's disciplinary program, documented in POL-HR-309, *Progressive Discipline*, defines the roles and responsibilities to ensure fair and consistent administration of discipline for UCOR non-represented and represented employees. UCOR maintains a strong and fair disciplinary system and applies guidelines consistently and objectively. Managers conduct factfinding investigations separately from any disciplinary proceedings. Fact finding efforts focus on determining and correcting the causes of issues, not applying reactive discipline. Leaders apply similar rigor to ensure fair disciplinary action application with thorough knowledge of the circumstances. The Team did not observe any issues with UCOR's implementation of its disciplinary system during the assessment and interviewed workers felt the discipline process is fair and administered equitably.

Conclusion

UCOR has developed processes and work procedures to analyze and address hazards and communicates those processes via training, worker engagement meetings, and company webpage postings. Managers and workers understand the hierarchy of controls applied to their various work area hazards and are confident in their ability to talk to certified safety professionals when needed. Managers and safety professionals successfully strive to ensure proper PPE access. UCOR is constantly working on methods to improve worker safety. Managers and supervisors seek workers' opinions and ideas when developing work packages and implementing applicable controls and respect the quality and value of worker input. UCOR provides workers with extensive occupational medicine support, emergency response capabilities, and adequate preventive and predictive maintenance capabilities using the Maximo® software. UCOR celebrates workers accomplishments and contributions to the company by using an adequate positive reinforcement program and controls disciplinary action system bias by focusing on the root cause of the problems instead of placing blame on employees. UCOR injury and illness rates reflect effective hazard prevention and control methods. The Team identified three opportunities for improvement in the areas of hazard identification and abatement, technological capability, and employee recognition programs that UCOR should consider during DOE-VPP program implementation. UCOR meets the expectations for Hazard Prevention and Control and continued participation in DOE-VPP.

VII. SAFETY AND HEALTH TRAINING

Managers, supervisors, and employees shall know and understand the policies, rules, and procedures established to prevent exposure to hazards. Training for health and safety shall ensure that personnel understand their responsibilities, recognize hazards they may encounter, and act in accordance with management expectations and approved procedures.

UCOR provides training to workers, ensuring job proficiency and knowledge of recognized hazards in work areas. Most standard policies and procedures training is conducted during the summer months taking advantage of work slowdown and providing an indoor work option to avoid heat stress concerns. Training, which is mostly classroom style, is conducted in local community college classrooms. Training that requires in-person instruction to demonstrate skills on mockups and various test equipment occurs in several locations based on classroom availability. UCOR made improvements in equipment spotter training and developed training classes for each piece of equipment used onsite. Equipment-specific spotter training allowed more detailed discussion, such as the differences of spotting for a forklift versus a telehandler or a large truck. Employees stated they liked the new spotter training classes that broadening their understanding of how the equipment size and design dictate the processes used when spotting and backing.

UCOR information technology group developed an efficient program that operates in the Local Education Administrative Requirements Network database in response to issues raised by supervisors regarding the tracking process for qualifications. The program, named “Dashboard Tracker”, allows supervisors to access information on their staff directly and without the help of training staff. Every UCOR employee also carries an access card that shows completion of selected UCOR training per PROC-TC-0722, *Site Access Requirements and Site Access Cards.* Both methods allow supervision to verify the worker training status prior to releasing anyone to work.

In 2012, UCOR established the safety trained supervisor (STS) and safety trained supervisor construction (STSC) certification programs to improve safety performance by strengthening hazard recognition and mitigation skills of those in both supervisory and nonsupervisory roles. UCOR allows nonsupervisory personnel to pursue the certifications. Management encourages workers to participate in the process to boost confidence and enhance credibility among peers.

The STS and STSC programs promote professional development opportunities for employees who have an interest in pursuing supervisory positions or health and safety-related careers. The STSC certification helps prepare members of the workforce for more advanced certifications, such as the Construction Health and Safety Technician and Occupational Hygiene and Safety Technician certifications. Career safety professionals often use the STSC exam to prepare for higher tier certifications, such as certified safety professional. UCOR provides positive recognition for those who obtain and maintain these certifications. Since its inception, the program has certified 425 workers as either STS or STSC. UCOR sponsors 60 percent of all STS in the State of Tennessee.

As part of an effort to drive continuous improvement, UCOR developed a hands-on radiation protection technician (RPT) training program based on DOE Handbook 1122, *Radiological*

Control Technician Training. The new program restructured the training, initial qualification, and requalification processes from CBT sessions to actual hands-on, scenario-based training modules. The improvements have received positive reviews from attendees and supervisors.

The new RPT training design provides a realistic experience without radiation exposure risks. Photorealistic wallpaper covers the walls of the training room transforming the entire room into the interior of an abandoned, run-down building The Team observed demonstrations of several RPT scenarios involving contamination detection. The training scenarios allowed for feedback in real time, allowing the students to see and correct procedural errors as they occur. The instructors evaluated the actions and debriefed the students after each iteration. In the training scenarios, RPTs don PPE dictated by the task and use training instruments to detect radio frequency signals to simulate radiation. This configuration allows students to witness real time needle deflections and hear alarms, enabling the realistic, repeatable training opportunities.

The benefits of the virtual training environment extend to the use of a mannequin and radio frequency emitting devices to train the RPTs on using a probe to frisk individuals who exit "hot" areas. The probe and training video system provide objective real time measurements of probe speed and distance, training the RPT on the criticality of both speed and distance from the surface when frisking.

In order to maintain qualifications and proficiency, RPTs must attend three of four hands-on training sessions per quarter, providing 15-20 hours of live training. The remainder of the training may be taken via CBT. The training improvements drove a marked rise in RPT competency and proficiency, and the RPT group currently maintains a 95 percent worker retention rate.

Falls continually rank as the highest-level risk to workers within the OSHA Fatal Four (falls, struck by, electrocution, and caught between). UCOR managers and safety leaders understood the level of risk for workers performing tasks at heights and improved programs to protect the workforce and prevent serious injuries and fatalities capitalizing on the depth of employee experience. The new fall prevention program compared and contrasted programs from the Army Corps of Engineers, AECOM, Amentum, and other DOE facilities and used information from the American National Standards Institute Z359 *Fall Protection Requirements* including referencing every piece of fall protection equipment listed to a specific American National Standards Institute (ANSI) rating.

UCOR worked with a commercial engineering firm to develop the fall prevention program training for course instructors and program administrators. The engineering firm developed an 80-hour class for the trainers, and UCOR engineers attended 40 hours of ANSI design of fall protection equipment, and functions training conducted by the engineering firm. Each fall protection class educates UCOR employees and workers to a level of understanding for the why fall hazard evaluation, controls and equipment selection are necessary. At the time of this assessment, UCOR had trained 1,070 workers as Authorized Persons who oversee fall protection operations, and 65 employees and workers as Competent Persons who verify the fall protection set up and use at the point of operation. UCOR trained eight workers as trainers for the 6-8 hours Authorized Person class and three others as trainers for the 3-day Competent Person class. The new fall protection program receives consistent praise from users and supervision.

UCOR restructured its subcontractor safety and health training plan to ensure the effectiveness and purpose of the subcontractor training program. UCOR planners ensure onsite policies and procedures are among the first things covered during initial training sessions. A planner identifies other training needs and develops a training plan for the subcontractor. The planner populates a specific UCOR training matrix for the job, including any appropriate training already provided by the subcontractor. The matrix is color-coded, task-specific, populated with names once the contractor is onsite, and designed for easy access. The UCOR subcontractor training matrix is part of the bid process. Upon award of the contract, the subcontractor receives access to the Local Education Administrative Requirements Network and performs training completion updates in real time. The UCOR subcontractor technical representative and the safety and occupational health manager must agree prior to awarding competency for the subcontractor performed training. The process helps ensure the subcontractors programs meet the UCOR standard.

Noting that the attrition rate of qualified senior operators was reaching a level that could affect operations, UCOR sought to bolster the chemical operator cadre by establishing an apprenticeship program with Roane State Community College. The program involves a 2-year training and qualification process, encouraging graduates to apply for positions with UCOR. Managers interview potential operators, and some individuals are offered apprenticeships. The apprentices then work through the qualification process towards becoming a full operator while paired with senior operators for at least 12 months who share good practices and experience. Operations managers noted during interviews that, over the last 2 years, the apprenticeship process has turned out highly motivated operator candidates.

As a result of UCOR's ongoing commitment to safety and performance excellence, strong safety culture, and robust integrated safety management system, UCOR had the opportunity to assume responsibility for Outfall 200 construction. The critical project organization overseeing Outfall 200 construction developed a four-phase approach to train, develop, and indoctrinate the 90 people brought onboard. The process began with block training on UCOR policies and procedures from December 2023 to January 2024

In phase one, a specific training manager took responsibility for thoroughly reviewing documentation, creating an action plan, and clearly delineating the trades and employee categories transitioning under UCOR leadership. The second phase refocused Outfall 200 personnel on UCOR safety expectations and policies. Employees received required training based on their trade or work requirements and shadow workers on other UCOR projects to learn best practices. The 6-week training phase put 90 people in three groups through standard onboarding information, hazardous waste operations and emergency response, and radiation worker courses. The training effort included a significant number of nontraining department personnel and split time between classroom sessions and field exercises. Phase three involved work package development and the methodical restart of work, including equipment acquisition. Restart was complicated by a major weather event and partial shutdown of operations and was still in progress at the time of this assessment. Phase four will culminate the previous three phases with a completed management control plan, indoctrinated workforce, and normal construction operations. The safety organization has established open and active communication lines to support the Outfall 200 transition including them into the LSIT program. UCOR

managers reported that cooperation between workers and supervision is rated higher than ever among Outfall 200 project workers.

UCOR recognizes a strong safety culture relies on reinforcement, alignment, and consistency to assist everyone in performing and perfecting new behaviors. To that end, UCOR launched a new training effort in December 2022 to conduct DOE Technical Leadership Program (TLP) Classes: TLP-100, *Safety Culture Leadership Fundamentals* and TLP-150, *Safety Culture for Front Line Leaders*. TLP-100 involves 4 hours of instructor-led content, giving attendees the opportunity to explore and understand safety culture and their role in the culture. Students learn how organizations can pursue improvements, along with the importance of managers, supervisors, and workers roles. The class clearly illustrates how attendees can personally benefit from a healthy safety culture. TLP-150 involves 8 hours of training and scenarios where front-line leaders learn how to establish and maintain a trusting and collaborative safety culture where all employees feel free to raise concerns. DOE's National Training Center instructors, supplemented by local lead instructors, conducted the classes. Based on a multi-year strategic plan, UCOR qualified 15 TLP-100 and nine TLP-150 instructors. The first UCOR-led TLP-100 class was conducted in February 2023. Approximately 1,220 individuals participated in more the 4,880 contact hours of TLP-100 training in CY 2023. Approximately 150 individuals participated in 1,200 contact hours of TLP-150 training in CY 2023. Including those previously trained, a total of 303 members of the UCOR workforce have participated in TLP-150 training. Attendees remarked how the TLP-100 and TLP-150 classes gave critical insight into operations and how the safety culture is a solid part of the process.

UCOR introduced the Rising Senior Leader program after a 2015 review of the existing executive team noted an obvious generational gap which prompted leaders to focus on growth of the future executive team. Rising Senior Leaders is year-long program, championed by the UCOR President and CEO. The program focuses on early to mid-career managers who show potential to grow into senior management positions and become the next generation of company leadership. The program averages ten participants per year coming from a variety of functional and field organizations. The program includes 13 modules based on UCOR's delivery model to promote communication, provide mentoring and coaching, and set the stage for the future.

Beyond the classroom, the Rising Senior Leader program includes executive profile development and professional photos, field observations, walkdowns, and class projects. The UCOR business delivery model is the base for the rising senior leader's curriculum. Topics ranged from expectations, strategic planning and budget to understanding labor relations and management. The program expanded in 2022, adding Module 13 titled *The Voice of the Customer*, along with service projects created and run by the forum participants. The program's success stories include a laborer who completed a degree program, obtained a certified safety professional certification and is now an area project manager, and a craft worker who progressed to a superintendent position and is now a project manager. The sustained success of the Rising Senior Leader program is a testament to UCOR's commitment to continuous improvement and management development.

Conclusion

UCOR provides employees with training and education, deepening knowledge and improving ability to perform work safely. The training resonates integrated safety management and DOE-VPP concepts throughout the workforce setting the standard for clear communication of safety messaging. UCOR identifies and develops appropriate training for all workers. UCOR continues to support participation and certification in STS and STSC programs, ensuring the availability of specific training and covering the testing, certification, and renewal fees. Their commitment to TLP training helps illustrate UCOR's commitment to a healthy safety culture and being a place where all employees feel free to raise concerns. The Rising Senior Leader program consistently produces qualified, motivated leaders ready to shoulder additional responsibility. UCOR meets the standards of the Safety and Health Training tenet for a DOE-VPP participant.

VIII. CONCLUSIONS

UCOR channels its safety philosophy and core values throughout the company and consistently considers decisions based on those values. Subcontractors receive the tools, requirements, and oversight required to work safely in UCOR-managed areas. UCOR continues to encourage and support employee involvement through numerous opportunities, including LSITs, the PAPC, the iQuestion Recognition Program, and other committees to improve the safety culture within the company. The workforce is knowledgeable of the hazards they face and are confident they can perform work safely. Field observations, document reviews, and formal and informal interviews confirmed that UCOR conducts workplace inspections but needs to ensure documentation of inspections required by the DOE-VPP Standard. UCOR established a reliable system for employees to notify management about hazards and has an adequate system for reporting and investigating accidents and incidents. Managers and supervisors seek workers' opinions and ideas when developing work packages and implementing applicable controls and respect the quality and value of worker input.

UCOR celebrates workers accomplishments and contributions to the company by using an adequate positive reinforcement program and controls disciplinary action system bias by focusing on the root cause of the problems instead of placing blame on employees. UCOR provides personnel with training and education, deepening their knowledge and improving their ability to perform work safely. UCOR identifies and develops appropriate training for all workers. UCOR's injury and illness rates are lower than the BLS comparison industry average for its NAICS code and meet the expectations for continued DOE-VPP participation. The Team identified some opportunities for improvement that will help UCOR continue towards excellence in safety and health. The Team did not identify any programmatic noncompliance with DOE safety requirements that would preclude participation in DOE-VPP. UCOR continues to meet all the expectations for DOE-VPP, and the Team recommends UCOR continue to participate in DOE-VPP at the Star level.

APPENDIX: DOE-VPP Assessment Team and EHSS Leadership

Assessment Team

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