

Department of Energy

Washington, DC 20585

February 11, 2013

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DNF SAFETY BOARD

The Honorable Peter S. Winokur
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, DC 20004

Dear Mr. Chairman:

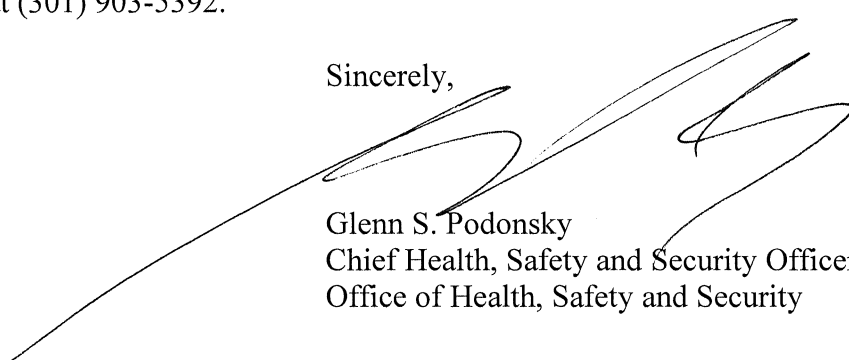
The purpose of this letter is to provide you with the final report to complete Action 2-6 in the Department of Energy's Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*.

As we referenced in our letter dated December 12, 2012, the final assessment at the Savannah River Site Salt Waste Processing Facility Project was completed, but the report was not yet finalized.

Enclosed, please find the final assessment report of the Savannah River Site Salt Waste Processing Facility Project; *Independent Oversight Assessment of Nuclear Safety Culture at the Salt Waste Processing Facility Project – January 2013*.

If you have any questions or need further information, please contact me at (202) 586-0271, or Mr. Thomas Staker, Deputy Director for Oversight, Office of Enforcement and Oversight, at (301) 903-5392.

Sincerely,



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

Enclosure



Independent Oversight Assessment of Nuclear Safety Culture at the Salt Waste Processing Facility Project



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January 2013

**Office of Safety and Emergency Management Evaluations
Office of Enforcement and Oversight
Office of Health, Safety and Security
U.S. Department of Energy**

**Independent Oversight Assessment of Nuclear Safety Culture at the
Salt Waste Processing Facility Project**

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Acronyms

BARS	Behavioral Anchored Rating Scales
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DPO	Differing Professional Opinion
ECP	Employee Concern Program
EDR	Employee Dispute Resolution
EM	Office of Environmental Management
HSS	Office of Health, Safety and Security
LL	Lessons Learned
LW PO	Liquid Waste Project Office
NRC	Nuclear Regulatory Commission
OE	Operating Experience
SME	Subject Matter Experts
SMIRF	Senior Management Issue Resolution Forum
SRB	Senior Review Board
SRR	Savannah River Remediation
SRS	Savannah River Site
SWPF	Salt Waste Processing Facility
SWPF PO	Salt Waste Processing Facility Project Office
SWPF IPT	Salt Waste Processing Facility Integrated Project Team

1. Introduction

The U.S. Department of Energy (DOE) Office of Enforcement and Oversight (Independent Oversight), within the Office of Health, Safety and Security (HSS), conducted an independent assessment of nuclear safety culture¹ at the Salt Waste Processing Facility (SWPF) Project. The primary objective of the evaluation was to provide information regarding the status of the safety culture at the SWPF Project. The data collection phase of the assessment occurred during August – September 2012.

The SWPF Project is an ongoing project to construct a facility that will process liquid wastes in support of the DOE environmental management mission. When operational, the SWPF will separate the highly radioactive cesium and actinides from salt solutions. After completing the initial separation process, the concentrated cesium and actinide waste will be sent to the nearby Defense Waste Processing Facility where it will be immobilized in a glass matrix and stored in vaults until it can be placed in a geological repository. The decontaminated salt solution will be mixed with grout at the nearby Saltstone facility for disposal onsite. The SWPF was scheduled for completion in 2015 to meet a commitment to state regulators. However, DOE and Parsons have been working on developing new estimates for the project since early 2012, following lengthy delays in the delivery and installation of several key vessels to the plant. Project officials have indicated that a contract modification and additional funding will be required and start-up delayed.

Within DOE, the Office of Environmental Management (EM) has line management responsibility for the SWPF Project. At the site level, line management responsibility for the Project falls under the Savannah River Operations Office and its Salt Waste Processing Facility Project Office (SWPF PO). Under contract to DOE, the Savannah River Remediation (SRR) team is responsible for managing programs to dispose of legacy waste at the Savannah River Site (SRS). Under a separate contract with DOE, Parsons is responsible for the SWPF design and construction activities, and one year of operations and support.

The safety culture extent of condition assessments are being performed in accordance with a Secretarial commitment to the Defense Nuclear Facilities Safety Board (DNFSB) related to DNFSB Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*. Specifically, in the Department's Implementation Plan dated December 27, 2011, the Secretary of Energy directed HSS to perform safety culture assessments of major ongoing large nuclear design/construction projects to determine the extent of condition of safety culture concerns identified at the Hanford Site Waste Treatment and Immobilization Plant.

Before starting the assessment, HSS enhanced its capability to assess safety culture through consultation with the U.S. Nuclear Regulatory Commission (NRC), several nuclear power generating utilities, and associated support organizations to benchmark their processes. Recognizing that it has significant expertise in nuclear safety and issues management but limited on-staff expertise in systematic application of behavioral science-based methodologies for performing safety culture assessments, HSS contracted with an external company that specializes in human performance analysis to support the data collection and analysis efforts.

¹ While there are various safety culture models, the definition used in the Energy Facility Contractors Group report, which was accepted by the Deputy Secretary and referenced in the DOE Integrated Safety Management Guide is: An organization's values and behaviors modeled by its leaders and internalized by its members, which serve to make safe performance of work the overriding priority to protect workers, the public, and the environment.

2. Scope and Methodology

This Independent Oversight assessment covered Federal and contractor employees working on the SWPF Project. The organizations covered in the scope of the assessment included

- DOE SWPF PO, including support contractors (i.e. SRR) who work for the field element on SWPF matters.
- SWPF contractor organizations, which includes Parsons, as well as Energy Solutions (a major subcontractor to Parsons), and other subcontractors to Parsons that support the SWPF Project.

An experienced HSS manager led the assessment. Onsite data collection was conducted primarily by HSS personnel. To ensure a valid and effective assessment of the existing safety culture, HSS used external independent safety culture experts to analyze various sources of data and perform an independent evaluation. The independent safety culture experts have extensive experience in the development and application of safety culture assessment methodologies used by commercial nuclear and other industries. Appendix A provides additional information about the composition of the Independent Oversight team, including the credentials of the independent safety culture experts.

With the guidance of the external independent safety culture experts, the Independent Oversight team selected a methodology for the assessment that provides an objective and systematic measurement of the organizational behaviors that impact safety performance, using multiple data collection tools to assess organizational behaviors. These tools include functional analysis, semi-structured focus group and individual interviews, observations, and behavioral anchored rating scales.

The Independent Oversight team also arranged for the external independent safety culture experts to conduct a culture survey for project personnel using commonly used survey tools and techniques. The culture survey was conducted and analyzed by the external independent safety culture experts. The population sampled in the survey included Federal and contractor project employees.

The evaluation was conducted using the same methodology that aligns with the current NRC procedures for independent safety culture assessment, which identifies nine traits that are viewed to be necessary in the promotion of a positive safety culture:

- Leadership Safety Values and Actions
- Problem Identification and Resolution
- Personal Accountability
- Work Processes
- Continuous Learning
- Environment for Raising Concerns
- Effective Safety Communication
- Respectful Work Environment
- Questioning Attitude.

HSS tasked the independent safety culture experts to analyze the data collected during assessment in accordance with their established methodology. Appendix B provides additional information about the methods and framework for the safety culture assessment.

3. Results and Conclusions

The safety culture evaluation performed by the external independent safety culture experts is provided in Appendix B, which provides positive observations and identifies areas in need of attention for each of the nine traits of a healthy safety culture. The independent safety culture experts evaluated the collective results to formulate the following conclusions about the status of the safety culture at the SWPF Project, which are intended to facilitate the identification of improvement strategies.

The remainder of this section presents the conclusions of the independent safety culture experts for DOE-SWPF PO, SWPF contractors, and for the project as a whole.

DOE SWPF PO

The value of safety is a high priority throughout the SWPF project. However, the consistently negative perceptions by individuals expressed in interviews, focus groups and in the electronic survey data regarding many of the behaviors and processes being implemented by Parsons is resulting in an adversarial relationship between the parties. There is an expressed distrust, lack of respect, and perception of favoritism by DOE SWPF PO. The effects of this adversarial relationship are also evident in the perceptions expressed by some of the other SWPF contractors towards Parsons.

SWPF Contractors

The value of safety is a high priority and is particularly evident in the SWPF contractor organizations. Parsons is acknowledged by all parties to have an excellent safety record and continues to focus its attention on behaviors and processes that promote safe performance. Parsons management recognizes the dangers in complacency and is continuously working to avoid the potential mistakes associated with maintaining the status quo.

The data collected during this assessment indicates significant differences in perceptions around many of the behaviors associated with a healthy safety conscious work environment. In many cases, these differences are being driven by the perceptions of craft personnel, but in some instances they are based on significant differences between management and non-management personnel even across non-craft employee categories. The variability indicates that a clear and consistent message is not being understood by SWPF Project personnel with respect to these values.

While efforts are being made across the SWPF Project contractors to use and implement lessons learned (LL) from both internal and external operating experience (OE), perceptions from data suggest a need to improve the awareness of OE/LL and its broader applicability. There is a perception that the analysis of events is narrowly focused and often attributed to individually based behavior. The value of the extrapolation of the LL to other organizations is therefore often not recognized.

SWPF Project

This assessment has identified issues for the SWPF Project in various aspects of communication, coordination of work, and work group cohesiveness. Some of the problems are created from the nature of the relationship already identified between the DOE SWPF PO and Parsons. Other issues in these areas may be derived from the Project's matrix organization as well as the number of different parent companies involved.

4. Recommendations

A healthy safety culture is most often found within an aligned organization that has effective processes, and motivated people. The following recommendations identify some initial steps that the Independent Safety Culture Evaluation Team believes are necessary to effectively implement and execute the actions that will result in improved safe and reliable performance:

- The relationship between all of the stakeholders involved in the SWPF Project must be re-evaluated and cooperation needs to be facilitated, perhaps through the use of independent parties.
- As this Project moves toward the commissioning and operational phases, the impact of the damaged relationships must be minimized in the interest of the success and safe operation of the facility.
- In order to ensure that the organizations can be successful, a level of trust and respect must be re-established.
- Changes in the management and processes related specifically to the SWPF Project may be required.

The Office of Environmental Management, the DOE Savannah River Operations Office, DOE SWPF PO, and Parsons should evaluate the results of this Independent Oversight safety culture report in their entirety, including the culture insights provided in Appendix B and the above conclusions and recommendations. The insights are intended to stimulate the organizations to reflect on their culture in order to understand the values and assumptions that may be driving behaviors and thus help to shape interventions supportive of a healthy safety culture. Developing a massive amount of corrective actions may perpetuate a compliance mentality, which is not conducive to creating and promoting a healthy safety culture thus efforts to assure that there is a traditional corrective action associated with each insight may be counterproductive. To the extent that corrective actions are identified for specific recommendations, it is recommended that they be managed in accordance with established causal analysis and issues management processes as appropriate.

Appendix A
Supplemental Information

Appendix A Supplemental Information

Dates of Review

Scoping Visit	August 29-30, 2012
Onsite Data Collection:	September 24-27, 2012
Survey Open Period	September 10-21, 2012
Closeout:	October 17-18, 2012

Office of Health, Safety and Security Management

Glenn S. Podonsky, Chief Health, Safety and Security Officer
William A. Eckroade, Principal Deputy Chief for Mission Support Operations
John S. Boulden III, Director, Office of Enforcement and Oversight
Thomas R. Staker, Deputy Director for Oversight
William E. Miller, Deputy Director, Office of Safety and Emergency Management Evaluations

Quality Review Board

William Eckroade
John Boulden
Thomas Staker
Michael Kilpatrick
William Miller
Robert Nelson
George Armstrong

Assessment Team Members

Thomas Staker, Team Leader
Pat Williams, Deputy Team Leader
Joe Lischinsky
James Lockridge
Ed Stafford
Mario Vigliani

Support

Mary Anne Sirk

Independent Safety Culture Experts

Dr. Sonja B. Haber, Independent Safety Culture Expert
Dr. Deborah A. Shurberg, Independent Safety Culture Expert

Expertise and Credentials of the Independent Safety Culture Experts

Human Performance Analysis Corporation (HPA) is one of the leading consulting groups working to assist organizations in **performance improvement** through the understanding and leveraging of the individual, process, and organizational behaviors necessary to facilitate safe operating performance.

The HPA team is composed of experts in **organization and management, safety culture, and human performance analysis**. HPA has decades of experience working across numerous different industries where high safety performance is required, both in the United States and abroad.

HPA provides performance improvement services to public and private sector clients conducting safety-sensitive operations across a wide range of industries including nuclear, healthcare, mining, research, engineering, transportation, and energy.

The principals are:

Sonja B. Haber, Ph.D. Dr. Haber has been conducting work in the area of human performance analysis for over 30 years. She has been involved in the evaluation and intervention of human performance strategies in various applications, including nuclear facilities. For the last 23 years, Dr. Haber's work has focused on improving human performance within organizations that must operate with a high degree of reliability. She has been extensively involved in conducting fieldwork for various international agencies in efforts related to enhancing human performance. Her work has also included cross-cultural analysis of organizational issues in the areas of safety culture and management and supervisory skills. Most recently, Dr. Haber has been conducting safety culture evaluations in various organizations; providing consultation in organizational interventions including leadership and management training, enhanced communication, and observational skills training; and working toward the development of performance measures for organization and management processes.

Deborah A. Shurberg, Ph.D. Dr. Shurberg's primary interests lie in the development and implementation of methodological tools useful for the analysis and improvement of organizational functioning and in the assessment and evaluation of human resource practices critical to effective organizational performance. In particular, her work focuses on improving human performance within organizations that must function with a high degree of reliability and the assessment and improvement of organizational behaviors that impact safety culture. Dr. Shurberg has extensive experience across a variety of industries and countries, providing support in the diagnosis of organizational and management strengths and areas in need of improvement. She has significant experience in the development and implementation of intervention strategies within the nuclear industry, particularly on human-performance related topics including communication skills, observational skills, and management and supervisory skills.

More information can be found at: <http://hpacorp.com/>

Appendix B

An Independent Evaluation of Safety Culture at the Salt Waste Processing Facility Project

Independent Safety Culture Evaluation Team:

Dr. Sonja B. Haber, Human Performance Analysis Corporation

Dr. Deborah A. Shurberg, Human Performance Analysis Corporation

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B.1 Introduction

This Appendix describes the results of an independent evaluation of the existing Safety Culture at the Department of Energy (DOE) Salt Waste Processing Facility (SWPF) Project. The population addressed by the evaluation was all Federal, contractor, and subcontractor personnel assigned to the SWPF Project in South Carolina. The evaluation was conducted during August and September 2012. The primary objective of the evaluation was to provide information regarding the status of the safety culture traits at the SWPF Project.

The evaluation was conducted using the same methodology that aligns with the current U.S. Nuclear Regulatory Commission (NRC) procedures for independent safety culture assessment. In addition, the framework applied to the collection and analysis of data is that recently described by the NRC. Positive observations and areas in need of attention with respect to the traits necessary for a healthy safety culture are presented. The detailed results presented in this Appendix support the summary results and recommendations provided in the main report.

B.2 Background

Evaluating the safety culture of a particular organization poses some challenges. Cultural assumptions, which influence behavior and, therefore, safety performance, are not always clearly observable. Schein (1992) presents a model of culture that helps in understanding how the concept can be assessed. In Schein's model, culture is assumed to be a pattern of shared basic assumptions, which are invented, discovered or developed by an organization as it learns to cope with problems of survival and cohesiveness.

According to Schein's three-level model, an organization's safety culture can be assessed by evaluating the organization's artifacts, claimed values, and basic assumptions. On the first level of the model are the organization's artifacts. Artifacts are the visible signs and behaviors of the organization, such as its written mission, vision, and policy statements. The second level consists of the organization's claimed or espoused values. Examples of claimed values might include mottos such as, "safety first" or "maintaining an open reporting work environment." The third level is comprised of the basic assumptions of the individuals within the organization. Basic assumptions are the beliefs and attitudes that individuals bring into the organization or that are developed because of experience within the organization. Examples of basic assumptions may include, "safety can always be improved" or "everyone can contribute to safety." The organization's basic assumptions regarding safety culture are less tangible than the artifacts and claimed values. They are often taken for granted within the organization that shares the culture.

Artifacts, claimed values, and basic assumptions are evaluated to identify the presence or absence of the of the safety culture traits that have been found to be important for the existence of a healthy safety culture within a nuclear facility (INSAG-15, 2002; INPO Principles for a Strong Nuclear Safety Culture, 2004; NRC Inspection Manual 0305, 2006). The NRC and its stakeholders have recently agreed upon nine traits which are viewed to be necessary in the promotion of a positive safety culture. These include:

- Leadership Safety Values and Actions
- Problem Identification and Resolution
- Personal Accountability
- Work Processes
- Continuous Learning

- Environment for Raising Concerns
- Effective Safety Communication
- Respectful Work Environment
- Questioning Attitude.

Particular behaviors and attitudes have been identified to evaluate the extent to which the organization has attained these attributes. A variety of different methods are employed to collect information about the various behaviors and attitudes identified.

Most of the methodology used in this evaluation was originally developed with the support of the NRC in the 1991 timeframe to assess the influence of organization and management on safety performance. The methodology entails collecting a variety of information that is largely based upon the perceptions of the individuals in an organization, as well as conducting structured observations of individuals performing work activities. Perceptions are often reality when it comes to influencing behavior and understanding basic assumptions. Therefore, the data collected regarding individuals' perceptions are critical to this type of evaluation.

B.3 Scope of Safety Culture Evaluation

The scope of this evaluation was defined to include all employees – Federal, contractor, and subcontractor – assigned to the SWPF Project in South Carolina. The organizations covered in the scope of the assessment included

- DOE SWPF PO, including support contractors (i.e. SRR) who work for the field element on SWPF matters.
- SWPF contractor organizations, which includes Parsons, as well as Energy Solutions and other subcontractors to Parsons that support the SWPF Project.

The Safety Culture Data Collection Team was on site at the SWPF Project during portions of August and September 2012. In addition, the Organizational Safety Culture Survey was electronically administered during that same time period, with the survey being open for completion by employees from September 10 through September 25, 2012. For those employees without access to a computer terminal, a hard copy version of the survey was made available during sessions proctored by members of the DOE Safety Culture Data Collection Team.

The Safety Culture Data Collection Team was used by the Independent Safety Culture Evaluation Team to assist in collecting onsite data and was comprised of the HSS Independent Oversight Team. The HSS staff had been trained on applying data collection techniques and conducting focus group interviews.

This safety culture evaluation is a 'point in time' snapshot of the SWPF Project. Although the team recognizes that various organizations responsible for the SWPF Project may be making organizational and process changes to continue improving safety culture, the team has not evaluated the impact of changes since the time at which the evaluation was conducted. Therefore, changes that have occurred subsequent to the time of the evaluation are not discussed in this report.

B.4 Methodology

The complete details of most of the methodology used in this evaluation are presented elsewhere (Haber and Barriere, 1998), but are briefly described in this section. Five methods are used to collect information on the organizational behaviors associated with the safety culture traits. These methods are:

- Functional Analysis
- Structured Interviews and Focus Groups
- Behavioral Anchored Rating Scales (BARS)
- Behavioral Observations
- Organizational and Safety Culture Survey.

The use of multiple methods to assess any organizational behavior assures adequate depth and richness in the results obtained. In addition, confirming the results obtained through the use of one method with results obtained through the use of another method provides convergent validity for the results. A brief description of each method is provided below.

B.4.1 Functional Analysis

The purposes of the Functional Analysis are to: (1) clearly identify the organizational units of the SWPF Project, (2) gain an understanding of each organizational unit's functions and interfaces, (3) examine the way in which information flows within and between units, and (4) identify the key supervisory and managerial positions of each organizational unit. Information to support this activity was obtained primarily through the review of the documentation identified below, some semi-structured interviews, and some observations of organizational activities. The organizational behaviors to be evaluated were identified from the information collected during this analysis.

In addition, a scoping visit was conducted August 29-30, 2012 during which time documentation could be reviewed at the facility and select interviews could be conducted so that plans for the onsite evaluation could be developed. During the scoping visit, interviews and focus groups were conducted with DOE and contractor personnel associated with the SWPF Project.

Documentation Review

During the Data Collection Team's activities, a wide variety of documents were reviewed including SWPF Project program and project plans, SWPF Project technical and administrative procedures, work instructions, organization charts, interoffice memoranda, applicable DOE regulations and technical standards, corrective action reports, and root cause analyses.

Organizational Behaviors

Based upon the information obtained from the Functional Analysis, the following organizational behaviors were identified for evaluation:

Attention to Safety – Attention to Safety refers to the characteristics of the work environment, such as the norms, rules, and common understandings that influence site personnel's perceptions of the importance that the organization places on safety. It includes the degree to which a critical, questioning attitude exists that is directed toward site improvement.

Communication – Communication refers to the exchange of information, both formally and informally, primarily between different departments or units. It includes both the top-down (management to staff) and bottom-up (staff to management) communication networks.

Coordination of Work – Coordination of Work refers to the planning, integration, and implementation of the work activities of individuals and groups.

Formalization - Formalization refers to the extent to which there are well-identified rules, procedures, and/or standardized methods for routine activities as well as unusual occurrences.

Organizational Learning – Organizational Learning refers to the degree to which individual personnel and the organization, as whole, use knowledge gained from past experiences to improve future performance.

Performance Quality – Performance Quality refers to the degree to which site personnel take personal responsibility for their actions and the consequences of the actions. It also includes commitment to and pride in the organization.

Problem Identification and Resolution – Problem Identification and Resolution refers to the extent to which the organization encourages facility personnel to draw upon knowledge, experience, and current information to identify and resolve problems.

Resource Allocation – Resource Allocation refers to the manner in which the facility distributes its resources including personnel, equipment, time and budget.

Roles & Responsibilities – Roles and Responsibilities refer to the degree to which facility personnel's positions and departmental work activities are clearly defined and carried out.

Time Urgency - Time Urgency refers to the degree to which facility personnel perceive schedule pressures while completing various tasks.

These behaviors are then used to provide information on the nine traits according to the following framework:

- Leadership Safety Values and Actions – Attention to Safety; Resource Allocation; Time Urgency
- Problem Identification and Resolution – Problem Identification and Resolution
- Personal Accountability – Performance Quality; Roles and Responsibilities
- Work Processes – Coordination of Work; Formalization
- Continuous Learning – Organizational Learning
- Environment for Raising Concerns – Safety Conscious Work Environment Questions from electronic survey
- Effective Safety Communication – Communication
- Respectful Work Environment – Communication Trust Scale from electronic survey
- Questioning Attitude – Attention to Safety.

B.4.2 Structured Interview and Focus Group Protocol and Behavioral Anchored Rating Scales (BARS)

The Structured Interview and Focus Group Protocol was derived from a database of interview questions. A particular subset of questions can be selected to provide a predefined focus to an interview or focus group session. The Independent Safety Culture Evaluation Team selected a set of questions to gather

information related to the safety culture traits from the organizational behaviors identified from the Functional Analysis.

A total of 20 individual interviews and 19 focus groups were conducted as part of the evaluation. In addition, three individuals contacted the DOE hotline set up specifically to speak to members of the evaluation team. Two of these individuals were involved in individual interviews. A total of 121 individuals were involved in at least one of these activities. Each interview lasted about one hour and each focus group lasted about one and a half hours. A few less formal follow-up interviews were conducted to provide further clarification when necessary.

The Behavioral Anchored Rating Scales (BARS) were administered to most individuals who participated in the structured interviews and/or focus groups. Each interviewee was administered the BARS associated with four different organizational behaviors. The BARS provided the opportunity to quantitatively summarize qualitative data associated with the interviewee's perceptions of the organization. Approximately 459 BARS were collected representing 10 organizational behaviors. Of those 459 BARS, 411 were from contractor or subcontractor personnel, and 48 were from DOE Federal personnel or support contractors for the DOE field element.

B.4.3 Behavioral Observations

The use of behavioral observations provides an unobtrusive assessment of particular organizational behaviors and critical processes including work planning, work performance, management meetings, department meetings, and responses to planned or unplanned events. The selected organizational behaviors are specifically identified in the evaluation of the activities observed.

During the course of the Safety Culture Evaluation, approximately 22 observations were conducted. The data represent observations of Routine Training Group Meeting, Distributed Control System Status Meeting, Plant Staff Meeting, Monthly Corrective Action Review Board Meeting, SWPF Weekly Project Managers Meeting, Director of Engineering Staff Meeting, SWPF Operations Safety Meeting, Safe Work Briefings, Pre-Shift Coordination Meetings, Federal Staff Meeting, 3 Month Look Ahead Meeting, 256 Meetings, and various work observations.

B.4.4 Organizational and Safety Culture Survey

The primary purpose of administering a survey is to measure, in a quantitative and objective way, topics related to the behaviors of interest. By conducting a survey, a broad sample of the individuals in the organization can be obtained and it is possible to gather information from a larger number of personnel than can be reached through the interview process alone. The survey used in this evaluation has been administered previously by the Independent Safety Culture Evaluation Team Lead at over 50 different organizations.

A total of 441 personnel were invited to participate in the online survey and 340 personnel were expected to participate in a hard-copy administration of the survey. Hardcopy surveys were only administered to those individuals who did not have internet/email access, primarily craft personnel working on the project. Of the 441 non-craft personnel invited to participate in the survey, 407 actually completed the survey, representing a response rate of 92.3%. While only 340 personnel were expected to participate in the hardcopy administration, a total of 398 completed the survey via this method. The differing numbers here reflect day to day variations in the number of craft personnel working onsite at the project. All non-craft work groups had a better than 65% response rate to the survey. The overall response rate is considered to be a very acceptable rate of response from which representative conclusions regarding perceptions and attitudes concerning the work environment can be made.

B.5 Results

The results presented below summarize the insights gained from the evaluation team's analyses of the structured interviews and focus groups, BARS, observations, and survey data. Survey data was obtained for the SWPF Project contractors and subcontractors and Federal Employees who are dedicated to the Project on a full-time basis, as well as those individuals from all organizations that support the Project on a part time basis. The results are presented in terms of the Safety Culture traits. Positive Observations and Areas in Need of Attention related to each trait are presented and provide the observations, insights and data to understand their impact on the overall health of Safety Culture. In addressing improvements, the Areas in Need of Attention should be considered and used as examples for an action that would address a behavior that would help several if not all of these points. It is not the intention that each Area in Need of Attention result in a corrective action. Developing a massive amount of corrective actions only perpetuates a compliance mentality, which is not conducive to creating and promoting a 'healthy safety culture.'

B.5.1 Leadership Safety Values and Actions

Leaders demonstrate a commitment to safety in their decisions and behaviors.

Positive Observations

DOE SWPF PO

- Many DOE interviewees perceive that there is no unwillingness of the contractor to raise safety concerns.
- While DOE interviewees indicate that safety is paramount, the contractor must also meet cost and schedule requirements.
- DOE interviewees indicated that in addition to biweekly safety meetings that are held with the contractor, joint walk-arounds are conducted with the contractor safety manager.
- Interviewees also indicated that DOE has its own safety meetings and celebrations.
- Interviewees described that the contractor and DOE have placed people into vendor organizations to help them meet criteria related to the project.
- DOE interviewees indicated that they have a Risk Management Plan which is assessed yearly for both programmatic and technical issues in both the DOE and contractor organizations.
- Interviewees do not perceive that anyone is pressured or coerced to do something that is unsafe but admit there is a lot of pressure to get work done on schedule.
- DOE interviewees described working around individual schedule issues when possible, so that there are multiple paths to be worked at the same time.
- Interviewees indicated that there is some flexibility in award fees even with delays since fees can be given if challenges are encountered and met in a positive way.
- DOE interviewees indicated that they are trying to execute a contract modification in record time to help the project and that they are waiting on the contractor proposal to finalize it.
- Observations by the Team identified efforts to focus on leadership attributes which are discussed at the end of meetings conducted by the Federal Project Team.
- Results on the Behavioral Anchored Rating Scale for Attention to Safety indicate that approximately 68% of the DOE interviewees that completed this scale provided a positive score which indicates that they perceive that people working on the project believe that safety is a top priority.

SWPF Contractors

- Interviewees and observations by the Team indicated that every meeting begins with a safety topic.

- Facility tours by the Team indicated that there are enclosed areas around ladders so that people will not fall down several elevations.
- Interviewees indicated that there are weekly site safety meetings, safety training videos, rewards for safety suggestions, emails on near misses, and monthly safety committee meetings.
- Many interviewees indicated that they do not perceive any inhibitors to raising safety concerns.
- Several interviewees indicated that everyone has the authority to stop work and that they do not perceive a conflict between safety and production.
- Some interviewees indicated that work packages address safety concerns, e.g. requirements for a special tool to reach a particular bolt rather than modifying an existing tool took several weeks to fulfill.
- Interviewees indicated that employees are sometimes involved in safety suggestions, e.g. concern over using drill bits on 3 inch holes resulted in the purchasing of a drill press.
- Many examples were provided that indicated that interviewees believe that Parsons really means safety first, e.g. time and money was spent to place wire mesh over rebar to be able to walk on it; changed entire schedule to conduct radiography in a locked down building at night; construction director insisted on using right detection method to identify defects in steel and then removed and replaced concrete when defects were found.
- Contractor management interviewees identified using retention bonuses and family programs to try maintain the talent on the project in a highly competitive job market in the area.
- Most interviewees indicated that they have enough time to conduct their job safely and that they can get additional time and in some cases, more resources to complete the job if necessary.
- Most management interviewees indicated that schedule comes third behind safety and quality. Some supervisors indicated that they will not tell workers to hurry up especially on jobs that require a high attention to safety, e.g., building scaffolds.
- Results on the Behavioral Anchored Rating Scale for Attention to Safety indicate that overall approximately 70% of the interviewees that completed this scale provided a positive score which indicates that they perceive that people working on the project believe that safety is a top priority. All interviewees in the Construction Non Craft Work Group that responded to this scale shared the positive perception.
- Results from the Behavioral Anchored Rating Scale on Time Urgency indicate that across most contractor work groups more than 60% of the individuals that completed this scale perceive that most tasks are completed on time without compromising safety or quality. Managers perceived this to a greater extent than Non-Managers did.

Areas in Need of Attention

DOE SWPF PO

- Almost all interviewees indicated that finding additional monies to alleviate the cost overrun situation will be difficult. DOE interviewees indicated that the contractor may not need to maintain the same level of effort and suggested:
 - Reduction in overtime on the weekends;
 - Project support and project controls can be reduced; and
 - Reduction in force is part of the natural project process.
- Several interviewees also perceive that the actions taken by Parsons are often based upon DOE's ideas and not from Parsons themselves and Parsons' efficiency is largely based upon feedback from DOE than from their own decision making.
- Interviewees indicated that incentives for the contractor on cost and schedule are now gone due to the overruns and that cost is now a very big pressure for the project.

- Some DOE interviewees indicated that they feel self-imposed pressure because they don't have the power to set the schedule; Parsons' management dictates how long things take and DOE is in the oversight role.
- Results from the Attention to Safety Scale on the electronic survey indicated differences between respondents from the various parent companies regarding the perceived importance of certain behaviors that have an impact on safety. For example, "challenging an order if it might not work", was one of the behaviors rated the lowest by DOE and Parsons but was rated higher by SRR and Energy Solutions.

SWPF Contractors

- Several interviewees provided examples of where decision making was not perceived to reflect the highest commitment to safety.
 - The nurse on staff at the construction site was recently laid off and will not be replaced; management indicated that the construction safety representatives are trained in first aid so that a nurse is not needed. The construction craft generally did not agree with this assessment.
 - There are only two first aid kits on site and they are on opposite ends of the site.
 - Suggestions were made to grade the parking lot but instead they were told to be more careful when walking through it.
 - Interviewees indicated that Management states that they want the work conducted safely, but also that there is a need to finish quickly; crews are sometimes understaffed but there is still the expectation for the same level of production.
 - Several interviewees indicated concern over the safety aspects and impact to quality of life due to the early morning start times and management's unwillingness to modify it.
 - A timeout was finally called during fireproofing over a concern by craft workers with vapors after the complaint was raised several times; when the vapor measurements were made, those at the higher elevations where the work was being conducted were over the lower flammability limit.
- Interviewees indicated several areas where they perceive the need for increased resources:
 - Need appropriate funding to complete the facility with the same talent that currently exists on the project;
 - Increase construction oversight in the J Area from the quality assurance perspective;
 - Need for more money for commissioning phase;
 - Engineering has over 1200 Design Change Notices; had to redo some tasks several times, e.g., valve installations, increases risks;
 - Always trying to obtain materials and tools;
 - Issues in pipe stress analysis, pipe support design, distributed control system software programming; allocate resources to preclude issues; and
 - Increase safety incentives.
- Many interviewees described feeling a lot of time pressure often with unrealistic schedules to get things done quickly.
 - Priorities are perceived to be constantly shifting, often with no explanation as to why they are changing.
 - Scheduling and over scheduling are seen to be issues, e.g., had 6 months of welding to be done in 2 months because work didn't get started earlier.
 - Decisions on schedule are perceived to be by decree on a daily basis, e.g., work force not ready to perform the job, but management says do it; many supervisors have given up making decisions and just want to be told what to do.
 - Unrealistic expectations on schedule because many don't realize how long work will really take, e.g., allocated one week for fireproofing and materials were not available.
- A tour of the facility by the Team identified several tripping hazards and in one instance an individual was observed tripping over such a hazard. In some cases personnel protective equipment was laying

over piping, and hazards posted on a white board were sitting on the floor and were not in the correct room.

- Results on the Behavioral Anchored Rating Scale for Attention to Safety indicate that approximately 70% of Craft personnel that completed this scale provided a mid-range score, which indicates that they 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.
- Results on the Behavioral Anchored Rating Scale for Resource Allocation indicate that more than 50% of the contractor work group interviewees who responded to this scale, with the exception of the Engineering Work Group, were either negative or uncertain in their perceptions of how resources are allocated across the project. The Engineering Work Group had a 100% positive perception of how resources were allocated on the project.
- Results on the Attention to Safety Scale on the survey were on the moderate side of scores compared to a database of other similar organizations' responses to the same questions. This indicates that survey respondents had moderate perception of the importance that safety has to success in their organization as measured by the value placed on various safety promoting behaviors.

B.5.2 Problem Identification and Resolution

Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.

Positive Observations

DOE SWPF PO

- Multiple mechanisms for identifying problems were described by the DOE interviewees including independent assessments, document review comments, IPT meetings, DOE/Contractor meetings, facility representatives, an open door policy with supervision and management, Employee Concern Program (ECP), differing professional opinion (DPO) programs, peer to peer subject matter experts (SMEs).
- Interviewees indicated that there was a heightened awareness of issues with an open dialogue with staff, e.g., stacking of trades and the associated congestion problems it creates resulted in an immediate response.
- Interviewees indicated that a robust Quality Assurance Program embedded people at the vendor's sites and helped to identify problems immediately.
- Some DOE interviewees indicated that a 'killer clause' in the contract facilitated the tracking of near misses since there was some impact to the fee by these incidents.

SWPF Contractors

- Most interviewees identified that multiple mechanisms exist within the project to report problems and that people are generally willing to do so. Mechanisms described included management and supervision open door policy, ECP, Employee Dispute Resolution (EDR), reporting systems, Hotline, DOE, Management By Walking Around, Employee Safety Councils, DPO program, Senior Review Board (SRB), assessments, non conformance reports, Employee Suggestion Program, all hands meetings, condition reports, Design Change Notifications (DCNs), drop boxes in the craft tents for anonymity.
- Interviewees indicated that the expectation is to bring up problems; SRR perceives that it is their job to do that, they are encouraged to speak up and that overall Parsons has a good safety record.
- Many interviewees indicated that the best way to identify problems was by being in the field and that the Safety Committee does regular walk downs to identify issues.

- Some interviewees indicated that the weekly integration meetings are used to review design documents and answer construction questions, e.g. Construction Requests for Information are reviewed and may be further analyzed.
- Data from the Behavioral Anchored Rating Scale on Problem Identification and Resolution indicated that 100% of the Contractor Manager Interviewee respondents who completed this scale provided a high rating indicating that they perceived that the organization encourages project personnel to draw upon knowledge, experience and current information to identify and resolve problems positively. Among Contractor Work Groups, over 80% of Operations personnel and almost 60% of Engineering personnel who responded to this scale had positive perceptions about problem identification and resolution.

Areas in Need of Attention

DOE SWPF PO

- Several DOE interviewees indicated that they believed that schedule pressures, peer pressure, retribution, intimidation by Parsons Management over the craft, complacency and the fear of showing ignorance were all contributing to the inhibition of identifying problems or concerns on the contractor's side.
- Some DOE interviewees expressed the belief that they should not be finding things that Parsons doesn't.
- Interviewees indicated that a longstanding backlog of issues between DOE and Parsons had only recently been cleared through a Senior Management Issue Resolution Forum (SMIRF) meeting.
- Interviewees expressed the concern that the critical cost and schedule impacts of the vessel issue had not been fully recognized in the contractor trending or other management programs.
- Data from the Behavioral Anchored Rating Scale on Problem Identification and Resolution indicated that only 50% of the DOE interviewee respondents who completed this scale provided a high rating indicating that they perceived that the organization does not always encourage project personnel to draw upon knowledge, experience and current information to identify and resolve problems positively.

SWPF Contractors

- Interviewees indicated that issues that may have a significant impact on the project such as peer pressure, (e.g., not being perceived as a team player, not wanting to write a condition report which may get a friend in trouble), different cultures, why do paperwork if it can just get done, major rumors of layoffs, not wanting to be seen as a troublemaker, and the perceived pressure from DOE to keep costs on the project low, may all contribute to the inhibition of problem identification.
- Some interviewees indicated that the fear of reprisal may also contribute to the lack of reporting concerns or problems.
- Several interviewees described that management claims to be open to suggestions but in fact they only intend to do things their way or no way, e.g., for 6 months they were welding bus ducts and indicated to management that it would not work but they did not listen to them and the welding did not work properly.

B.5.3 Personal Accountability

All individuals take personal responsibility for safety.

Positive Observations

DOE SWPF PO

- Interviewees indicated that everything that they do is related to safety and that their job descriptions are broad enough and accurately describe what they do.
- DOE interviewees described that Parsons requested advice from them on how to contract with the second vendor for the vessels. There were no specific changes, however, for DOE's role in the project.
- The role of design authority for the SWPF project is clearly held by DOE at the present time. Interviewees acknowledge that this is a unique situation for DOE but is predicated upon the success that DOE had in this role with the Glass Waste Storage Building#2.

SWPF Contractors

- Interviewees indicated that Parsons holds employees accountable through daily meetings, briefings, job hazard analyses, training, and the performance appraisal process. Craft personnel are constantly reminded about safety each morning and hold each other accountable to make the workplace safe, e.g., check scaffolds, handrails.
- Interviewees described employees challenging each other and holding pre shift and post shift inspections.
- Several interviewees indicated that it is better to report yourself than to be found out. If a mistake is willful or negligent there should be consequences regardless of who made it or who you know.
- Interviewees indicated that accountability is taken seriously and codified in performance expectations in terms of safety.
- Almost all interviewees indicated that everyone has stop work authority.
- Most interviewees indicated that formal job descriptions exist and were defined enough for what they do.
- Several interviewees indicated that the relationships between management and the 4 unions are good and that there have not been any major issues during the past year.

Areas in Need of Attention

DOE SWPF PO

- Several DOE interviewees indicated that while the expectation for the contractors is zero accidents, they have not seen this identified in their performance plans.
- Some DOE interviewees identified the concern that when a contractor builds something that they only have to operate for one year, it is built differently than if they had to operate it for the lifetime of the facility.
- Interviewees indicated that Parsons would like to have the design authority now and that it has created difficulties in their relationship with DOE. DOE has determined that the design authority will not be transferred until the SWPF is operational.
- Data on the Behavioral Anchored Rating Scale for Performance Quality indicates that only about 25% of the DOE interviewees who completed this scale are positive in their perceptions that project personnel take personal responsibility for their actions and the consequences of the actions.

- Data on the Behavioral Anchored Rating Scale for Roles and Responsibilities indicated that only about 40% of the DOE interviewees who completed this scale provided a high rating indicating a perception that employees understand their duties, know who to go to when a task needs to be done and understand their role in completing cooperative activities.

SWPF Contractors

- Accountability is perceived by several interviewees to be an issue at SWPF. Some examples include:
 - There is a perception that safety concerns are not always dealt with in a timely or effective manner, e.g., speed bumps installed in parking lot between buildings were not maintained.
 - Unless behavior is obviously negligent there are no repercussions for management level individuals.
 - Subcontractors do not have access to Parsons safety training modules.
 - Instances were described where barricades were installed without identifying the individual responsible for setting them up and maintaining them.
 - Some perceive the Safety Group as not being disciplinarian enough, e.g., covering a hole with plastic and tape without a barrier was acceptable.
 - Informality about conducting work in a way that is no longer acceptable per procedures.
- The relationship between DOE and Parsons has deteriorated and is perceived by many interviewees as adversarial. Examples identified include:
 - Parsons is not invited to the IPT meetings, but other contractors are.
 - Recent comments on Parsons' monthly reports have been perceived as slanderous and abusive.
 - DOE uses resources from other contractors, competitive with Parsons, to help in the oversight of Parsons' performance on the SWPF project, including evaluating proprietary and confidential information.
 - DOE has been critical of Parsons' relationships with other contractors on the project and has verbally indicated preferences towards other contractors.
- Data on the Behavioral Anchored Rating Scale for Roles and Responsibilities indicated that only 54% of interviewees who completed this scale provided a high rating indicating a perception that employees understand their duties, know who to go to when a task needs to be done and understand their role in completing cooperative activities.
- Data on the Behavioral Anchored Rating Scale for Performance Quality indicated that overall only 46% of interviewees who completed this scale provided a high rating suggesting that they perceive that employees understand their duties and have a sincere desire to do top quality work. Among Contractor Manager interviewees only 40% perceived performance quality positively.
- Scores across SWPF on the Commitment Scale from the survey indicated that almost 50% of the respondents from all of the parent companies involved with the project, with the exception of Energy Solutions respondents, were negative or uncertain in their commitment to the project. Only 20% of Energy Solutions respondents were negative or uncertain in their perceptions. These differences were statistically significantly different. In addition, Construction Craft had statistically significantly lower scores on the Commitment Scale than almost all of the other work groups.

B.5.4 Work Processes

The process of planning and controlling work activities is implemented so that safety is maintained.

Positive Observations

DOE SWPF PO

- DOE interviewees described how documents are reviewed; comments are provided and then tracked to know the disposition of the comments by the contractor. The SWPF PO oversees interface between Parsons and the Liquid Waste (LW) Contractor at SRS. This includes managing site wide issues by providing formal letters of direction to the contractors as required to ensure scope is executed. Additionally, SWPF PO is in contact with the LW PO as well to drive consistency in the two scopes.
- DOE Interviewees indicated there are many ways that work is coordinated for the SWPF Project including meetings with the contractors on weekly and monthly bases.
- DOE interviewees indicated that they receive a lot of training, required reading and discussions with supervision to keep current on the project.
- DOE SWPF PO individuals are co-located with Parsons' employees. There are monthly project reviews, change control board meetings and Senior Management Issue Resolution Forum (SMIRF) meetings where issues are discussed.
- Interviewees described that DOE Orders must be followed verbatim by all on the project unless there is a written exception.
- DOE interviewees indicated that they perceive Parsons' safety procedures and metrics to be quite good.
- Data on the Behavioral Anchored Rating Scale for Coordination of Work indicates that approximately 67% of the DOE respondents to this scale have a positive perception of the planning, integration, and implementation of work activities of individuals and groups.

SWPF Contractors

- The 256 meetings were described by interviewees as a good opportunity to talk about work packages, lockout tagout (LOTO), confined space issues and to coordinate work.
- Interviewees described that all procurements, design changes, and commercial grade dedication go through nuclear safety. The SWPF Project is using the same method for commercial grade that is used in commercial nuclear power plants.
- Interviewees indicated that the ESH Group reviews everything including chemicals, vendor inputs, and work packages.
- Interviewees pointed out that they perceive they work well together, e.g., scaffolding would get in the way of another job so they waited to erect the scaffold until the other job was finished.
- Data on the Behavioral Anchored Rating Scale for Coordination of Work indicates that 80% of the ESH respondents to this scale have a positive perception of the planning, integration, and implementation of work activities of individuals and groups.
- Data from the Coordination of Work Scale on the survey indicated statistically significant differences between work groups on this scale. The Engineering, PM Office, EHS and Operations Work Groups had more positive perceptions of the coordination of work across the SWPF project than respondents in most of the Craft Work Groups.
- Interviewees indicated that project work is performed with pre-job briefings, procedures, work control packages, job hazards analysis, walk down assessments, preliminary design safety assessment (PDSA).
- Interviewees indicated that if the procedure is unclear, work is stopped and the expectation is to ask management how to proceed.
- Interviewees also indicated that there are deviation request procedures, immediate change process request procedures, and a validation procedure with a formal sign off required.
- Most interviewees indicated that they perceive that verbatim compliance to standards and procedures is the underlying management expectation, e.g. LOTO procedure, with the exception that some procedures have flexibility in them, e.g., testing procedures.

- Data on the Behavioral Anchored Rating Scale for Formalization indicates that overall 80% of respondents to this scale have a positive perception of the extent to which there are well-identified rules, procedures, and/or standardized methods for routine activities as well as unusual occurrences.

Areas in Need of Attention

DOE SWPF PO

- Some DOE interviewees indicated that they perceive that Parsons' procedures are generally below adequate because they are written as if they are procuring work, not actually doing the work.
- Interviewees indicated that the criteria for the project were always specified as NQA-1 but that some design elements may have not been as clear as they should have been which may have contributed to the vessel issue.
- DOE Interviewees indicated that Parsons' safety record and metrics are so good that they don't spend a lot of effort focusing on those areas.
- Data on the Behavioral Anchored Rating Scale for Formalization indicates that only 50% of the DOE SWPF PO respondents to this scale have a positive perception of the extent to which there are well-identified rules, procedures, and/or standardized methods for routine activities as well as unusual occurrences.

SWPF Contractors

- Many interviewees expressed concerns about the coordination of work. Issues included:
 - Work is driven by urgency and scheduling and many departments are involved in procurement and it is often difficult to get all approvals in a timely manner;
 - The interface meeting between engineering and procurement has been discontinued;
 - Sometimes work areas get too congested and craft get in each other's way;
 - Examples of repeat work, e.g., scaffold around tank, needed hole for material, tore down the scaffold, rebuilt with the hole, then forgot to get hoist up, tore scaffold down again to put hoist up;
 - Perception that there are always two views of a problem that don't always get seen the same way, e.g., between DOE and Parsons;
 - Could be better at planning; have a 6-month rolling wave schedule, do not have plan of the week but are good in integrating on our own; needs to be more systematic;
 - In some cases piping was installed before the equipment was received and doesn't always fit; and
 - Job sequencing is often not right, e.g., door was installed that now must be removed because sheet rock was put up too early to give the impression that the job was finished.
- Interviewees indicated that people don't follow procedures as often as they should and that some estimated that about 40% of the procedures could use improvement.
- Data from the Coordination of Work Scale on the survey indicated that there were statistically significant differences between the different SWPF Contractor employee categories on this scale. Managers and Non-Managers /Non-Craft had significantly higher scores than respondents in the Craft Journeyman and Craft Apprentice categories.

B.5.5 Continuous Learning

Opportunities to learn about ways to ensure safety are sought out and implemented.

Positive Observations

DOE SWPF PO

- DOE interviewees indicated that DOE has a formal lessons learned program, quarterly conference calls with the MOX Facility, identify events at other facilities, e.g., hydraulic boom lift issues, maintain an ongoing inspection program to ensure appropriate fall protection, hoisting and rigging fixtures.
- Interviewees described open communication and discussions within the IPT, inviting the contractors to meetings to inform them about events so that they don't repeat the same mistakes.
- The DOE ECP learned from obtaining an outside evaluation of the program. The program did not have implementation procedures and they are now being developed.
- Data on the Behavioral Anchored Rating Scale for Organizational Learning indicated that approximately 66% of the DOE interviewee respondents provided positive ratings suggesting that they believe that individuals and groups of employees in the project pay close attention to past behaviors and how they can be improved in the future. They believe that information about past activities is formalized and available for future reference.

SWPF Contractors

- Many interviewees indicated that lessons learned are discussed at safe work briefs, and regular meetings.
- Interviewees identified that the most significant lessons learned came from the vessel replacement issue. Now suppliers have to be NQA-1 and lessons learned from first vendor were incorporated into the contract with the new vendor.
- Interviewees indicated that SWPF Managers go on DOE reviews at other sites to obtain lessons learned and that some representatives from other projects come to SWPF staff meetings to share their experiences. Benchmarking has also been conducted with the Y-12 Readiness Review Program, DNFSB Work Control Readiness Workshop, the DWPF and Saltstone Simulator, and a technical exchange with SRR and SRNS on a paperless work control system.
- Several interviewees indicated that the project does a good job of emphasizing lessons learned in a non-punitive way. Weekly Activity Reports (WAR) query about what went wrong and what went right during the week's work.
- Observations by the Team during this assessment included the use of lessons learned from an inadvertent actuation of the fire alarm system in the Silver Bluff Office Building No. 2. There were a number of issues associated with the response to the alarm that were reviewed in the Project Manager's weekly meeting.

Areas in Need of Attention

DOE SWPF PO

- Interviewees indicated that there were no lessons to be learned from the Y-12 security event for SWPF since it was not a security site and there were no alarms in the facility.

SWPF Contractors

- While many interviewees identified the concept of lessons learned, the organization is missing opportunities to use this information as part of a learning process.
 - Interviewees indicated that they need to get together to talk about what went well and to share knowledge among peers.
 - Interviewees indicated there is no formal mechanism for trending vendor performance.

- Some interviewees indicated that while the project has gotten better at looking at events, they still do not focus on the root cause.
- Some interviewees indicated that lessons learned are in bulletins and emails; however, they tend to be very technical and consequently not well remembered.
- Some interviewees indicated that there was a safety stand-down about 6 months ago but could not remember why.
- Interviewees indicated that the documentation of lessons learned from successes was not good.
- Interviewees indicated that Parsons' lessons learned program was recently replaced with a 'knowledge management' program involving the collection, evaluation, and dissemination of success stories. Perceptions around this new program were that it was not as effective as the lessons learned program and that mistakes were not being discussed.
- Some interviewees indicated that they did not see lessons learned from the SWPF project as applicable to be distributed to the rest of their company, especially for the quality organization.
- Data on the Behavioral Anchored Rating Scale for Organizational Learning indicated that overall 50% of interviewee respondents provided uncertain or negative ratings suggesting that they do not believe that individuals and groups of employees pay close attention to past behaviors and how they can be improved in the future. Perceptions among the Quality and Construction Non Craft Work Groups were the lowest on this behavior.

B.5.6 Environment for Raising Concerns

A safety conscious work environment is maintained where personnel feel free to raise safety concerns without the fear of retaliation, intimidation, harassment, or discrimination.

Positive Observations

DOE SWPF PO

- Most interviewees clearly understand the mechanisms available to identify safety concerns, e.g., supervisors, managers, ECP, DPO, and Hotline.
- DOE ECP gets support from DOE HQ ECP if needed.
- DOE Management believes that the DOE ECP is effective. While the contractor has their own ECP, several contractor concerns have come through the DOE ECP.

SWPF Contractors

- Most interviewees clearly understand the mechanisms available to identify safety concerns, e.g., supervisors, managers, ECP, DPO, DOE, and Hotline.
- Interviewees indicated that the Project Director has attended the training of all new employees to promote the idea that they can come to management if they have any concerns.
- Interviewees indicated that the Parsons Handbook cites the expectation that people should be able to raise issues without the fear of reprisal. Periodic training on SCWE is conducted to reinforce the expectation.

Areas in Need of Attention

DOE SWPF PO

- The DOE ECP has not done an assessment of the Parsons ECP. It is not required nor is it in the contract for the project.

- The DOE DPO process will soon become the responsibility of the DOE ECP Coordinator. To date there had been no training on the DPO process provided to the Coordinator. There has not been a DPO at the site in several years.
- Some confusion existed among several interviewees about the number of concerns that had come to the DOE ECP, whether or not they had been substantiated, the basis of the concern and how those that had been substantiated were resolved.
- Among DOE survey respondents' statistically significant differences were obtained between the DOE respondents and the Energy Solutions contractor respondents involved in the SWPF, on some of the questions related to SCWE. In all cases the DOE responses were indicative of more negative perceptions about the behaviors.

SWPF Contractors

- Among SWPF Contractor survey respondents, about 80% agreed with the statement that everyone in the organization is responsible for identifying problems. While overall this represents a higher percentage of people agreeing than disagreeing, it is still lower than is seen in other organizations and indicates that about 20% of the population did not fully agree with this statement. SRR survey respondents, however, agreed with this question 100%
- The statement on the survey that management does not tolerate retaliation of any kind for raising concerns was agreed to by only 60% of the SWPF Contractor survey respondents. There were no statistically significant differences between any of the parent companies on this question.
- Among SWPF Contractor survey respondents only 50% of employees feel that they can openly challenge decisions made by management. Survey respondents from Energy Solutions had statistically significantly more positive responses to this question than the other company respondents did.
- Approximately 55% of SWPF Contractor survey respondents believe that constructive criticism is encouraged. Statistically significant differences were obtained on this question with Energy Solutions respondents having more positive perceptions than the other respondents.
- Approximately 62% of the SWPF Contractor survey respondents agreed with the statement that they feel that they can approach the management team with concerns. Similar statistically significant differences were found with the Energy Solutions respondents as identified in the previous statements.
- Among SWPF Contractor survey respondents 62% agreed with the statement related to management wants concerns reported. No statistically significant differences between parent companies were obtained on this question
- Approximately 60% of SWPF Contractor survey respondents agreed with the statement that concerns raised are addressed. Energy Solutions respondents had statistically significant higher scores on this question than the other contractor respondents did.
- Statistically significant differences among the SWPF Work Groups were obtained on all but one of the Safety Conscious Work Environment Questions from the survey. In general, the Non Craft groups had more positive profiles, while the Craft groups tended to have more negative responses. Within the Non Craft groups, the DOE SWPF PO and Business Groups tended to look more negative, while the Engineering and Quality Work Groups looked most positive overall. Within the Craft Work Groups, the Millwright, Laborers, Equipment Operators and Other Work Groups had more positive profiles, while the Electrician, Pipefitter/Fitters and Pipefitter/Welders had more negative responses to the questions.
- There were statistically significant differences between the SWPF Employee Categories on all of the Safety Conscious Work Environment Questions with Managers exhibiting more positive responses than the other categories of Non-Manager and Non-Craft, Craft Journeyman and Craft Apprentice.

B.5.7 Effective Safety Communication

Communications maintain a focus on safety.

Positive Observations

DOE SWPF PO

- Interviewees identified multiple mechanisms for communication in the DOE SWPF PO Project organization.
 - Frequent meetings are held with different organizations;
 - Video clips are used for news and information;
 - Open door policy with Federal Project Director;
 - Direct interaction with individuals on the Federal and Contractor side;
 - Emails are used regularly for communication; and
 - Information through project review meetings.
- Most interviewees indicated good communication and availability with the Federal Project Director.

SWPF Contractors

- Interviewees identified multiple mechanisms for communication within the Project. They included:
 - All Hands Meetings with Project Director
 - 256 Morning Meetings
 - Emails
 - Telephone calls
 - Open door policy
 - Weekly Safety Brief
 - Observations
 - Face to face interactions
 - Daily coordination meeting between contractors
 - Meetings with DOE SWPF PO.
- Some interviewees indicated that they believe that they are well informed about what is going on in the Project.
- Observations by the Team indicated that communications among the personnel during their activities was conducted in a very professional manner.
- Data from the Behavioral Anchored Rating Scale on Communication indicated that 72% of the SWPF Quality interviewee respondents and 67% of the Engineering respondents who completed that scale had positive perceptions about the exchange of information, both formal and informal, between the different departments or units in the project, including the top-down and bottom-up communication networks.

Areas in Need of Attention

DOE SWPF PO

- Several interviewees indicated that issues in communication were the cause of a lot of the problems across the SWPF Project.
- Data from the Behavioral Rating Scale on Communication indicated that only 25% of the DOE interviewee respondents who completed that scale had positive perceptions about the exchange of information, both formal and informal, between the different departments or units in the project, including the top-down and bottom-up communication networks.

- Data from the survey on several of the Communication Scales indicated that DOE SWPF PO survey respondents had some of the lowest scores across the DOE database on their opinions about perceived Accuracy in Communication and overall Satisfaction in Communication.

SWPF Contractors

- Several interviewees identified issues in communication that they perceived were impacting work across the Project.
 - Very little opportunities to communicate; more radios are needed; don't get enough information to do our jobs well;
 - Email is the primary means of communication and sometimes people get left off of emails, e.g., didn't know about a cement pour;
 - Perception exists that the chain of command limits the flow of information yet there is a need to know among different levels in the organization;
 - Several interviewees indicated that they don't perceive the all hands meetings to be productive;
 - Individuals indicated being comfortable communicating with work groups, but not so with the top levels of management;
 - Often get information by searching for it and finding it, not by the formal channels of communication; and
 - Weak interdepartmental communication, e.g., had a cookout and many people did not know it was because of a safety milestone.
- Several interviewees indicated problems in communication between contractors and between some contractors and DOE, e.g., defensiveness on the part of contractor.
- Many interviewees indicated that they would like to see more senior managers walking around in the field.
- Data from the Behavioral Anchored Rating Scale on Communication indicated that overall only 39% of the interviewee respondents who completed that scale had positive perceptions about the exchange of information, both formal and informal, between the different departments or units in the project, including the top-down and bottom-up communication networks. Among Craft interviewees only 8% indicated positive perceptions about communication.
- Data from the survey on several of the Communication Scales indicated that SWPF Contractor survey respondents had some of the lowest scores across the DOE database on their opinions about perceived Accuracy in Communication and overall Satisfaction in Communication.
- Statistically significant differences were obtained between SWPF Work Groups on the electronic survey on all of the Communication Scales. Survey respondents in the Engineering, Operations, EHS, and Quality Work Groups had significantly higher scores on their opinions about communication than respondents in most of the Craft Work Groups. Among Employee Categories, Managers had statistically significantly higher scores on the Communication Scales than the other Employee Categories.

B.5.8 Respectful Work Environment

Trust and respect permeate the organization

Positive Observations

DOE SWPF PO

- Some interviewees described good working relationships with some of the SWPF Contractor Organizations, e.g., Energy Solutions..
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SWPF Contractors

- Interviewees indicated that the relationship between Parsons Management and the 4 unions was cooperative. Meetings are held regularly to discuss issues and resolutions.

Areas in Need of Attention

DOE SWPF PO

- DOE survey respondents indicated low scores on their perceptions of Trust in Communication regarding the freedom that individuals feel to discuss the problems and difficulties in their jobs with an immediate supervisor without jeopardy.

SWPF Contractors

- Results from the Communication Trust Scale on the survey indicated statistically significant differences between the parent companies among the SWPF survey respondents. Respondents in the Energy Solutions company had statistically significantly higher perceptions regarding the freedom they feel to discuss the problem and difficulties in their jobs with an immediate supervisor without jeopardy compared to respondents in the other companies.
- Results from the Communication Trust Scale on the survey also indicated statistically significant differences between the SWPF Work Group survey respondents. Respondents in the Quality, PM Office, and Engineering Work Groups had statistically significantly higher perceptions regarding the freedom they feel to discuss the problem and difficulties in their jobs with an immediate supervisor without jeopardy compared to respondents in the other work groups.
- Results on the survey indicated statistically significant differences between SWPF Work Groups with the Quality, Engineering, EHS and Construction Non Craft groups having significantly higher overall job satisfaction scores than the other work groups.
- Results obtained on the Communication-Accuracy Scale from the survey indicated that overall SWPF survey respondents have negative perceptions of the accuracy of information that they receive from other organizational levels (superiors, subordinates, and peers).

B.5.9 Questioning Attitude

Individuals avoid complacency and continuously challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.

Positive Observations

DOE SWPF PO

- Interviewees indicated that line management is supportive of their identifying issues and deficiencies and documenting conditions and activities for follow up.

SWPF Contractors

- Some examples of fostering an environment where a questioning attitude is desired and accepted were described. Challenges by foremen to scaffolding construction procedures, Employee Safety Committee identification of blocked safety exits, the use of Behavioral Based Safety were among some of the identified ways that individuals try to challenge and question safety-related actions.

- Observations by the Team identified the questioning by workers of the requirements for monitoring a confined space entry.

Areas in Need of Attention

DOE SWPF PO

- Several interviewees indicated that they were concerned that the deterioration in the relationship between the DOE SWPF PO and Parsons was inhibiting a healthy questioning attitude and constructive challenging environment.

SWPF Contractors

- Several examples were identified to the Team of conditions that would inhibit a questioning attitude.
 - Several interviewees and data from the survey indicated that people perceive that management does not want to hear issues.
 - Individuals are hesitant to question and raise issues because they are afraid of potential reprisal if they make waves.
 - Craft personnel typically go to the DOE ECP and not to Parsons ECP, e.g., perception remains that the personnel who raised issues around piping stress design were laid off; Parsons went to court and won the case.

B.6 References

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