Parsons Corporation
Salt Waste Processing Facility
Construction Project

Report from the Department of Energy
Voluntary Protection Program
Onsite Review
May 5-8, 2014

U.S. Department of Energy
Office of Environment, Health, Safety and Security
Office of Health and Safety
Office of Worker Safety and Health Assistance
Washington, DC 20585

I. INTRODUCTION

The Salt Waste Processing Facility (SWPF) Construction Project is an ongoing project to construct a facility that will process liquid wastes in support of the Department of Energy's (DOE) environmental management mission. When operational, SWPF will separate the highly radioactive cesium and actinides from salt solutions. After completing the initial separation process, SWPF will send the concentrated cesium and actinide waste to the nearby Defense Waste Processing Facility (DWPF) for immobilization in a glass matrix and storage in vaults until eventual disposal in a geological repository. SWPF will send the decontaminated salt solution to the nearby Saltstone Facility that will mix the salt solution with cement and fly ash for disposal onsite. DOE initially expected completion of SWPF in 2015 to meet a commitment to State regulators. However, delays in the delivery and installation of several key vessels to the plant caused that target to slip. In 2013, DOE and Parsons Corporation (Parsons) renegotiated the project completion and construction costs, agreeing on a December 2016 completion date. Parsons is working towards a March 2016 completion date.

Parsons submitted its DOE Voluntary Protection Program (VPP) application for the SWPF Construction Project to the Savannah River Operations Office (SR) in June 2012. SR endorsed the application and forwarded it to the former Office of Health, Safety and Security (HSS). After reviewing the application, the Office of Worker Safety and Health Assistance performed an onsite evaluation in February 2013 to assess the effectiveness of the processes at Parsons. That assessment recommended that DOE admit Parsons into DOE-VPP as a Merit participant and identified several conditions that Parsons needed to address to achieve Star status.

In May 2014, DOE reorganized HSS, and moved DOE-VPP under the Associate Under Secretary for Environment, Health, Safety and Security (AU). AU conducts annual progress reviews for Merit participants, and conducted the annual review of Parsons from May 5-8, 2014. This report documents the results of that review. The AU DOE-VPP Team (Team) focused on the needed improvements identified in the 2013 report rather than a comprehensive review of all five DOE-VPP tenets. Consequently, this report is an addendum to the 2013 report. The Team evaluated Parsons' progress against those needs, and identified some additional improvements that Parsons should address in order to achieve Star status.

Since the 2013 assessment, Parsons has reduced staffing from approximately 870 people at SWPF to approximately 600 people, with approximately 450 of those representing the variety of construction crafts. The Augusta Georgia Building and Construction Trades Council collectively represents the construction crafts. The Augusta Georgia Building and Construction Trades Council fully supports Parsons' participation in DOE-VPP and provided its written support in December 2010.

Hazards encountered by workers at the SWPF Construction Project are those typically encountered at any large construction project and include heavy equipment, cranes and rigging, elevated work, confined spaces, uneven walking and working surfaces, tools, open trenches and holes, exposure to weather extremes, chemicals associated with cleaning and coatings, poisonous insects and animals, and a variety of others.

II. INJURY INCIDENCE/LOST WORKDAYS CASE RATE

Injury Incidence/Lost Workdays Case Rate (Parsons and Teaming Partners, J Area)					
Calendar Year	Hours Worked	Total Recordable Cases (TRC)	TRC Incidence Rate	DART* Cases	DART* Case Rate
2011	1,056,550	5	0.95	4	0.76
2012	954,348	5	1.05	3	0.63
2013	1,042,806	6	1.15	1	0.19
3-Year Total	3,053,704	16	1.05	8	0.52
Bureau of Labor Statistics (BLS-2012) average for NAICS** Code 2379 (Other heavy and civil engineering construction)			2.5		1.2
Injury Incidence/Lost Workdays Case Rate (Subcontractors, J Area)					
Calendar Year	Hours Worked	TRC	TRC Incidence Rate	DART* Cases	DART* Case Rate
2011	332,879	0	0.00	0	0.00
2012	444,822	5	2.25	4	1.80
2013	180,441	5	5.54	4	4.43
3-Year Total	958,142	10	2.09	8	1.67
BLS-2012 average for NAICS** Code 2379 (Other heavy and civil engineering construction)			2.5		1.2

*** Days Away, Restricted or Transferred**
**** North American Industry Classification System**

TRC Incidence Rate (Parsons, Teaming Partners, and subcontractors): 1.3
DART Case Rate (Parsons, Teaming Partners, and subcontractors): 0.8

Conclusion

The Parsons 2013 TRC rate remains consistent with its prior TRC rates, and its DART case rate continues to decrease yearly. However, the subcontractor TRC and DART case rates are well above the industry average. In the first half of 2013, Parsons and its subcontractors experienced several injuries. In March/April 2013, Parsons conducted several meetings with Parsons craft and the subcontractor craft to discuss the increase in injury rates. Parsons emphasized the need to work safely. After a second URS subcontractor injury in June 2013, Parsons asked URS to send a safety professional to monitor its employees. After June 2013 and the signing of the new contract, Parsons did not experience another recordable injury, but one subcontractor was

injured. At the time of this report, Parsons recorded only one injury for 2014. Parsons continues to emphasize safe work practices for its employees and subcontractors.

III. RESULTS

2013 Opportunity for Improvement: Parsons needs to provide coaching or training to help managers, superintendents, and foremen improve communication with the workforce, establish an environment where superintendents actively encourage constructive criticism, address workers' concerns, and provide appropriate feedback on corrective actions in a timely manner.

In response to this recommendation, Parsons created a Safety Conscious Work Environment (SCWE) Primer training activity for superintendents to help facilitate routine worker/supervisor communications. This course consisted of instructor-led sessions for craft superintendents, as well as technical supervisors/managers. Parsons followed up the training with monthly meetings between the foremen and the Director of Construction. These meetings are an open forum for discussing issues ranging from safety topics to tool availability. Topics covered during the meetings include safety, the past month's performance/issues, issue resolution from the previous meetings, and upcoming challenges for the next month.

Interviews with workers and superintendents demonstrated that superintendents and foremen have improved communication with the workforce. The SCWE Primer training helped them understand how to build trust with the workforce. However, there are still instances where managers, superintendents, or foremen respond inappropriately to workers' concerns or during a stop work. The workers reported that superintendents' responses included ignoring stop work or yelling at craft personnel that raise safety issues. Based on Team interviews, these incidents do not occur as widely as previously reported, but the effect of a single incident spreads rapidly throughout the craft workforce.

Some workers interviewed by the Team continue to believe that superintendents are not responsive to safety suggestions or safety concerns raised by workers. The electricians expressed concerns to the Team about electrical safety practices. For example, Parsons requires that electricians performing work on potentially energized equipment (e.g., zero energy checks) must have a rope tied around their waist so a second electrician outside the arc flash boundary can use it to pull the worker off a live component, in addition to arc flash protective clothing and equipment. The electricians would rather use a nonconductive, fiberglass hook to pull the worker off because they think the rope may be conductive and may melt if current flows through the rope. They have discussed this issue with their managers who did not want to purchase the fiberglass hook, but agreed that rather than use the rope, a second electrician dressed in arc flash personal protective equipment (PPE) could be standing by in the arc flash exclusion area to knock the worker off a live component. In this case, electricians believe managers are not responding appropriately to their concerns or suggestions.

In another example, an electrician was concerned about uncapped, energized 480-volt temporary power outlets in the Central Processing Area (CPA). Installed power panels with circuit breakers distribute temporary 480-volt power in the CPA. Each circuit breaker connects to a wire extension with a female outlet at the termination point. A screw-on protective cap normally seals unused outlets. Workers sometimes leave these caps off the outlet after disconnecting a circuit. An electrician suggested locking out the circuit breakers for the unused lines due to the high voltage and infrequent use. He recalled an incident that caused an injury due to poor lockout/tagout management during construction at the Savannah River Site (SRS), and suggested lockout/tagout of the breakers to avoid a similar occurrence. Since the use of 480-volts is

limited, locking out unused breakers would provide an additional layer of protection without impeding work. Superintendents did not support this idea, and the worker believed he was removed from his task of performing daily inspections of temporary power because he raised the issue. These and other examples continue to foster distrust between workers and superintendents, and detract from workers' belief in Parsons' commitment to safety. Parsons needs to continue focusing on coaching and training mid-level managers, superintendents, and foremen to eliminate responses that reduce worker trust.

Opportunity for Improvement: Parsons needs to continue focusing on coaching and training mid-level managers, superintendents, and foremen to eliminate responses that reduce worker trust.

2013 Opportunity for Improvement: Parsons needs to develop and demonstrate an effective annual evaluation process that integrates the various assessments it already performs, includes the additional factors of the DOE-VPP tenets, and includes a substantially broader cross section of the workforce.

Parsons completed its first annual evaluation in 2013 using a structure and format largely based on the evaluation reports of SRS contractors Savannah River Remediation, LLC, and Savannah River Nuclear Solutions, LLC. The data came from various sources and Parsons believed the report included input from the employee safety committee. Parsons plans to include lessons learned from the 2013 report in its 2014 and future years' reports.

Parsons' annual report focused primarily on responses to the opportunities for improvement raised by the 2013 DOE-VPP assessment. The annual report did not demonstrate a strong effort to self-identify safety issues. For example, during Team interviews, Parsons' managers described an increase in personnel not wearing hearing protection, yet the annual assessment did not discuss goals or actions designed to address that identified trend. The employee safety committee or other workers were not substantially involved in identifying self-assessment issues. The president of the employee safety committee provided some limited data and review, but the committee as a whole did not participate, and Parsons did not seek committee concurrence before it issued the final report to DOE. Finally, the annual report does not establish other goals and objectives for 2014 that include worker input. Parsons needs to expand the scope of its annual evaluation, expand worker participation in the process, and use the process to self-identify targeted improvements.

Opportunity for Improvement: Parsons needs to expand the scope of its annual evaluation, expand worker participation in the process, and use the process to self-identify targeted improvements.

2013 Opportunity for Improvement: Parsons needs to embrace the results of the safety culture review, work in partnership with the workforce to discern the underlying issues, and work toward common solutions.

Parsons has focused on improving communications with the workforce as a common element between safety culture reviews, the 2013 VPP assessment, and feedback from the employee safety committee. Parsons initiated several activities to help address this issue. For example,

Parsons is trying to increase the use of small group sessions to present concerns and receive feedback. It is performing a periodic review of incidents with employee safety committee members, rotating the presenters in the Monday morning safety meetings, including employee safety committee members on the Friday managers' walkdowns, increasing the time spent talking with craft during daily walkdowns, and posting the disposition of employee suggestions in the craft tent. The previously discussed SCWE training for managers and superintendents also included improved communication.

Parsons installed electronic displays in the craft tent for enhanced communications. Parsons uses these displays to communicate SWPF safety statistics, project safety-related news, and useful safety tips. Pictures of project craft personnel performing work are also included in the display to increase interest/visibility of the displays.

While these actions have improved communications, Parsons self-identified that it has not eliminated what it believes to be the fundamental source of the issues. Most craft employees are short-term assignments and have limited opportunities to integrate into the culture. At the start of calendar year (CY) 2014, roughly two-thirds of the craft had less than 1 year of time on the SWPF project site. While most quickly grasp and embrace the safety practices and expectations of the project, the time required by superintendents to earn their trust and open communications is often much longer.

The Team observed that Parsons' efforts to improve communication between managers and the workforce have resulted in some improvements, but have not yet reached the level necessary to build workers' trust. Workers generally ignore the signboards in the craft tent. The transient nature of the workforce, while presenting challenges, is not the fundamental source of the issue. Managers need to become more visible and accessible to workers, particularly during safety committee meetings (not just walkdowns). Managers and superintendents must make early and frequent contact, particularly with new workers to the site, and use those opportunities to convince new workers of Parsons' commitment to safety. Some workers interviewed by the Team believed that walkdowns by managers, safety personnel, or the safety committee focused on catching people doing the wrong thing (safety cops), and were not perceived by workers as taking a positive approach to safety. The Project Manager and other managers should especially prioritize attending employee safety committee meetings as a means of demonstrating support for committee members' ideas and goals, providing coaching and mentoring to the members (champion role), and help prevent the members from developing unrealistic expectations about safety improvements. Further, Parsons needs to increase visibility of safety committee members, superintendents, managers, and safety personnel in positive, encouraging interactions with the workforce.

Opportunity for Improvement: Parsons needs to continue its efforts to establish an effective partnership between managers, superintendents, the employee safety committee, and workers.

2013 Opportunity for Improvement: Parsons must find a way to consistently reinforce its expectations for safety and demonstrate that commitment through positive reinforcement.

To address this opportunity, Parsons focused primarily on the type and availability of incentive programs. It revised the incentive program to focus on rewarding craft personnel who contribute

to the safety programs. For example, personnel who complete a People-Based Safety (PBS) observation or who are recognized for safe behaviors are entered into a weekly drawing for a special parking spot and prize. Parsons provides the employee safety committee a target budget for selection of the type and number of prizes awarded to drawing winners (no cash or gift cards). In addition, for each PBS observation performed, the employee receives an additional time-off allowance (without pay). The last incentive added was for Occupational Safety and Health Administration's (OSHA) 10-hour hazard recognition training for the construction industry, and OSHA's 30-hour hazard recognition training for the construction industry for high safety performers.

The current safety incentive program provides a mechanism to recognize positive safety performance. This recognition can come from peers, superintendents, and managers. The program also incentivizes the completion of PBS observations as another mechanism to reinforce safety expectations in a positive or nonthreatening manner. Since implementation of the new safety incentive program, the number of PBS observers has risen from six active observers in the 2nd quarter of CY 2013 to 32 active observers in the 4th quarter (roughly 7.5 percent of the craft population). The number of observation reports submitted rose from 19 to 171 in the same period. The results for the first quarter of CY 2014 dropped slightly to 26 active observers and 130 observations. Discussions with workers indicate that they would like to reestablish a system that rewards participation for all workers that engage in observations and improvements, not just drawing winners. Several workers commented that previously a points system existed where accumulation of points would allow workers to purchase items at the safety store. Items could include jackets, T-shirts, flashlight, coolers, or key rings.

Based on Team observations, the safety incentive program has only had a limited effect in changing worker awareness or practices. Incentive programs designed by the safety committee initially focused too heavily on cash value awards, not on timeliness or the relationship between the people giving and receiving the award. Delays or cancelation in procuring awards frustrated safety committee members, who are now unsure that senior managers are committed to obtaining DOE-VPP Star status. As previously discussed, some workers perceived managers and employee safety committee members as safety cops during walkdowns rather than having a genuine interest in improving safety.

Parsons has not effectively reinforced its expectations for safety, and some workers believe they get conflicting signals from managers and superintendents. Several workers expressed disappointment with the current approach to identifying safety concerns. While Parsons continuously expresses the desire for workers to identify safety issues, workers have not yet seen a strong commitment to follow up on those issues. Several workers approached the Team with examples of issues that should be resolved. For example, Parsons has a procedure that requires outriggers be extended for mobile scaffolding over 6 feet high, and scaffolds over 6 feet require railings. Workers showed the Team several scaffolds that met the height requirement without extended outriggers, and one scaffold that was 5 feet, 11 ½ inches high with no railings. The workers told the Team that they brought these issues to the attention of foremen, safety personnel, and to employee safety committee members, but this continues to be a problem. The response workers often receive regarding these questions is *it is not required*. Such responses do not reflect an abiding commitment to safety and health excellence. Parsons needs to ensure that communication of the commitment to safety and health excellence comes from all levels of

managers and superintendents and ensure managers and superintendents find effective ways to support worker suggestions and improvements.

Opportunity for Improvement: Parsons needs to ensure that communication of the commitment to safety and health excellence comes from all levels of managers and superintendents and ensure managers and superintendents find effective ways to support worker suggestions and improvements.

2013 Opportunity for Improvement: Parsons needs to modify its procedures and employee safety committee charter to permit committee members to observe or assist in the investigation and documentation of major accidents.

Parsons revised the Employee Safety Committee charter to state explicitly that Parsons expects members to *participate in incident investigations,* but with the additional provision of, *if requested by managers or the employee safety committee leads.* The Construction Safety Manager conducts a weekly review of recent injuries and incidents with a rotating contingent of employee safety committee members to review the events and solicit ideas for potential causes and corrective actions. Parsons intends for this review to solicit employee feedback and better inform personnel on the details of events in order to correct misinformation that may be circulating in the workforce. Although Parsons addressed the specific inclusion of employee safety committee members to observe or assist in major accident investigations, the addition of the provision *if requested* does not establish that participation as an expectation.

Since the 2013 review, management support for the employee safety committee has declined. Managers do not regularly attend meetings, and committee members do not believe there is an effective management champion for the employee safety committee. Without an effective management champion helping the committee implement suggestions or gain support for ideas, committee members are frustrated. Other workers are not eager to become part of the committee, and no workers are volunteering to take up leadership roles on the committee. Parsons revised the charter, but the current charter does not reflect a strong role for the committee in the worker safety and health program. For example, the charter assigns the committee a role in evaluating *alleged hazardous conditions.* The use of the term *alleged* may reflect disrespect of workers' opinions regarding hazardous conditions or situations. Parsons needs to revise the employee safety committee charter to reflect a strong and active role for the committee in the safety and health program, revise language that minimizes the value of workers' opinions, and ensure managers commit to their roles as committee champions.

Opportunity for Improvement: Parsons needs to revise the employee safety committee charter to reflect a strong and active role for the committee in the safety and health program, revise language that minimizes the value of workers' opinions, and ensure managers commit to their roles as committee champions.

A related Opportunity for Improvement from 2013 was that Parsons should find ways to rotate committee membership more frequently and permit new employees the opportunity to participate on the committee. In addition, Parsons should ensure members are selected by their represented craft unions and are not subject to managers' selection or approval.

The employee safety committee membership had an 82 percent turnover in the past year due to a combination of employee turnover and personal desire to continue to serve on the committee. In the past year, the election of a new president occurred, but that person has since left the project. Consequently, the current president of the committee has been in the position for 4 years and has expressed a desire to step down and turn over the committee to a new president. Most committee members indicate that they do not wish to become president. The charter does not specify the periodicity of elections, but committee members told the Team that members vote every 6 months to determine if the committee needs new officers. Committee members indicated that managers do not influence the committee vote. According to the committee charter, there should be more craft employee representation. There are provisions for up to two members from each craft; however, only one person represents each craft currently. For example, pipefitters represent approximately a third of the craft population, but have only one member on the committee. The Team asked several craft employees about their interest in serving on the committee, but most were not interested.

Another related opportunity suggested Parsons should use the new-hire training to emphasize its commitment to the tenets of VPP and educate new-hire employees to those expectations. Parsons included the VPP tenets and their relationship to the Integrated Safety Management System (ISMS) in new employee training. The Team asked several workers what they remembered about the initial ISMS and VPP training; most could not remember what the training addressed. The Team asked the employee safety committee if there were refresher reminders in the Monday morning safety meetings. The employee safety committee president indicated that frequent reminders occur on both topics. A review of the VPP presentation for newly hired personnel does not mention DOE-VPP, but is a training module for OSHA VPP training. The ISMS training module discusses the ISMS core functions and introduces the students to the human performance improvement concepts. There is no mention in either module of the interrelationship of ISMS and DOE-VPP.

2013 Opportunity for Improvement: Parsons needs to complete its corrective actions related to storage and retrieval of exposure monitoring data, complete a comprehensive baseline exposure assessment, and use the results of that assessment to implement an effective Industrial Hygiene program.

The activity to complete documenting, correlating, and evaluating all air sampling records since project initiation has been completed. This included reviewing trends and activities that created the potential for exceeding exposure limits and the level of protection required in those activities. In addition, industrial hygienists completed a review of all chemicals approved for use onsite and developed a hazard assessment or risk rating relative to the chemical's intended use and the need for industrial hygiene (IH) evaluation of the chemical exposure. Parsons is using the data to develop revisions to the air sampling plans and better methods to communicate the information to the workforce. Air sampling records are available to employees in the craft tent. During the assessment, one worker expressed concern about hazardous vapors from heating epoxy coatings. The Team brought the concern to the attention of the industrial hygienists who were able to quickly retrieve applicable sampling records and demonstrate that controls used were adequate to protect workers well below the appropriate limits. Parsons is continuing to pursue further improvements in IH sampling and exposure assessment processes.

2013 Opportunity for Improvement: Parsons needs to ensure that workers treat electrical components as potentially energized until confirmed otherwise and use appropriate arc flash protection per National Fire Protection Association (NFPA) 70E, *Standard for Electrical Safety in the Workplace*.

The project procedures and expectations have always been in place to treat electrical components as potentially energized when connected to a power source. Parsons believes the issue observed in 2013 resulted from workers relying on verbal communication rather than referring to approved procedures. Parsons revised procedures PP-SH-4377, *Hazardous Energy Control (Lockout/Tagout)*, and PP-SH-4388, *Working on or near Energized Equipment*, to clearly communicate expectations in simple language in both procedures rather than refer between procedures.

The Team reviewed processes for performing zero energy checks with electricians. The correct arc flash protective equipment was issued to electricians from the tool crib, but has not been returned to the tool crib for inspection or maintenance. Prior to a zero energy check, the electrical superintendent, supervisor, and electricians develop a safe work plan to discuss the zero energy check procedures, PPE requirements, and responsibilities during the procedure. Interviews with several electricians confirmed that they use arc flash PPE during zero energy checks.

Two PPE kits (arc flash suits consisting of jacket and coverall; faceshield; hardhat) were stored in the electrician trailer closet. The Team inspected the arc flash PPE with an electrician. After inspecting the kits, the Team found an additional coverall, which had a large hole near the back pocket. The hole compromised the coverall and the Team suggested removal of the coverall from service. A suit from the kit had metal safety pins attached to the inside of the jacket collar and inside the overall pants. Although the safety pins did not penetrate the outside of the suit, having conductive material penetrating the inside of the suit that is protecting a worker from electrical energy is not a safe practice. Removal of the safety pins should occur before using the suits again. Both suits appeared dirty and needed laundering.

The arc flash protective gloves are a combination of thick rubber gloves and exterior leather gloves. Only one pair was available to complete the arc flash PPE requirements to protect a worker. According title 29, Code of Federal Regulations, part 1910.137, *Personal Protective Equipment* (29 CFR 1910.137), electrical protective gloves must pass testing requirements every 6 months. Although SWPF is a construction site, an OSHA interpretative letter dated February 19, 1991, states that *1910 standards are applicable unless specifically prohibited by a specific standard which is directly related to the ongoing employee activities*. Since there are no other standards in conflict, 29 CFR 1910.137 is applicable. Supporting this conclusion is the *2013 DOE Handbook of Electrical Safety*, section 2.11.3, which also requires the testing of insulating rubber gloves in accordance with 29 CFR 1910.137. Therefore, rubber gloves need periodic testing when used for electrical protection.

United Rentals is the tool issuing company located on SWPF. According to its equipment inventory, United Rentals issued the arc flash PPE kits in 2011, along with rubber and leather gloves. The failure to return the kits and gloves has left the suits disheveled and the rubber gloves out of compliance. Parsons should return the arc flash kits and insulating rubber and

leather gloves to the United Rentals tool crib for storage, periodic inspection, replacement, and future issue to users.

Opportunity for Improvement: Parsons needs to ensure it meets the periodic testing requirements of 29 CFR 1910.137 for insulating rubber gloves prior to their use.

Opportunity for Improvement: Parsons should return the arc flash PPE kits and rubber and leather gloves to the tool crib for storage, periodic inspection, replacement, and future issue to users.

2013 Opportunity for Improvement: Parsons needs to continue to evaluate ways to improve its ability to communicate emergency conditions to personnel throughout the facility during emergency events.

Radio communication and supervisory notification remain the primary means of emergency communications. Parsons installed several temporary public address speakers in the CPA, but the coverage is limited. It also requested personnel to stop and listen if they hear an announcement and pass it on to others in the building. Parsons surveyed CPA to identify and diagram dead zones in the building. Parsons relies on radio communication, runners, and superintendents to communicate messages to workers in the dead zones of the CPA. Parsons completed an engineering study of the CPA radio signal dead zones that recommended the number and location of radio repeaters. Parsons is in the process of procuring the radio repeaters to complete this project.

The emergency manager relies on workers in the CPA to notify the office if a speaker is not broadcasting. Periodic testing of speakers occurs, but the emergency manager does not know if a speaker is broadcasting properly. The emergency manager, along with the operations manager, should develop a formal plan to test the CPA speakers to ensure they are broadcasting during announcements.

Opportunity for Improvement: The emergency manager, along with the operations manager, should develop a formal plan to test the CPA speakers to ensure they are broadcasting during announcements.

2013 Opportunity for Improvement: Parsons needs to consider coordinating with DWPF and H Area in conducting joint drills between the facilities to ensure its employees understand and respond appropriately to DWPF and H Area emergency events.

Parsons continues to rely on notification from the Savannah River Site Operations Center (SRSOC) over the SRSOC Emergency Radio and area public address systems. The J-Area Emergency Coordinator (EC) is then responsible for issuing protective actions to J-Area personnel based on SRSOC information and procedural guidance. The J-Area *Emergency Coordinator Procedure* (PP-OP-8509) provides direction to the EC for issuing personnel protective actions in any event that affects J-Area personnel. In addition, construction progress on the CPA significantly reduced the need for J-area personnel to use DWPF buildings for emergency response.

Parsons is not conducting joint drills with DWPF and H-Areas, or participating in SRS onsite exercises. Parson relies on radio messages from SRSOC for information and actions to take onsite although the other two areas are within a half mile of SWPF. Outlying areas, such as the warehouse and laydown yard, practice sheltering by relocating to the adjacent S-Area for protection. Parsons has conducted drills for J-Area personnel, but has not used drills or exercises at S or H Areas as initiators. Parsons does not routinely confirm that it receives drill or exercise messages. Parsons should work with SRSOC to confirm that it receives and acts on all messages from SRSOC.

Opportunity for Improvement: Parsons should work with SRSOC to confirm that it receives and acts on all messages from SRSOC.

Additional Observations.

On April 18, 2014, a scaffold pole end fitting broke during scaffold construction. Workers promptly informed managers and safety personnel of the event. Workers could not visually identify the problem before the fitting broke because the break in the fitting was inside the scaffold pole. In response, Parsons immediately suspended all scaffold use and red tagged all scaffolds to prevent use until it determined the extent of the condition. Workers inspected all scaffolding, and tagged all similar scaffolds for further evaluation. Until Parsons reaches a final resolution, it is reinforcing any similar scaffold joints that could be carrying a live load. As Parsons continues work, it is replacing the suspect components where practical, installing a secondary or duplicate pole in parallel with suspect poles where it cannot be replaced, or splicing poles if a duplicate pole cannot be installed to reduce the load. For cases where the male end fitting is not engaged, Parsons is marking the pole with red paint.

Once Parsons evaluated, replaced, reinforced, or marked all suspect poles in a scaffold, a competent person inspected the scaffolds and a new green tag was installed to allow access for work. Parsons will avoid reuse of any painted scaffold pole removed from service to the extent practical. Parsons has identified similar manufacturer poles in the laydown yard and segregated those poles to prevent use.

Additionally, Parsons cut open poles with similar markings and manufacturer's labels, and other poles, to compare the internal condition of the fittings. Parsons also sent sample poles to an independent laboratory for testing and analysis. At the time of this review, laboratory results indicate that corrosion could have contributed to the failure. However, the corrosion mechanism is yet to be determined.

The Team believes Parsons took quick action to investigate the incident and implemented a path forward based on the results of the investigation prior to restart of any scaffolding activities. Parsons took these actions despite the effect on several critical projects and a tight production schedule. The analysis of the components and the resulting corrective actions were thorough and in line with the manufacturer’s recommendations.

Many workers expressed concern about access to certain construction areas. At the center of the SWPF are six dark cells that house the process vessels. These dark cells are large containment enclosures that will shield workers from the radioactivity in the vessels during operations. The

dark cells are approximately 40 to 50 feet below grade and vary in width from 20 to 40 feet with access points only at the top. Earlier in construction, Parsons decided to leave access points open at floor level for easier access by workers and materials. However, as construction has progressed, Parsons is closing the ground level access points to facilitate final installations. As a result, access to the dark cells is through the top of the cell and through a maze of multi-level scaffolding. In addition to the maze of scaffolding, installed piping and supports present a variety of obstructions. The scaffolding layout changes frequently. In several places, workers descend a ladder to a lower level in order to access another ladder up to exit the dark cell.

Parsons does have appropriate safety processes and controls in place to prevent fires in the dark cells. However, due to the high consequence of a fire or smoke-generating event, coupled with the restricted egress, the addition of self-rescue breathing equipment would significantly improve the workers' ability to exit the dark cells safely. Since the configuration of the scaffolding changes frequently, workers could mistakenly attempt to exit using the wrong path if the area is filled with smoke. Parsons should consider providing emergency egress self-rescue safety equipment to personnel working within the dark cell, installing exit path lighting (such as LED rope lighting) to mark the exit paths from each cell, and staging emergency rescue equipment and supplies in lockers adjacent to the topside entrances of the dark cells.

Opportunity for Improvement: Parsons should consider providing emergency egress safety equipment to personnel working within the dark cell, installing exit path lighting (such as LED rope lighting) to mark the exit paths from each cell, and staging emergency rescue equipment and supplies in lockers adjacent to the topside entrances of the dark cells.

IV. CONCLUSIONS

Parsons has made some progress addressing the improvements identified in the 2013 DOE-VPP assessment, but the progress has not yet met the expectations for a DOE-VPP Star participant. A large turnover in the workforce as construction progresses presents special challenges for Parsons and the company has not yet been effective in convincing newer workers (those hired in the past year) of its commitment and expectations for safety. Managers and superintendents have improved their communication with workers, but workers remain aware of too many cases where superintendents' actions conflict with Parsons' expectations. Parsons must become more proactive with the employee safety committee and workers, and seek more substantial employee ownership and involvement in its safety program to achieve DOE-VPP Star status. The Team recommends that Parsons SWPF Construction Project continue to participate in DOE-VPP at the Merit Level as it continues to pursue improvements.

Appendix A

Onsite VPP Audit Team Roster

Management

Matthew B. Moury
Acting Associate Under Secretary for
Environment, Health, Safety and Security

Patricia R. Worthington, PhD
Director
Office of Health and Safety

Bradley K. Davy
Director
Office of Worker Safety and Health Assistance

Review Team

Name	Affiliation/Phone	Project/Review Element
Bradley K. Davy	DOE/AU (301) 903-2473	Team Lead, Management Leadership
John A. Locklair	DOE/AU	Employee Involvement, Worksite Analysis
Michael S. Gilroy	DOE/AU	Hazard Prevention and Control, Worksite Analysis
Brian A. Blazicko	DOE/AU	Worksite Analysis, Employee Involvement
Chuck Scott	Oak Ridge Associated Universities	Worksite Analysis, Employee Involvement