# Parsons Corporation
# Salt Waste Processing Facility
# Construction Project

**Report from the Department of Energy**
**Voluntary Protection Program**
**Onsite Review**
**February 5-14, 2013**

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

## Foreword

The Department of Energy (DOE) recognizes that true excellence can be encouraged and guided but not standardized. For this reason, on January 26, 1994, the Department initiated 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 DOE in 1994, VPP has demonstrated that cooperative action among Government, industry, and labor can achieve excellence in worker safety and health. The Office of Health, Safety and Security (HSS) assumed responsibility for DOE-VPP in October 2006. The assessments are now more performance-based and enhance the viability of the program. Furthermore, HSS is expanding complex-wide contractor participation and coordinating DOE-VPP efforts with other Department functions and initiatives, such as Enforcement, Oversight, and the Integrated Safety Management System.

DOE-VPP outlines areas where DOE contractors and subcontractors can surpass compliance with DOE orders and OSHA standards. The program encourages a "stretch for excellence" through systematic approaches, which emphasize creative solutions through cooperative efforts by managers, employees, and DOE.

Requirements for DOE-VPP participation are based on comprehensive management systems with employees actively involved in assessing, preventing, and controlling the potential health and safety hazards at their sites. DOE-VPP is designed to apply to all contractors in the DOE complex and encompasses production facilities, laboratories, and various subcontractors and support organizations.

DOE contractors are not required to apply for participation in DOE-VPP. In keeping with OSHA and DOE-VPP philosophy, *participation is strictly voluntary*. Additionally, any participant may withdraw from the program at any time. DOE-VPP consists of three programs with names and functions similar to those in OSHA's VPP: Star, Merit, and Demonstration. The Star program is the core of DOE-VPP. This program is aimed at truly outstanding protectors of employee safety and health. The Merit program is a steppingstone for participants that have good safety and health programs, but need time and DOE guidance to achieve true Star status. The Demonstration program, expected to be used rarely, allows DOE to recognize achievements in unusual situations about which DOE needs to learn more before determining approval requirements for the Merit or Star program.

By approving an applicant for participation in DOE-VPP, DOE recognizes that the applicant exceeds the basic elements of ongoing, systematic protection of employees at the site. The symbols of this recognition provided by DOE are certificates of approval and the right to use flags showing the program in which the site is participating. The participant may also choose to use the DOE-VPP logo on letterhead or on award items for employee incentive programs.

This report summarizes the results from the evaluation of Parsons Corporation Salt Waste Processing Facility Construction Project during the period of February 5-14, 2013, and provides the Chief Health, Safety and Security Officer with the necessary information to make the final decision regarding its participation in DOE-VPP.

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## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| BLS | Bureau of Labor Statistics |
| CFR | Code of Federal Regulations |
| CII | Construction Industry Institute |
| CPA | Central Processing Area |
| CPR | Cardio Pulmonary Resuscitation |
| DART | Days Away, Restricted or Transferred |
| DOE | Department of Energy |
| DWPF | Defense Waste Processing Facility |
| EC | Emergency Coordination |
| ESC | Employee Safety Committee |
| ES&H | Environment, Safety and Health |
| HSS | Office of Health, Safety and Security |
| ICD | Interface Control Document |
| IH | Industrial Hygiene |
| ISMS | Integrated Safety Management System |
| JHA | Job Hazard Analysis |
| NAICS | North American Industry Classification System |
| NDE | Non-Destructive Exam |
| NFPA | National Fire Protection Agency |
| OMP | Occupational Medical Provider |
| OSHA | Occupational Safety and Health Administration |
| Parsons | Parsons Corporation |
| PA | Public Announcement |
| PBSOP | People-Based Safety Observation Program |
| PPE | Personal Protective Equipment |
| SCWE | Safety Conscious Work Environment |
| SME | Subject Matter Expert |
| SOP | Standard Operating Procedure |
| SR | Savannah River Operations Office |
| SRS | Savannah River Site |
| SRSOC | SRS Operations Center |
| SWPF | Salt Waste Processing Facility |
| RSC | RSC Equipment Tool Rental |
| Team | Office of Health, Safety and Security DOE-VPP Assessment Team |
| TRC | Total Recordable Case |
| VPP | Voluntary Protection Program |

## EXECUTIVE SUMMARY

The Salt Waste Processing Facility (SWPF) project is an ongoing project to construct a facility that will process liquid wastes in support of the Department of Energy (DOE) environmental management mission. When operational, SWPF will separate the highly radioactive cesium and actinides from salt solutions. In 2004, DOE selected Parsons Corporation (Parsons) to design, build, commission, and operate for 1 year the SWPF to be located in the J Area of the Savannah River Site (SRS). Construction, which began in 2007, is approximately 70 percent complete. Parsons submitted its DOE Voluntary Protection Program (VPP) application for the SWPF Construction Project in June 2012. After reviewing the application, the Office of Worker Safety and Health Assistance, within the Office of Health, Safety and Security (HSS), scheduled an onsite evaluation to assess the strength of the Parsons occupational safety and health processes. This report documents the results of that evaluation and provides the HSS DOE-VPP Team's (Team) recommendation to the Chief Health, Safety and Security Officer.

Parsons has a strong corporate commitment to worker safety and health. As one of five corporations participating in the Occupational Safety and Health Administration's VPP corporate program, Parsons has adopted VPP on a large scale for protecting the safety and health of its employees. Parsons uses established, standardized corporate-level safety and health management systems, and internal audit/screening processes that evaluate its facilities for safety and health performance to expand VPP participation.

Injury rates for Parsons' employees at the J Area construction site have been steady but below the comparison industry rates over the previous 3 years, indicating that Parsons needs to make additional efforts in its approach to drive rates even lower and achieve the corporate goal of zero.

Parsons' managers at SWPF are committed to establishing a safe and healthy workplace and completing the construction project safely, but that commitment has primarily focused on compliance rather than continuous improvement. Budget and schedule difficulties are affecting all personnel on the project. Parsons decision not to pursue a mentoring relationship with the current DOE-VPP participants at SRS limited managers' exposure to alternative approaches, which hindered Parsons' effectiveness establishing a health and safety program that encourages and rewards workers for their participation in safety initiatives. Parsons managers need to move beyond the compliance-focused approach to worker safety and health and become more proactive in engaging the workforce on safety.

Some Parsons' employees are actively involved in the safety program. Parsons has established policies and expectations for workers to become involved in improving workplace safety. Opportunities exist for employees to participate in committees, walkdowns, and safety assessments, but Parsons has only had limited success encouraging broader worker participation in safety initiatives. Most employees have not taken advantage of those opportunities.

Parsons understands the hazards associated with large construction projects, and has a large volume of sampling data to evaluate potential hazardous exposures. Parsons safety professionals frequent the work areas and evaluate working conditions for unsafe practices. It has not yet integrated that sampling data and knowledge into a comprehensive baseline exposure assessment. Parsons needs to expedite completion of 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.

Parsons generally controls the dominant hazards of the construction site through a solid hierarchical approach to hazard control. However, some procedures and training material need improvement. Parsons also needs to continue to improve communications for emergency events specifically with regard to events at H and S areas.

Finally, while Safety and Health Training is adequate and effective in addressing the hazards associated with working at the construction site at SWPF, some materials are out of date and require updating to ensure workers have a proper understanding of requirements.

Overall, Parsons has established a compliant safety program at the SWPF Construction Project. The decision to pursue participation in DOE-VPP was a natural progression from the Parsons corporate commitment to excellence in worker safety and health. However, significant cultural pressures, including construction delays, inconsistent year-to-year funding, and a decision not to seek outside assistance through a formal mentoring arrangement with an existing DOE-VPP participant have hampered Parsons' progress toward achieving DOE-VPP Star status. The Team recommends that the Parsons SWPF Construction Project be admitted to DOE-VPP at the Merit level.

**TABLE 1**
**OPPORTUNITIES FOR IMPROVEMENT**

| Opportunity for Improvement | Page |
|---|---|
| Parsons should consider simplifying its collective safety program policies under a single safety policy statement, and integrating the elements of each of those programs to eliminate redundancy and capitalize on the common elements. | **4** |
| Parsons should consider consolidating the various responsibilities assigned to supervisors and managers within a specific document and providing that document as a desk reference for managers or a specific pocket field reference book for supervisors and foremen. | **4** |
| Parsons should establish a more effective reward and recognition program, including an established budget to encourage workers to pursue safety excellence, raise safety issues, and promote greater employee involvement in safety programs. | **5** |
| Parsons should establish a formal mentoring agreement with the existing DOE-VPP participants at SRS and use that relationship to train and coach all personnel, seek new ideas, and share lessons learned. | **5** |
| Managers should seek opportunities, such as during management walkthroughs, to reach out to and encourage workers to make suggestions and raise ideas. | **7** |
| Parsons needs to provide coaching or training to help managers, supervisors, and foremen improve communication with the workforce, establish an environment where supervisors actively encourage constructive criticism, address workers' concerns, and provide appropriate feedback on corrective actions in a timely manner. | **7** |
| 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. | **8** |
| Parsons needs to embrace the results of the safety culture review, and work in partnership with the workforce to discern the underlying issues, and work toward common solutions. | **8** |
| Parsons should ensure the union leadership is involved in identifying and implementing a viable reward and recognition process. | **9** |
| Parsons must find a way to consistently reinforce its expectations for safety and demonstrate that commitment through positive reinforcement. | **10** |
| Parsons should ensure that support for the feedback mechanism to employee suggestions is consistent and visible to all workers. | **11** |
| Parsons needs to modify its procedures and ESC charter to permit committee members to observe or assist in the investigation and documentation of major accidents. | **11** |
| Parsons should explore ways to coordinate safety committees and maximize their contribution to a safe work environment. | **11** |

| | |
|---|---|
| Parsons should find ways to rotate committee membership more frequently and permit new employees the opportunity to participate on the committee and ensure members are selected by their represented craft unions and are not subject to management selection or approval. | **12** |
| Parsons should find ways to improve employee participation in the Monday morning safety meeting. | **13** |
| Parsons should find ways to include more workers in the development of work packages or JHAs as a means of improving worker involvement. | **13** |
| 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 IH program. | **16** |
| Parsons should ensure it captures the analysis justifying the selected controls during preparation of JHA. | **17** |
| Parsons needs to ensure that workers treat electrical components as potentially energized until confirmed otherwise, and use appropriate arc flash protection per NFPA70E. | **20** |
| Parsons should review its procedures, ensure that the procedures, training, and handbook are consistent and meet all necessary requirements. | **21** |
| Parsons should seek to strengthen expectations for the second shift's use of PPE through communications, increased managerial and safety group presence, and routine surveillance activities. | **21** |
| Parsons should evaluate this situation and ensure vendors are maintaining all vendor-supplied equipment per the manufacturer's recommendations. | **22** |
| Parsons needs to continue to evaluate ways to improve its ability to communicate emergency conditions to personnel throughout the facility during emergency events. | **24** |
| 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. | **25** |
| Parsons should use the new-hire training to emphasize its commitment to the tenets of VPP and educate new-hire employees to those expectations. | **26** |
| Parsons should review its training presentations content to ensure the information is up to date with current requirements and site expectations. | **27** |
| Parsons should review and update training reference materials on a regular basis to ensure the content is accurate. | **27** |

# I. INTRODUCTION

The Salt Waste Processing Facility (SWPF) Project is an ongoing project to construct a facility that will process liquid wastes in support of the Department of Energy (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. The Saltstone Facility will mix the salt solution with cement and fly ash for disposal on site. 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, and DOE and Parsons Corporation (Parsons) are developing new estimates for the project.

In 2004, DOE selected Parsons to design, build, commission, and operate for 1 year the SWPF in the J Area of the Savannah River Site (SRS). Construction, which began in 2007, is approximately 70 percent complete.

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 Office of Health, Safety and Security (HSS). After reviewing the application, the Office of Worker Safety and Health Assistance, within HSS, scheduled an onsite evaluation to assess the strength of the Parsons' processes. This report documents the results of that evaluation, and provides the HSS DOE-VPP Team's (Team) recommendation to the Chief Health, Safety and Security Officer.

Parsons employs approximately 870 people at SWPF, with approximately 350 of those representing the variety of construction crafts people. 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.

In August and September 2012, HSS' Office of Enforcement and Oversight (Independent Oversight) conducted an independent assessment of nuclear safety culture at the SWPF Project. HSS issued that assessment report, entitled *Independent Oversight Assessment of Nuclear Safety Culture at the Salt Waste Processing Facility Project* in late January 2013. Although Parsons had not specifically addressed the report's findings prior to this assessment, the Team reviewed the results and considered them in its final recommendation.

## 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 |
| 2010 | 886,462 | 5 | 1.13 | 5 | 1.13 |
| 2011 | 1,056,550 | 5 | 0.95 | 4 | 0.76 |
| 2012 | 954,348 | 5 | 1.05 | 3 | 0.63 |
| 3-Year Total | 2,897,360 | 15 | 1.04 | 12 | 0.83 |
| Bureau of Labor Statistics (BLS-2011) average for NAICS** Code 2379 (Other heavy and civil engineering construction) | | | 3.6 | | 1.9 |
| **Injury Incidence/Lost Workdays Case Rate (Subcontractors, J Area)** | | | | | |
| Calendar Year | Hours Worked | TRC | TRC Incidence Rate | DART* Cases | DART* Case Rate |
| 2010 | 94,627 | 0 | 0.00 | 0 | 0.00 |
| 2011 | 332,879 | 0 | 0.00 | 0 | 0.00 |
| 2012 | 444,822 | 5 | 2.25 | 4 | 1.80 |
| 3-Year Total | 872,328 | 5 | 1.15 | 4 | 0.92 |
| BLS-2011 average for NAICS** Code 2379 (Other heavy and civil engineering construction) | | | 3.6 | | 1.9 |

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

***TRC Incidence Rate (Parsons, Teaming Partners, and subcontractors):*** **1.06**
***DART Case Rate (Parsons, Teaming Partners, and subcontractors):*** **0.85**

### Conclusion

TRC rates for Parsons' employees at the J Area construction site have been relatively constant over the previous 3 years at a fraction of the comparison industry rates. DART case rates have been improving, indicating an overall reduction in severity of injuries that do occur. Subcontractors experienced a sharp increase in injury rates in 2012, although the subcontractor rate remains approximately 30 percent of the comparison industry rate. Parsons attributed this rise to changes in subcontractors that did not properly manage the cases or to a subcontractor that Parsons removed from the project. The low rates indicate a strong safety program, but the relatively steady TRC rates may indicate that Parsons needs to make additional efforts in its approach to drive rates even lower and achieve the corporate goal of zero. The current rates meet the expectations for DOE-VPP participation.

## III. MANAGEMENT LEADERSHIP

Management leadership is a key element of obtaining and sustaining an effective safety culture. The contractor must demonstrate senior level management commitment to occupational safety and health in general and to meeting the requirements of DOE-VPP. Management systems for comprehensive planning must address health and safety requirements and initiatives. As with any other management system, authority and responsibility for employee health and safety must be integral to the management system of the organization and must involve employees at all levels of the organization. Elements of that management system must 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 finally, (5) managers must be visible, accessible, and credible to employees.

Parsons has a strong corporate commitment to worker safety and health. It is one of five corporations participating in the Occupational Safety and Health Administration's (OSHA) VPP corporate program. VPP corporate is designed for corporate applicants who demonstrate a strong commitment to employee safety and health and VPP. These applicants, typically large corporations or Federal Agencies, adopt VPP on a large scale for protecting the safety and health of its employees. VPP corporate applicants must have established standardized corporate-level safety and health management systems, as well as internal audit/screening processes that evaluate their facilities for safety and health performance.

Parsons considers SWPF to be a flagship project. As such, it tracks SWPF performance indicators separately from its other projects. Further, Parsons expects SWPF to implement its corporate Safety, Health, and Risk Program (SHARP) Management, the Project Manager's Best Practices Manual, and the Construction Industry Institute's (CII) Zero Incident techniques. Those techniques include the following:

- Preproject/Pretask Planning for Safety;
- Safety Orientation and Training;
- Written Safety Incentive Program;
- Alcohol and Substance Abuse Program;
- Accident/Incident Investigations; and
- Managers consistently state that safety is their number one value, and believe they are supportive of safety improvements.

The corporate expectations are implemented through several written policies that include: Project Manager policies on Safety Conscious Work Environment (SCWE), continual improvement, Integrated Safety Management System (ISMS), and environmental management. These policies are implemented through many project procedures, most of which are collected together within the SWPF procedure, PM-SH-4301, *Construction Safety Manual*.

Collectively, these policies and procedures address the elements of the various corporate expectations. However, Parsons has not yet effectively integrated all the various expectations (ISMS, CII, DOE-VPP, and SCWE) into a single, homogeneous safety program. The Independent Oversight Assessment of Safety Culture identified that although the value of safety is a high priority and is particularly evident in the SWPF contractor organizations, there were significant differences in perceptions around many of the behaviors associated with a healthy SCWE. The variability indicated that a clear and consistent message was not effectively

communicating these values to SWPF Project personnel. Observations by the Team indicate the lack of integration of policies and procedures related to safety may contribute to these perceptions.

Each of the various policies and procedures reviewed by the Team contain responsibilities for implementation. Typically, these policies and procedures assign responsibility for elements of the procedure to managers, supervisors, foremen, workers, or all personnel. The result is that Parsons spreads responsibilities across a wide spectrum of policies and procedures that working-level supervisors rarely directly reference, and instead rely on their experience and training. Managers and superintendents interviewed by the Team were generally aware of their responsibilities for safety at the worksite.

Parsons provides all personnel at the site with a pocket-sized *Construction Health and Safety Employee Handbook* that serves as a general reference for employees' roles, responsibilities, and requirements related to safety. While the handbook contains some references for managers and supervisors, it does not include all of their roles and responsibilities.

Parsons should consider simplifying its collective safety program policies under a single safety policy statement and integrating the elements of each of those programs to eliminate redundancy and capitalize on the common elements. Further, Parsons should consider consolidating the various responsibilities assigned to supervisors and managers within a specific document, and providing that document as a desk reference for managers or a specific pocket field reference book for supervisors and foremen.

**Opportunity for Improvement:** Parsons should consider simplifying its collective safety program policies under a single safety policy statement, and integrating the elements of each of those programs to eliminate redundancy and capitalize on the common elements.

**Opportunity for Improvement:** Parsons should consider consolidating the various responsibilities assigned to supervisors and managers within a specific document and providing that document as a desk reference for managers or a specific pocket field reference book for supervisors and foremen.

As a large construction project, SWPF managers are trying to manage costs by promoting a "firm, fixed-price mentality." Unfortunately, schedule delays, cost overruns, and variable year-to-year funding contribute to significant resource pressures that permeate the organization. This probably contributed to the findings from the Independent Oversight report of perceptions that decisionmaking by managers may not always reflect the highest commitment to safety. The report also found that craft personnel "perceive that project management reflects a delicate balance of emphasizing safety, while at the same time, making it clear that there is a need to keep the project on schedule." Consistent with the Independent Oversight report, the Team also heard from managers and workers alike about resource limitations. In particular, the Team is concerned that sufficient resources are not available to establish and maintain an effective baseline exposure assessment process that meets the expectations of title 10, Code of Federal Regulations, part 851 (10 CFR 851). With only one industrial hygienist and one industrial hygiene (IH) technician in training, the IH staff is significantly restricted in its ability to proactively identify and assess hazards before work begins. In most cases, the industrial hygienist must identify sampling requirements during the daily work planning and coordination

meetings, or during the 3-week look-ahead meetings, rather than as part of the work planning process (Job Hazard Analysis (JHA) development). Parsons has self-identified that it does not have an effective system to retrieve and analyze existing sampling data and is working to establish a better process (see Worksite Analysis).

Parsons has not effectively budgeted for its efforts to achieve excellence in safety and health. Although it has provided some resources (time for employee safety committee meetings, time for employees to attend weekly all-hands safety meetings, three lunches during the year, and hot chocolate or ice-cream on Fridays), those efforts have not been fully effective in creating the desired changes. Team observations and worker statements indicate the weekly safety meetings and the hot chocolate or ice cream Fridays have become mundane, and are not effective in promoting employee involvement. Reward and recognition programs exist, such as the Project General Superintendent's "Bravo Zulu" coins, and the Employee Safety Committee's "Thumbs Up" stickers, but these programs are not widely used. Managers and supervisors do not have access to other reward or recognition programs, and rely primarily on verbal acknowledgements and encouragement. Parsons should establish a more effective reward and recognition program, including an established budget to encourage workers to pursue safety excellence, raise safety issues, and promote greater employee involvement in safety programs.

**Opportunity for Improvement:** Parsons should establish a more effective reward and recognition program, including an established budget to encourage workers to pursue safety excellence, raise safety issues, and promote greater employee involvement in safety programs.

Parsons did not establish an effective mentoring relationship with an existing DOE-VPP site as part of its application process. A Parsons corporate representative provided some assistance, but that did not include any long-term training, teaching, or guidance. Managers, supervisors, and the members of the employee safety committee did not receive any training or coaching in developing effective reward or recognition processes to stimulate employee involvement or foster new ideas. During interviews, managers indicated that they understood the value of employee involvement and ideas, but did not know how they could effectively encourage and reward employee involvement. The lack of an effective mentor, combined with the limited resources, has contributed to Parsons not taking advantage of regional or national conferences held by the Voluntary Protection Programs Participants' Association. These conferences consistently provide employees and managers with opportunities to find new ideas and share lessons learned to promote safety and health excellence. Parsons should establish a formal mentoring agreement with the existing DOE-VPP participants at SRS and use that relationship to train and coach all personnel, seek new ideas, and share lessons learned.

**Opportunity for Improvement:** Parsons should establish a formal mentoring agreement with the existing DOE-VPP participants at SRS and use that relationship to train and coach all personnel, seek new ideas, and share lessons learned.

In contrast to the limited effectiveness of its reward and recognition programs, Parsons has a strong and detailed discipline process. Part of the bargaining unit agreement is a set of project jobsite rules. Violations of those rules fall into three categories. A Category 1 violation results in termination from the project and ineligibility for rehire. A Category 2 violation results in termination with eligibility for rehire after 3 months, dependent on project needs. A Category 3

violation results in a written warning with a 6-month probationary period. A second violation during that 6-month probation results in termination, with eligibility for rehire after 1 month. This strong disciplinary model without corresponding strong reward and recognition programs may be a contributor to findings in the Independent Oversight report about employee concerns related to retribution, willingness to raise concerns, or willingness to provide constructive criticism to supervisors and managers.

In some cases, the accountability process in place at SWPF may inhibit employees from reporting accidents or injuries, particularly minor injuries. Employees are required to certify on their timecards that they were not injured during the workday. Although managers believed that failure to report an injury would be "career limiting," workers interviewed by the Team believed that it was not worth the effort to report minor injuries (small cuts, scrapes, bruises). Supervisors and managers have not effectively communicated to workers that such minor injuries reflect potentially hazardous conditions or practices that could lead to a more serious injury.

Another potential disincentive to reporting injuries could be perceived in the hot chocolate or ice cream Fridays. In weeks where there is not a lost-workday case, Parsons provides the workforce with either a free ice cream bar or free hot chocolate. The Team's review of accident and injury logs did show a large number of minor injury reports, and no workers identified the ice cream or hot chocolate as preventing them from reporting an injury. Parsons could improve the effectiveness of the incentive by tying it specifically to actions the employees can control. For example, Parsons has a program of regular management inspections and walkthroughs of the worksite. The ice cream and hot chocolate could be based on the results of those inspections, rather than the absence of injuries. This might help incentivize workers to identify and correct deficient conditions, and eliminate any appearance of suppressing injury reporting.

Managers are clearly visible on the first shift (day shift). They conduct regular walkthroughs and inspections, and report the results of those inspections into a tracking database. Shift superintendents and work supervisors had a much higher visibility and familiarity with the workforce and demonstrated a good working relationship with supervisors, foremen, and some craft workers. The Independent Oversight report identified that many workers would like to see senior managers walking around in the field more frequently, and workers had negative perceptions about communications throughout the organization. Observations by the Team provided some insight into these perceptions. Workers interviewed by the Team indicated that they did not perceive managers as being accessible to workers, despite most managers having an open door policy. In most cases, workers have very little opportunity to leave a jobsite during the workday to have a conversation with their managers. Managers do not frequently use their field visits as an opportunity to reach out to workers to establish an effective relationship with them and do not typically ask workers to participate in worksite walkdowns with them. When managers do address workers' concerns, they frequently do not clearly communicate back to the workers the completed actions addressing those concerns. This often leaves the workers with the perception that managers do not actually care.

For example, several workers identified two conditions that were causing concerns. The first was the condition of the employees' parking lot, and the second was the closure of construction access holes into the dark cell portion of the plant. In reality, managers addressed the parking lot concerns by having the parking lot graded on night shift and a weekend when no other workers were present. Managers had also reversed the decision to close the construction access holes in the dark cell, but workers were unaware of the decision. Those actions were not visible to

workers, and managers did not communicate their actions. The result was a perception by managers that they had successfully addressed the workers' concerns, but workers perceived managers as ignoring the concerns.

Similarly, supervisors and foremen may be unintentionally suppressing communications by not listening effectively when workers raise concerns. Several workers relayed examples where they had raised a concern (safety or quality), but their concerns were ignored by their supervisor or foreman. In those cases, workers knew that they would have to rework the job. The company could avoid the costs for rework if supervisors addressed the initial worker concern. In other cases, supervisors and foremen may insulate senior managers by not communicating issues up the management chain. Their desire to fix the problem in the field and get the job done is laudable, but prevents senior managers from integrating common solutions across organizational boundaries.

These behaviors eventually lead to the perceptions by workers that managers and supervisors do not care about the issues, when the opposite may be true. Managers should actively seek more opportunities, such as during management walkthroughs, to reach out to workers and encourage workers to make suggestions and raise ideas. Parsons needs to provide coaching or training, possibly through a mentoring agreement with a current DOE-VPP participant, to help managers, supervisors, and foremen improve communication with the workforce, establish an environment where supervisors actively encourage constructive criticism, address workers' concerns, and provide appropriate feedback on corrective actions in a timely manner.

**Opportunity for Improvement:** Managers should seek opportunities, such as during management walkthroughs, to reach out to and encourage workers to make suggestions and raise ideas.

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

Subcontractor control and management were generally effective. A few subcontractors at the construction site are labor-only contracts, and subcontractor workers receive their daily assignments and supervision directly from Parsons. Parsons is replacing many of its subcontracts and directly hiring the personnel as a cost savings measure. In the limited cases where subcontractors provide a specific function or service, such as Intermech (ventilation system subcontract), subcontractor workers were observed following all the safety rules and practices and were subject to the same standards and requirements as Parsons employees.

Oversight of subcontractors is performed by both procurement and construction technical representatives. The construction technical representatives report to the construction manager and are responsible for day-to-day management of major subcontractors like Intermech. Procurement technical representatives are then responsible for financial oversight of the contract. Subcontractors do participate in the employee safety committee and other aspects of the Parsons' safety program.

Parsons conducts multiple annual evaluations of its safety program per its contract, including annual ISMS reviews. These annual evaluations are primarily checklist-driven and focus on compliance with applicable regulations and standards. The Environment, Safety and Health (ES&H) staff, Assurance group, or Parsons corporate subject matter experts (SME) conduct the evaluations. Parsons formally tracks corrective actions from these assessments to closure. While the annual assessment program generally meets expectations for contractor self-assessment, it has not yet demonstrated the type of integrated evaluation expected from DOE-VPP participants. The current program focuses on evidence that a rule or requirement exists, that Parsons has informed personnel of the rule, and that workers are following the rule. The process does not address the Management Leadership or Employee Involvement tenets of DOE-VPP. Workers do not participate in the annual evaluation and are not substantially involved in developing or providing inputs to goals established from the evaluation. Parsons uses the current process primarily to demonstrate compliance to DOE requirements rather than as a tool for all personnel to identify and drive continuous improvement. In order to achieve DOE-VPP Star status, 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.

**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 managers have not yet fully evaluated and accepted the findings of the Independent Oversight safety culture review. In many cases, they do not yet make the connections between their normal practices and the workers' perceptions. The Team's interactions with both managers and workers clearly showed a consistent concern for safety by all, but many communication barriers between the various organizational layers alter perceptions of that concern. Leaders in the workforce, and managers alike, share deep concerns about the questions used for the safety culture survey, which they perceive as targeted at an operating nuclear power station, not a construction project. Despite those concerns, Parsons needs to embrace the results of the safety culture review, and work in partnership with the workforce to discern the underlying issues, and work toward common solutions. The Employee Safety Committee (ESC) should be intimately involved in this effort, along with supervisors and managers.

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

The leadership of the Augusta Georgia Building and Trades Council was very strong in its support for Parsons' participation in DOE-VPP. Their experience at other DOE-VPP sites has convinced them that DOE-VPP is an excellent way for their workers to be substantially involved in the safety program. Parsons should ensure the union leadership is involved in identifying and implementing a viable reward and recognition process.

**Opportunity for Improvement:** Parsons should ensure the union leadership is involved in identifying and implementing a viable reward and recognition process.

## Conclusion

Parsons' managers at SWPF are committed to establishing a safe, healthy workplace and completing the construction project safely, but that commitment has primarily focused on compliance rather than continuous improvement. Budget and schedule difficulties are affecting all personnel on the project. Parsons decision not to pursue a mentoring relationship with the current DOE-VPP participants at SRS limited managers' exposure to alternative approaches, which hindered Parsons' effectiveness establishing a health and safety program that encourages and rewards workers for their participation in safety initiatives. Parsons managers need to move beyond the compliance-focused approach to worker safety and health and become more proactive in engaging the workforce on safety. Parsons has a good safety record, but needs to make additional effort to demonstrate the effective Management Leadership expected of a DOE-VPP Star participant.

## IV. EMPLOYEE INVOLVEMENT

Employees at all levels must continue to be involved in the structure and operation of the safety and health program and in decisions that affect employee health and safety. Employee involvement is a major pillar of a strong safety culture. Employee participation is in addition to the individual right to notify appropriate managers of hazardous conditions and practices. Managers and employees must work together to establish an environment of trust where employees understand that their participation adds value, is crucial, and welcome. Managers must be proactive in recognizing, encouraging, facilitating, and rewarding workers for their participation and contributions. Both employees and managers must communicate effectively and collaboratively participate in open forums to discuss continuing improvements, recognize and resolve issues, and learn from their experiences.

The Parsons VPP application states that Parsons sets expectations for employee involvement and management support at the corporate level. The basis for this approach is a zero incident philosophy. The key elements for this approach are: (1) demonstrated management commitment; and (2) worker involvement and participation. Parsons recognizes that empowering employees to identify hazards will reduce injury incident rates and improve the workplace safety. Parsons has established mechanisms for employees to become involved and to participate. The ESC addresses employee concerns and fosters cooperative communication between workers and management. Workers are encouraged to identify and report issues they encounter. The discussion on management commitment and support is located in the Management Leadership tenet.

The Independent Oversight Assessment of Safety Culture found significant differences in perceptions around many of the behaviors associated with a healthy SCWE and that SWPF Construction Project personnel did not have a clear and consistent understanding regarding these values. Based on observations and interviews of about 20 percent of the craft workforce during this DOE-VPP assessment, worker involvement varied, from workers correcting coworkers' unsafe work practices to apathy towards the safety program. Many of the workers interviewed indicated that they were not interested in participating in safety programs, but all stated that their safety, and the safety of coworkers, was important to them.

Some workers expressed their frustration over a perceived conflict regarding the need to work safely while adhering to a strict schedule. Workers sometimes use shortcuts to expedite completion of work that do not meet Parsons safety expectations. For example, workers identified that when moving material from the first floor to the second floor through a filter opening in the Central Processing Area (CPA) using a hand-operated chain hoist, the material is in the middle of the opening, not near the ledge where the worker is standing. Parsons provides extension tools to reach the chain, but to expedite the job, workers stand on the barricade and reach out to grab the chain instead. Workers rarely correct observed at-risk behaviors by their coworkers, which is consistent with the observations in the safety culture review. Parsons must find a way to consistently reinforce its expectations for safety, and demonstrate that commitment through positive reinforcement.

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

There are three methods for employees to report safety issues at SWPF. Employees can submit suggestions for improvement to their supervisor verbally, submit suggestions into the safety suggestion box, or raise issues to the ESC. When the Team asked how workers received feedback from their supervisors related to suggestions, the response was across the spectrum; some workers indicated that feedback was acceptable, and others said feedback was nonexistent. The feedback mechanism does not appear to be consistent with the expectations of a mature safety culture. The Team observed that forms were not always available for the safety suggestion box. When the Team asked how to obtain new forms, most employees said that they just write it down on a piece of paper and place it in the box because the forms had been missing for some time.

**Opportunity for Improvement:** Parsons should ensure that support for the feedback mechanism to employee suggestions is consistent and visible to all workers.

Workers can also submit suggestions or concerns to ESC. Parsons has a day shift ESC, and a separate one for the night shift. The committees share a common charter, *SWPF Employee Safety Committee Charter*, P-CRT-J-0159, Rev 1, 10/25/2012. The charter defines the purpose of ESC, which includes fostering a strong safety culture within SWPF, promoting SCWE, and sponsoring activities to help maintain a safe workplace. Additionally, the ESC charter states that it "…reviews results of periodically scheduled inspections, reviews accident investigations, if requested by managers and makes suggestions to managers to prevent future incidents…reviews alleged hazardous conditions, submits recommendations to assist managers in evaluating employee suggestions,… and reviews safety incentive programs and/or safety awards." For construction sites, DOE-VPP documents establish an expectation that: "In addition, the joint committee must be allowed to…observe or assist in the investigation and documentation of major accidents." Parsons does not meet DOE-VPP expectations for ESC involvement during the investigation of accidents and incidents according to its ESC charter. Parsons needs to modify its procedures and ESC charter to permit committee members to observe or assist in the investigation and documentation of major accidents.

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

The ESC members frequently receive suggestions or improvements from the workforce and they bring them up at the safety committee meeting. The Team observed this process on the day and night shift safety committee meetings. The day shift chair provided the Team with a list of issues that they had addressed. The night shift issue tracking is not as complete. The Team could not find a mechanism in place to integrate and consolidate safety committee issues between the day and night shift ESCs. The ESCs should work together to address common issues and support resolution of identified issues. Parsons should explore ways to coordinate safety committees and maximize their contribution to a safe work environment.

**Opportunity for Improvement:** Parsons should explore ways to coordinate safety committees and maximize their contribution to a safe work environment.

Construction sites in DOE-VPP are expected to use the construction safety committee as a means of fostering employee involvement. The committee must be composed of nonexempt employee representatives who work at the site and, if the site is unionized, are selected, elected, or approved by a duly authorized collective bargaining organization. Alternatively, the site may rotate hourly craft workers through membership frequently enough that any interested personnel receive experience on the committee over a reasonable period, and have terms long enough to develop sufficient expertise to be of assistance. Parsons, in its application, states that "ESC members are selected by construction managers based on their judgment." The ESC procedure and charter do not contain this provision for managers' approval.

Based on interviews with safety committee members and managers, the reality is that Parsons is having difficulty getting workers to volunteer for service on ESC. Some members have been on ESC for 3 years. The Team interviewed these long-term ESC members and they all exhibit a commitment and passion for a safe workplace. The Team asked long-term ESC members why others have not volunteered for ESC participation. Most answered that the workforce was satisfied with the current representation and did not want to change. When asked, members of the workforce could identify their ESC representative and felt comfortable bringing up safety issues to them. Several newer craft workers did express an interest in being committee members, but did not believe they had the opportunity. Greater participation by craft workers through limited rotations in the safety committees can help promote safety goals among all workers and appreciation of the safety committee. Parsons could improve the employee participation by allowing the workers to develop the charter for the safety committees, include rotating membership, establishing term limits, and accident/incident responsibilities. Parsons should find ways to rotate committee membership more frequently and permit new employees the opportunity to participate on the committee, ensure craft union members select representatives, and are not subject to management selection or approval.

**Opportunity for Improvement:** Parsons should find ways to rotate committee membership more frequently and permit new employees the opportunity to participate on the committee and ensure members are selected by their represented craft unions and are not subject to management selection or approval.

Employees can become involved in creating a safe work environment through the Parsons People-Based Safety Observation Program (PBSOP). Employees are encouraged to attend training to become safety observers. Once trained, safety observers go into the work areas using a checklist and other criteria to observe work. PBSOP is an effort to identify at-risk behaviors and assist the workforce to recognize behaviors that could lead to accidents or injuries. Most members of ESCs have taken the training. The rest of the workforce is not as supportive of PBSOP. While the PBSOP effort is notable, observations by the Team indicate the safety culture at SWPF may not yet be conducive to a behavioral observation program. Sites that are successful with behavior-based safety initiatives have established a strong environment where rewards and recognition encourage workers to take full responsibility for their own behaviors. In that environment, behavioral observation programs stimulate interactions between workers and use peer engagement in a nonthreatening way to improve safety. As discussed in Management Leadership, a detailed disciplinary model strongly influences the culture at SWPF without a corresponding strong rewards and recognition program. The result is that many workers may perceive behavioral observations as leading to discipline, rather than a positive method to identify and eliminate at-risk behaviors. Further discussion of PBSOP tracking and trending is located in the Worksite Analysis tenet.

One of the tools Parsons depends upon to communicate with employees is the recurring Monday morning safety meeting, which serves as a means of refocusing workers on the hazards of the construction site. The Team was present during the Monday meeting and observed the interaction between managers and the workers. There was only one safety input from employees and several informative safety topics from managers. The Team interviewed several employees after the meeting and asked why it was management-led with minimal employee participation. Employees indicated that in past meetings, when employees would bring up topics or concerns, the response from managers was not conducive to a positive working relationship. The interviewed workers felt that managers were demeaning them when they brought up issues. Parsons should find ways to improve employee participation in the Monday morning safety meeting.

**Opportunity for Improvement:** Parsons should find ways to improve employee participation in the Monday morning safety meeting.

Workers' participation in the development of work packages is minimal, and only occurs if the work is of a 'critical' nature. For example, Parsons considered the placement of the large stainless steel tanks in the dark cells a critical task. This challenging placement required a crane to lift the tanks into the middle of the building creating structural clearance issues. Workers and managers worked together to design and plan the installation, and decided to perform this activity on a weekend when other workers were not present. In this case, the working relationship between managers and workers demonstrated the value of expanded worker participation in job planning. For other (noncritical) evolutions, most craft workers said that only their foremen or other supervisors were involved in the development of work packages and JHA. Parsons should find ways to include more workers in the development of work packages or JHAs as a means of improving worker involvement.

**Opportunity for Improvement:** Parsons should find ways to include more workers in the development of work packages or JHAs as a means of improving worker involvement.

Most employees understood their stop work authority as discussed in their initial training and included in the *Construction Health and Safety Employee Handbook*. However, some employees indicated that supervisors do not always share a positive view of "stop work." Due to the number of workers and activities taking place in the process building, there are many instances where different crafts are in close proximity to each other. Sometimes, hazards created by one work group affect the safety of collocated workers. As an example, a worker on scaffolding was grinding imbeds so hangers could be welded in place for installation of overhead process equipment. The painters were working adjacent to the grinding activity. The painters were not wearing the same face protection used by the person grinding the imbeds. Upon noticing the disparity, the workers stopped the grinding because grinding material was a hazard to the painters. When the worker summoned his foreman and explained the situation and his concern for the painters, the foreman advised that if he could not do the job, another person could replace him. When the foreman left, the painters and the grinder agreed that by moving the activities some distance apart, both could complete their work without posing undue hazards. While this resolved the potential danger to the painters, it highlighted the fact that some supervisors consider completion of work as a higher priority than worker safety.

## Conclusion

Some Parsons employees are actively involved in the safety program. Parsons has established policies and expectations for workers to become involved in improving workplace safety. Opportunities exist for employees to participate in committees, walkdowns, and safety assessments, but Parsons has only had limited success encouraging broader worker participation in safety initiatives. Most employees have not taken advantage of those opportunities. Parsons needs to find effective means to increase and encourage employee participation in the safety program in order to demonstrate the effective Employee Involvement expected of a DOE-VPP Star participant.

## V. WORKSITE ANALYSIS

Management of health and safety programs must begin with a thorough understanding of all hazards that might be encountered during the course of work and the ability to recognize and correct new hazards. There must be a systematic approach to identifying and analyzing all hazards encountered during the course of work, and the results of the analysis must be used in subsequent work planning efforts. Effective safety programs also integrate feedback from workers regarding additional hazards that are encountered and include a system to ensure that new or newly recognized hazards are properly addressed. Successful worksite analysis also involves implementing preventive and/or mitigating measures during work planning to anticipate and minimize the impact of such hazards.

The DOE guidance for implementation of 10 CFR 851, *Worker Safety and Health Program*, states, "an initial hazard evaluation should be conducted to identify hazards and establish a baseline for future evaluations." That evaluation becomes the foundation for determining which workplaces need periodic monitoring. Once the baseline hazards are developed, the baseline should undergo periodic review to maintain applicability. Parsons has collected numerous air samples and noise monitoring data during activities. For example, it has air sampling data for hexavalent chromium exposure during welding and grinding of stainless steel. It has also collected data for methylene diphenyl diisocynate (MDI) exposure from spray-painting fire retardant, and for various solvents and adhesives used at the construction site. Parsons has also collected hazardous noise exposure data for the construction and fabrication shops. The safety organization recently began converting the paper records to electronic form to store and reference samples taken during construction activities at the SWPF construction site. Parsons is populating the database with the older sampling data. An intern was tasked last summer to assist the IH group to input that data but the process is time consuming and not a high priority. Although Parsons has the sampling data, it does not have comprehensive baseline exposure assessment documents that serve as the basis for its IH program.

While developing a JHA for a task, Parsons may identify the need to evaluate a potential exposure. Parsons documents that evaluation in an IH sampling plan, with the resulting plan included in the JHA. The Team reviewed three active JHAs that identified 18 individual IH sampling plans (IH Monitoring Plans) that supported those JHAs. The Team randomly selected five of the plans for review, but Parsons was only able to locate one of the IH sampling plans. The IH sampling plans were also not included in the original work packages. As a result, the IH sampling plans and their analysis has been lost. The Team noted that the IH Monitoring Plan database contained numerous other IH sampling plans. However, Parsons should maintain all sampling plans as reference material to demonstrate the analysis performed for those activities and for use in future work activities.

The IH manager indicated that he uses the 3-week look-ahead meeting to anticipate and evaluate any new processes coming online that may require IH analysis and sampling. Based on the look-ahead meeting, the IH manager was able to evaluate the chemical's application and prepare a sampling plan, if necessary, in advance of the commencement of work. The IH manager cited the air sampling strategy developed for the fire protection coatings in the CPA as an example. However, Parsons' procedures and policies do not describe or require this look-ahead approach.

Parsons has an open corrective action from its own self-assessments to establish a more effective system for recording and retrieving IH sample results. However, Parsons did not self-identify

the lack of a comprehensive baseline exposure assessment to determine if existing sampling data is sufficient, did not identify other activities that need to be evaluated, and did not develop a strategic plan for exposure monitoring at the site. In order to achieve Star status, 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 IH program.

**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 IH program.

The JHA documents accompany all work packages. Planners develop JHA using PP-SH-4364, *Job Hazard Analysis*. The process uses a computer program to walk through the job steps and identify hazards. The planner then selects controls, or may ask the construction safety group to identify applicable controls. Most construction hazards have corporate or regulatory controls established. For example, hazardous energy controls (e.g., lock-out/tag-out), confined-space access, welding, and scaffolding all have established regulatory standards that workers must meet. SMEs, supervisors, and managers review the work packages, including the JHA. As discussed in the Employee Involvement tenet, craft workers are not typically involved in the development of JHA unless managers or supervisors decide that there is an input needed from senior craftsmen. Prior to beginning work, a supervisor reads the JHA to the craft workers and has the employees sign the work package, indicating that they understand the work requirements. The Team reviewed several work packages and associated JHAs. The JHA form describes the work activity, potential hazards, and preventive or corrective measures, but does not include analysis of the hazard (quantitative or qualitative, exposure pathways, assumptions, or other relevant analysis) that demonstrates the controls are sufficient. The Team asked craft workers if they understood the reason for a control, most acknowledged it was “common sense” based on skill of their craft.

For example, the Team observed workers using a fall protection system (Miller Beam clamp) designed for use on steel I-Beams between 3 and 14 inches wide. In this case, workers attached the beam clamp to a welded ventilation duct hanger (a 4-inch by 2-inch “U” channel). Regulatory requirements for fall protection systems require that the anchor point must be able to hold a 5,000-pound dynamic load, and workers must use the system per the manufacturer’s directions. Parsons had not evaluated the ventilation duct hangers to determine if they met the 5,000-pound weight requirement, nor had it evaluated whether the configuration of the duct hanger was equivalent to a steel I-Beam per the manufacturer’s design. Parsons should have analyzed these questions during the preparation of the JHA for the activity or in the analysis for the fall protection plan. The Team discussed this observation with the safety professional involved. He communicated the issue to engineering to evaluate the fall protection system in the configuration it was being used. After completion of the analysis, Parsons should capture the analysis in its fall protection plan. In general, Parsons should ensure it captures the analysis justifying the selected controls during preparation of JHA. This analysis may be a regulatory reference, sampling data and calculation result, or other means to convey why the control is adequate.

**Opportunity for Improvement:** Parsons should ensure it captures the analysis justifying the selected controls during preparation of JHA.

The SWPF Project uses computer software to schedule worksite inspections by managers and superintendents. Guided by the software, weekly inspections by managers and superintendents concentrate on particular areas based upon the phase of construction; currently, the focus is on heavy construction and associated hazards. According to the application for participation in the DOE-VPP, managers and superintendents are required to perform at least one inspection a week. The VPP Team Leader accompanied the Construction Manager/Resident Engineer Liaison on a safety inspection during this assessment. The Construction Manager/Resident Engineer Liaison focused his attention on housekeeping and general safety issues and talked with workers encouraging a dialogue for issues or general discussion. The members of the Safety organization are required to perform at least three inspections a week. In addition, all foremen perform daily inspections of their assigned workspaces, and at least monthly, the ESC performs a safety inspection.

While the worksite inspection software does some collective analysis, the data does not include time or location data for the observations. This limits Parsons' ability to trend the observations effectively. If the surveillance database allowed the observers to identify time and location for their observations, Parsons could more effectively identify differences between shifts or work groups. For example, the Team noted differences between the first and second shifts regarding workers' attention to proper Personal Protective Equipment (PPE) use. Parsons could not identify this condition without the time and location data.

Parsons has three formal mechanisms to address accidents/incidents lessons learned. As described in the Parsons' application, PP-SH-4368, *Reporting and Investigation;* CON-OPS-07.4, *Investigations;* and CON-OPS-15, *Operating Experience/Lessons Learned*, contain these mechanisms and provide guidelines for reporting construction work-related injuries, illnesses, and incidents as required by 29 CFR 1904, *Recording and Reporting Occupational Injuries and Illnesses*, and for property damage. Project procedure, PP-OP-8504, *Investigation and Critique*, identifies processes associated with event/accident scene preservation and release, conduct of detailed formal project investigations for selected significant events/accidents, and project support to formal DOE accident investigations conducted under DOE Order 225.1B, *Accident Investigations.* Parsons implements its lessons learned program through CON-OPS-15. In all of the above procedures, Parsons annotates mandatory compliance actions with the regulatory driver. In addition, the ES&H manager receives information on near-misses for followup or investigation. There were no investigations ongoing or initiated during the Team's assessment.

Parsons tracks and trends a variety of information related to construction activities, including accident/injury rates. The Team interviewed the ES&H manager concerning tracking and trending at SWPF. Parsons attempted to determine accident/injury trends, by either body part, construction phase, or other indicators, but it has not produced meaningful results. Other areas that are tracked and trended include: closure for corrective actions, supervisory inspections, individual safety-related conditions, issues that are immediately corrected on daily safety reports, first-aid cases, and maximum time between near-miss reports. As described in the Employee Involvement tenet, Parsons is using PBSOP. The PBSOP checklist documents the observer, date, time, number of employees observed, project assignment, and weather conditions. The checklist has 36 individual categories, which the observer can rate as safe or at-risk and comment

on the observation. Parsons counts every PBSOP observation on its PBSOP checklist as an individual event for tracking and trending purposes. However, it should also consider the number of people performing the evaluations and identify if PBSOP use is widespread or just a few individuals performing the observations. From March 2012 to February 2013, monthly observations ranged from a low of 26 in November 2012 to 1,307 in January 2013. A leading indicator, such as PBSOP observations, is useful for reducing accidents and injuries. The Team has observed at other DOE-VPP sites that when the number of observations goes up, the accident/injury rates fall.

## Conclusion

Parsons understands the hazards associated with large construction projects, and has a large volume of sampling data to evaluate potential hazardous exposures. Parsons safety professionals frequent the work areas and evaluate working conditions for unsafe practices. It has not yet integrated that sampling data and knowledge into a comprehensive baseline exposure assessment. Parsons needs to expedite completion of 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 IH program in order to demonstrate the effective Worksite Analysis expected of a DOE-VPP Star participant.

## VI. HAZARD PREVENTION AND CONTROL

Once hazards have been identified and analyzed, they must be eliminated (by substitution or changing work methods) or addressed by the implementation of effective controls (engineered controls, administrative controls, or PPE). Equipment maintenance processes to ensure compliance with requirements and emergency preparedness must also be implemented where necessary. Safety rules and work procedures must be developed, communicated, and understood by supervisors and employees. These rules/procedures must also be followed by everyone in the workplace to prevent mishaps or control their frequency/severity. Where hazards cannot be eliminated, they are mitigated through the appropriate use of controls in a hierarchical approach, first engineered controls, then administrative controls, and/or use of PPE.

Parsons purchases all chemicals used onsite. In addition, before purchasing, Parsons must approve any chemical for use. The approval process includes an evaluation using the Parsons procedure, PP-SH-4367, *Hazard Communication Procedure*. During this approval process, less harmful alternatives are considered and substituted if possible. For example, Parsons substituted the chemical Zinc-it® for the product Galva-lite® due to the harmful methyl ethyl ketone contained in the Galva-lite® product.

The Team also observed several examples where Parsons integrated good hazard controls into construction practice and design. For example, in preparation for concrete pours, Parsons installed wire mesh on top of the rebar mats to make walking safer, more comfortable, and easier for workers. Engineers evaluated the wire mesh to ensure it did not affect the final structural integrity of the concrete. Parsons also modified building designs to include anchor bolts set in the concrete forms on the walls of CPA and other concrete pads to facilitate adding hand railings around elevated work surfaces during the construction. Parsons will shear the anchor bolts off before construction is completed. Parsons also extensively uses preengineered, OSHA-qualified mobile scaffolding with outriggers that allow for quick assembly and customization, mobility, and stability in support of elevated work throughout the project. Another engineered design feature, incorporated due to lessons learned from the Hanford Waste Treatment and Immobilization Plant, is a common low-point for all waste lines entering the plant. All facility piping has a minimal negative slope (i.e., no level piping) leading to a low point drain, that in the event of an incident or loss of power, all waste in the process lines will gravity feed out of the facility back into tanks where it can be safely held until the problem is addressed.

The Parsons Construction manager recognized during the design phase that the initial design of the dark cells would represent significant access challenges as the cells neared completion. The only access available during the extensive piping installation work would be from a third floor ceiling hatch. The workers would be required to access the dark cell areas via an extensive network of scaffolding and ladders. The construction manager insisted that the design agent revise the construction drawings to include construction access hatches into the lower level of the dark cells to facilitate worker access and material handling. This change greatly reduced the workers' potential exposure to physical hazards.

Administrative controls and practices are employed when engineered and substitution controls are not sufficient. For example, Parsons mandates the use of spotters and flagmen for equipment moves and some overhead work when other engineered controls are not available. Caution tape, warning signs, color-coded roping, and postings delineate hazardous areas. Parsons administratively restricts the number of man-lifts to two per cell, due to the analyzed floor

loading limits. A cell is a continuously poured section of concrete floor. Parsons clearly marks the cell boundaries with yellow paint or tape on the floor, signs on the wall, and reminds workers during prejob briefings and employee safety meetings.

Parsons posted three-dimensional drawings as operator aids throughout the facility. Parsons does not control or routinely update the drawings, but uses them to represent an overall presentation of design expectations within each room of the facility. The drawings assist workers in visualizing the final installation of equipment and help workers and supervisors interpret the construction drawings in the work package. Workers use the operator aids as an additional check to clarify installation locations and configurations against the controlled documents in the work packages. All personnel understood these are reference-only documents and that workers must perform all construction using the controlled documents provided in work packages.

The Team identified some weaknesses in the hazard control processes. For example, the *Fall Protection, Ladders and Scaffolding,* procedure only specifies daily inspection of scaffolds performed prior to the start of the day shift. Parsons does not inspect scaffolding for use on second shift. The second shift personnel relied on the first shift inspection. OSHA standard, 1926.451(f)(3), requires "scaffolding must be inspected prior to each work shift or after any occurrence which could affect the scaffolds structural integrity." Once the Team identified this issue, Parsons initiated changes to its procedures and training to comply with the OSHA standard.

During a general discussion session with electrical workers, one worker stated that arc flash protection is not required per procedure when performing absence of voltage checks. Parsons procedure, PP-SH-4377, *Hazardous Energy Control,* references National Fire Protection Agency (NFPA) 70E, which establishes methods and practices for arc flash protection. NFPA 70E requires that although the source is locked out, any component must be treated as potentially energized until proven otherwise by an absence of voltage check (zero energy verification). The standard provides arc flash calculations to help identify the appropriate PPE for lock and tag evolutions and absence of voltage checks. Parsons also incorporates NFPA 70E arc flash requirements into PP-SH-4388, *Working on or near Energized Equipment,* and employs an electrical permit to approve and control that work. Further, Parsons uses NFPA Table 130.7 (C)(9)(a), to determine hazard/risk category for selection of PPE. While both Parsons procedures reference NFPA 70E, the procedures do not include explicit direction for the use of arc flash protection during zero energy verification during lockout/tagout activities. PP-SH-4377 states circuits shall not be considered electrically safe until the absence of voltage is verified, and PP-SH-4388 implements the NFPA 70E requirements for both PPE and flash protection boundaries when working on energized circuits. The lack of explicit direction in the electrical safety procedures regarding this issue is causing an unintended at-risk behavior by the workers during zero energy verifications. Parsons needs to ensure that workers treat electrical components as potentially energized until confirmed otherwise, and use appropriate arc flash protection per NFPA70E.

**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 NFPA70E.

In some instances, the Team observed barricades that did not properly define and protect workers within the arc of swing for cranes and man lifts. In the observed instances, the barricades did not properly reflect the swing of the crane during its rotation and represented a potential danger to the workers in the area.

In addition, the HSS Independent Oversight Assessment Report of Safety Culture stated that some Parsons interviewees indicated that people do not follow procedures as often as they should, and that some employees estimated that about 40 percent of the procedures could use improvement. Some DOE personnel indicated that they perceive Parsons' procedures to be generally below adequate because they are written as if they are procuring work, not actually doing the work. Parsons should review its procedures, ensure that the procedures, training, and handbook are consistent, and meet all necessary requirements.

**Opportunity for Improvement:** Parsons should review its procedures, ensure that the procedures, training, and handbook are consistent, and meet all necessary requirements.

The standard PPE for construction site access is steel toe boots, hardhat, and safety glasses. Parsons determines the need for any additional PPE at SWPF by the results of IH sampling and the JHA performed for each work package. Based on the Team observations and interviews, PPE was readily available and easily obtained by workers onsite.

The Team observations of the construction work area revealed proper PPE use in most cases, but the Team noted a few instances where employees were not using PPE as required. In particular, observations during the second shift identified that individuals were more likely to incorrectly use their PPE or neglect to wear their PPE continuously. Several cases were noted when employees had removed gloves or safety glasses to perform measurements or inspect material and then forgot to reapply the PPE. The contrast between the first and second shifts' adherence to PPE requirements indicates that workers were less attentive to PPE use on the second shift. This may be a result of fewer managers or safety personnel on the second shift. Parsons should seek to strengthen expectations for the second shift's use of PPE through communications, increased managerial and safety group presence, and routine surveillance activities.

**Opportunity for Improvement:** Parsons should seek to strengthen expectations for the second shift's use of PPE through communications, increased managerial and safety group presence, and routine surveillance activities.

Because SWPF is currently in the Design and Construction phase, no activities involve DOE radioactive materials. A subcontractor licensed by the State of South Carolina (a Nuclear Regulatory Commission Agreement State) performs nondestructive examination (NDE) of welds (radiography) per requirements of the subcontractor's license and implementing procedures. An assigned Subcontract Technical Representative, the Construction Safety Manager, and the Radiation Protection Program Manager ensure that adequate safeguards are in place with respect to the general construction workforce. Based on Team observations and interviews, Parsons is minimizing any radiological impacts to the workers. Parsons constructed a radiography bunker, formed from concrete blocks, for performing NDE tests on the assembled piping prior to installation in the CPA. The subcontractor only performs radiography inspections within the CPA during the third shift when no other employees except the radiological contractor personnel are onsite.

RSC Equipment Tool Rental (RSC) provides all hand tools used at the SWPF site. RSC provides the management, tracking, and repair of small electrical equipment by following its RSC Tool Room Standard Operating Procedure (SOP). RSC uses an automated tracking system that tracks any loaned equipment by user so RSC can perform periodic maintenance when necessary.

RSC personnel follow the Tool Room SOP that requires qualified RSC electricians to inspect Parsons electrical tools monthly and designate completion of each monthly inspection with alternating colored tape adhered to the inspected equipment. During a Team walkdown, and prior to releasing two sump pumps to Parsons' employees, RSC workers in the tool crib identified that the pumps did not have the correct monthly electrical inspection designated with that month's white colored tape. Per the SOP, before issuing the pumps, qualified electricians performed the required electrical review and applied the appropriate color-coded tape.

Parsons rents larger construction equipment (generators, forklifts, etc.) through subcontracts, and the vendor supplying the equipment is responsible for equipment maintenance. Parsons records the hours the equipment is used and reports that information to the vendors. The vendors track equipment usage and perform recommended maintenance per the manufacturer's instructions.

Some workers interviewed expressed concerns that some equipment, specifically man-lifts, are not receiving adequate service per the expectations outlined in the vendor contract. Workers reported vendors were not inspecting and identifying leaking hydraulic hoses and low battery water levels per the manufacturer's specifications. Due to time constraints, the Team was unable to confirm that vendors were not adequately maintaining the equipment. Parsons should evaluate this situation and ensure vendors are maintaining all vendor-supplied equipment per the manufacturer's recommendations.

**Opportunity for Improvement:** Parsons should evaluate this situation and ensure vendors are maintaining all vendor-supplied equipment per the manufacturer's recommendations.

Permanent plant equipment being installed, e.g., pumps, motors, electrical panels, electrical transformers, etc., that require preventive maintenance is entered into a computer database, which tracks maintenance status, prints out maintenance schedules, and records maintenance history. Based on lessons learned from the Hanford Waste Treatment and Immobilization Plant Project, Parsons adopted a noteworthy practice to protect installed process equipment. Parsons tasked its operations group to perform pump surveillances on installed pumps that include periodic rotations of pumps, application of desiccant, and heat and humidity assurance for pump motor windings. This notable practice ensures proper pump operation once the facility comes online.

Medical services for the SWPF Project are maintained through several sources that are located at both onsite and offsite medical facilities. Parsons has a memorandum of understanding with SRS for emergency response and medical care. Emergency medical response is available at all times onsite. Parsons has contracted its occupational medicine program through the University Health Care System Occupational Health Center located in Augusta, Georgia. The Occupational Medical Provider (OMP) reviews new employee questionnaires and provides fitness-for-duty approval or disapproval based on the evaluation. The OMP performs physical examinations at the doctor's discretion. Drug screenings are also required per Parsons' employee agreements. The OMP visits the site periodically to observe working conditions and hazards to which

employees are exposed. It uses this information in medical screening for fitness-for-duty examinations. The OMP must see and evaluate workers who sustain an injury that requires long-term care and/or work restrictions to evaluate recuperative progress and release from work activity restrictions. In addition, OMP must clear workers who have personal injuries (not work-related) that involve more than 5 days away from work prior to the employee returning to work. Per the IH procedure, the IH manager oversees the exposure monitoring programs and provides that information to OMP for evaluation. Based on the IH review, hearing conservation is the only medical monitoring performed at SWPF.

In addition to SRS and OMP providers, a walk-in clinic, Doctors Care located in Aiken, South Carolina, provides offsite medical services. The Aiken Regional Medical Center Emergency Room is available for medical problems that occur when Doctors Care is unavailable.

Parsons recently eliminated its onsite nursing support. Parsons uses Work Care, a commercially available medical consultation service. Any Parsons personnel may call a medical doctor at the Work Care 800-phone number for recommended medical advice and recommendations for treatment of minor injuries, although safety personnel frequently initiate the call. Work Care is only an advisory consult provider. Based on Team interviews, if a Parsons employee insists on medical treatment or evaluation, Parsons will transport that individual to the Doctors Care unit in Aiken for evaluation. The site has first aid and cardiopulmonary resuscitation (CPR)-trained personnel on hand for first response. This training is provided free of cost to all personnel who request attendance. All designated emergency coordinators are required to have this training.

Parsons has contracted with a wellness program management group for its exempt employees to provide credits towards medical program deductibles of $15 per pay period if exempt employees volunteer for the program's biometric assessments. This program is not available to nonexempt employees due to labor insurance agreements. Parsons provides for employees to participate in a stretch and flex program as part of their daily work routine. The stretch and flex program is conducted during the daily safety brief and Team observations demonstrated excellent worker participation.

The Emergency Response Interface Control Document (ICD) 12 describes the interface between the SWPF Project and the Liquid Waste Contractor/Site Contractors' emergency response organization. The ICD is a general agreement to provide emergency response, reporting, and coordination for emergencies that may occur at SWPF during construction or commissioning/operations activities. The emergencies addressed by ICD include fire, environmental spill, medical, industrial accidents, weather, or events related to SRS Operations (e.g., sheltering for site emergencies due to radiological or toxic chemical take-cover events). The Emergency Response ICD covers both construction and commissioning/operations activities. Requirements for emergency plans and contents differ between the two activities. During construction, 29 CFR 926.35, *Employee Emergency Action Plan,* is the regulatory driver for SWPF. During commissioning/operations, DOE Order 151.1C, *Comprehensive Emergency Management System,* and 29 CFR 1910.38, *Emergency Action Plans,* will be the regulatory drivers. However, during the Team's review, DOE Order 151.1C did not yet apply to SWPF's emergency response requirements.

Parsons incorporates emergency planning measures consistent with 29 CFR 1926.35 into S-CIP-J-00005, *SWPF Construction Health and Safety Plan*. The plans are commensurate with the types of emergencies anticipated during construction activities. The onsite Emergency Coordination (EC) staff provides the initial response to all SWPF emergencies, and requests emergency response assistance from the SRS Operations Center (SRSOC) as necessary. The EC staff ensures that there is adequate communications equipment to receive SRSOC notifications and request assistance. In addition, the EC procedure requires that Parsons maintain adequate emergency equipment and supplies at the construction site.

The plan specifies the use of Building 704-S (DWPF) as a tornado shelter for the 763-S warehouse personnel, 705-3J trailer personnel, Tent Warehouse personnel and any personnel in the laydown area. Since the completion of the roof on the CPA, the CPA is now acceptable as a tornado shelter-in-place option for the workforce. Due to cutouts and other wall penetrations associated with construction activities, the CPA is still unsuitable for shelter-in-place during a radiological event at S or H Areas that might affect J Area personnel.

The Team observations identified several concerns with relation to this element of the Emergency Management Program. Specifically, in the event of a radiological event in the neighboring S or H Areas, the ability of the emergency coordinator to communicate adequate warnings to the employees is limited. Parsons-controlled Public Announcement (PA) speakers are only located in the Administration building. All other areas are expected to be alerted to events via radios that are provided to supervisors and foremen. Radio reception within the CPA is poor in several areas, limiting the communication in such an event. The EC procedure requires that in such an event, EC and safety personnel perform sweeps and use megaphones to alert employees throughout the site. However, this action requires EC and safety personnel to put themselves potentially at risk to satisfy this expectation. Critical time could be lost attempting to communicate the nature of the emergency, which could slow other appropriate emergency response. After discussing this issue with the Team, safety personnel confirmed that they recognized this vulnerability and had recently identified PA speakers in storage, which Parsons will add to the CPA as soon as it can install wiring. The Team recommends that Parsons expedite the installation of PA speakers in CPA and in addition, consider installing additional speakers throughout the facility to notify all personnel across the site immediately if an event occurs. Parsons should also consider installing radio repeaters to improve the effectiveness of radios in low reception areas such as the CPA labyrinth rooms and adjoining hallways.

**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.

Another concern is that SWPF does not participate in joint drill exercises with the S or H Areas. While DWPF maintains the ability to broadcast announcements on the SWPF PA system, this system is not effectively tested and Parsons does not train SWPF employees to respond to DWPF emergency sirens. DWPF conducted a radiological shelter-in-place alarm test during the Team's review and observed that no SWPF employees could identify the significance of that alarm. Parsons trains SWPF personnel to ignore a DWPF event until the SRS transmits the event via the SRSOC communications system to the Parsons Emergency Coordinator or safety personnel, not when they hear the alarm. 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.

**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 has 18 drill coordinators/wardens onsite to assist with drill execution and provide direction during emergency events. All Parsons emergency coordinators are first aid and CPR trained. The local Parsons corporate office located in Aiken, South Carolina, provides personnel to perform oversight for each drill. Per its contract and the Emergency Response ICD, Parsons performs 4 to 6 drills per year. In the event of an actual event onsite, Parsons will take credit for that event against its drill schedule.

## Conclusion

Parsons generally controls the dominant hazards of the construction site through a solid hierarchical approach to hazard control. However, some procedures and training material need improvement. Parsons also needs to continue to improve communications for emergency events specifically with regard to events at H and S Areas. Parsons has a system in place for controlling hazards in the workspace, but needs to make additional improvements to demonstrate the effective Hazard Prevention and Control program expected of a DOE-VPP Star participant.

## VII. SAFETY AND HEALTH TRAINING

Managers, supervisors, and employees must know and understand the policies, rules, and procedures established to prevent exposure to hazards. Training for health and safety must ensure that responsibilities are understood, personnel recognize hazards they may encounter, and they are capable of acting in accordance with managers' expectations and approved procedures.

The Team found that overall there is a strong management commitment to safety and health training at SWPF. Team interviews demonstrated that managers, supervisors, and employees alike are knowledgeable about and understand the policies, rules, and procedures established to help prevent unnecessary exposure to the hazards associated with construction.

The Team attended several Parsons training courses and identified some opportunities for improvement. For example, during new-hire training, Parsons provides very little instruction to the workers regarding ISMS. In addition, Parsons provides no information regarding VPP tenets, or the expectations. Parsons should use the new-hire training to emphasize its commitment to the tenets of VPP and educate new-hire employees to those expectations.

**Opportunity for Improvement:** Parsons should use the new-hire training to emphasize its commitment to the tenets of VPP and educate new-hire employees to those expectations.

Safety and health training begins with new employees receiving General Employee Training in order to understand the hazards associated with work activities at the SWPF site. In addition, Parsons assigns new employees and apprentices to experienced mentors/journeymen. The mentors evaluate the new employees and apprentices' progress before allowing them to work independently. Additional training may be required depending on the worker's assigned work. Parsons maintains specified training and qualifications on the worker's training card.

Parsons formalized its mentoring program in 2009 following an accident that seriously injured an apprentice performing a seemingly routine crane maintenance activity. Parsons screens and selects experienced employees to serve as mentors for new employees. It assigns mentors to journeymen and apprentice new hires within the first 3 days of assignment to SWPF. The mentors provide continuous reinforcement of all safety work rules used at SWPF and ensure the new employee or apprentice has all needed PPE before performing work on the construction site. Additionally, the mentor ensures that the apprentice attends and participates in the daily Safe Work Briefs, understands Parsons Stop Work/Time Out for Safety Policy, and continuously reinforces SWPF work control procedures. The mentor also ensures that supervisors do not assign work to apprentices that are beyond the apprentice's capabilities and current level of training.

Newly hired journeymen wear blue hardhats with a yellow stripe of tape for their first 30 days onsite so other workers can easily identify those employees as new hires. In addition, these workers receive Parsons New Hire Craft/Mentor Identification cards. The combination of formal mentoring and hardhat identification allows for a more robust "buddy system" on the project.

In anticipation of the ramp up to the concrete pours of the CPA building 2 years ago, Parsons recognized that a large influx of carpenters would be required to support this activity. Because carpenters' skill sets include a variety of specialties, Parsons was concerned that many of the new carpenters may not have sufficient experience in constructing concrete forms. Parsons,

working in conjunction with the local carpenters union, developed a 1-week training course that detailed the requirements and expectations for concrete form assembly at SWPF. The course was taught by the union workers and was well received by the employees. Furthermore, some carpenters received training on OSHA scaffolding requirements that allowed them to build the large scaffolding infrastructure found in sections of CPA.

During the visitor training presentation, the Team observed that some training slides contained errors, which demonstrated noncompliance with current requirements. The instructor verbally corrected these errors when the Team identified them. However, the presence of these errors in the presentation material undermined the effectiveness of the training itself. The concern is that training material should not contain incorrect information that needs clarification. For example, one training slide stated that, "when ascending or descending a ladder do not carry a load that may throw you off balance." This instruction is incorrect. The site policy requires three points of contact be maintained when ascending or descending ladders. If workers need to move tools or equipment, they must use canvas buckets and rope. The Team identified another discrepancy during the qualification test in that a trenching test question answer did not reflect the information presented in the training slides. Specifically, it did not allow for "trench shielding (i.e. trench box)" as a correct option for safe work in trench operations. Parsons should review its training presentations content to ensure the information is up to date with current requirements and site expectations.

**Opportunity for Improvement:** Parsons should review its training presentations content to ensure the information is up to date with current requirements and site expectations.

Parsons provides to all new employees the *Construction Health and Safety Employee Handbook* pocket reference book that includes a quick reference to common construction safety requirements and site expectations for employee conduct. This reference is an excellent resource to the workers; however, as discussed earlier, some of the information contained in the book is out of date. Based on interviews, Energy Solutions is in the process of updating the reference book to address these issues. Parsons should review and update training reference materials on a regular basis to ensure the content is accurate.

**Opportunity for Improvement:** Parsons should review and update training reference materials on a regular basis to ensure the content is accurate.

Work Control training is required for all employees at the foremen level and above, per PP-CS-7201, *Construction Work Release Procedure*. This training is designed to ensure that foremen and supervisors understand the work control process used onsite. In addition, this course also includes instruction detailing how foremen should conduct the daily safety briefs ensuring that the workers participate during the briefs to improve their effectiveness.

The Team sampled employee training records and no employee's training was found to be out of date for the work they were performing. In addition, the Team interviewed individual workers about their specific required training as it relates to their work activities. During observations of a labor crew with janitorial responsibilities, the Team confirmed that Parsons trained each laborer to PP-SH-4363, *Blood Borne Pathogen*, and that each worker stated they were adequately prepared to perform that work.

## Conclusion

Overall, the Safety and Health Training is adequate and effective in addressing the hazards associated with working at the construction site at SWPF. However, some materials are out of date and require updating to ensure workers' proper understanding of requirements. Parsons has an adequate training program in place, but needs to make additional improvements to demonstrate an effective Safety and Health Training program expected of a DOE-VPP Star participant.

## VIII. CONCLUSIONS

Overall, Parsons has established a compliant safety program at the SWPF Project. The corporate commitment to safety and health excellence is commendable, and includes a standard set of expectations. The decision to pursue participation in DOE-VPP was a natural progression from the Parsons corporate commitment to excellence in worker safety and health. However, significant cultural pressures, including construction delays, inconsistent year-to-year funding, and a decision not to seek outside assistance through a formal mentoring arrangement with an existing DOE-VPP participant have hampered Parsons progress toward achieving DOE-VPP Star status. Parsons needs to find ways to expand employee involvement and ownership of the safety program. Parsons needs to address some weaknesses related specifically to the baseline exposure assessment and documentation of hazard analysis to achieve full compliance with DOE health and safety requirements. Finally, Parsons needs to find ways to encourage and reward workers for taking personal responsibility, challenging the status quo, and identifying improvements. The Team recommends that the Parsons SWPF Project be admitted to DOE-VPP at the Merit level.

# Appendix A

## Onsite VPP Audit Team Roster

### Management

Glenn S. Podonsky
Chief Health, Safety and Security Officer
Office of Health, Safety and Security

William A. Eckroade
Principal Deputy Chief for Mission Support Operations
Office of Health, Safety and Security

Patricia R. Worthington, PhD
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### Review Team

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| Michael S. Gilroy | DOE/HSS | Hazard Prevention and Control, Safety and Health Training |
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| Rocky Simmons | HAMTC Safety Representative<br>Mission Support Alliance, LLC/<br>Richland Operations Office | Hazard Prevention and Control, Safety and Health Training |