

Final Review Report
Integrated Safety Management Implementation
Utilizing Safety Culture Factors
At
Sandia National Laboratories
And
NNSA Sandia Field Office



February 26, 2013

Table of Contents

Signature Page	3
EXECUTIVE SUMMARY	4
1.0 BACKGROUND AND APPROACH.....	8
1.1 Team Composition	9
1.2 Summary of Review Methodology.....	9
2.0 REVIEW RESULTS.....	14
2.1 Positive Themes	14
2.2 Themes suggesting Opportunities for Improvement.....	17
3.0 CONCLUSIONS AND RECOMMENDATIONS.....	27
4.0 REFERENCES	30
APPENDIX A: NNSA and Sandia Laboratories Charter Letters	31
APPENDIX B: Review Plan	36
APPENDIX C: Team Biographies	44

Signature Page



Kirk Keilholtz, Team Leader

2-25-2013

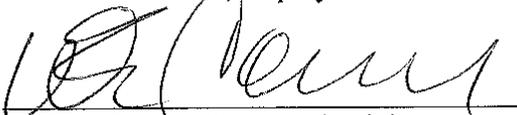
Date



J. Rick Fellerhoff, Deputy Team Leader

2-25-2013

Date



W. Earl Carnes, Technical Advisor

2-25-2013

Date



R. Danny Beets, Team Member

2-25-2013

Date



Michael Brown, Team Member

2-26-2013

Date



N. Bess Campbell-Domme, Team Member

2-26-2013

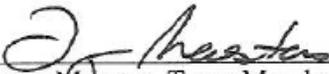
Date



Jeff Jarry, Team Member

2-26-2013

Date



Lynn Maestas, Team Member

2/25/13

Date



Michelle Rodriguez de Varela, Team Member

2/27/13

Date



William Ortiz, Team Member

02-22-2013

Date



Scott Wade, Team Member

2/22/13

Date



Caren Wenner, Team Member

2-25-2013

Date

EXECUTIVE SUMMARY

The National Nuclear Security Administration (NNSA) Sandia Field Office (SFO) Manager and the Sandia National Laboratories (Sandia) President and Director chartered this team to conduct a focused review of Sandia's implementation of Integrated Safety Management (ISM). The framework used for this review is that identified in the Department of Energy's (DOE) Safety Conscious Work Environment Self-Assessment (SCWE) Guidance. Because this review was initiated due to concerns regarding operations, the SCWE framework was supplemented by selected data collection and analysis methods identified through the U.S. Nuclear Regulation Commission (NRC) sponsored research, and included the traits and attributes of a healthy nuclear safety culture, as described in the Institute of Nuclear Power Operations (INPO) report INPO 12-012: *Traits of a Healthy Nuclear Safety Culture*. The NRC methodology has been used in the DOE Independent Safety Culture Assessments, conducted by the DOE's Health, Safety and Security (HSS) Office of Independent Oversight.

This review was undertaken with an understanding that assessment of safety culture is an ambitious undertaking requiring unique expertise and a rigorous behavioral science based methodology. Therefore, the expectations for this assessment were formulated within the context of an ongoing journey to improve safety at the laboratories. Accordingly this assessment was intentionally limited in scope and characterized as an initial self-inquiry designed to accomplish two objectives:

- (1) To begin creating cultural awareness and developing cultural literacy within SFO and Sandia as to how organizational culture influences the safety of operations, and;
- (2) To provide initial insights into employee and management perceptions about key organizational behaviors that may influence how Sandia conducts complicated mission activities while performing work safely.

Results of the review are aligned with the two objectives:

- (1) Insights on issues that might require immediate attention and identification of areas of concern that may require further review and analysis.
- (2) Perceptions of the team on developing safety cultural literacy within the laboratory, developing SFO and Sandia competencies in safety culture assessment, and follow on activities that SFO and Sandia should undertake to institutionalize safety culture monitoring and awareness in all aspects of the laboratories operations.

There were six positive themes and nine opportunities for improvement identified based on the data collected during the review. Each theme was mapped to relevant attributes or focus areas from the SCWE Self-Assessment Guidance, and is described in detail in the report. The conclusions of this report should not be assumed to be representative of the laboratories as a

whole. The review was a limited sample of four specific Sandia organizations and the NNSA SFO, and a total of 31 management interviews and 21 focus groups were conducted.

There was broad consensus that there has been a definite positive shift in line management ownership of safety over the past several years. This is evidenced by increased communication of the importance of safety, increased formalization of the inclusion of environment, safety and health (ES&H) into the laboratories' operations and management engagement in work planning. Employees of SFO and Sandia reported positive perceptions of professional autonomy and work life balance. Sandia personnel further reported their appreciation for management support for continuing learning for professional growth, evidenced by tuition assistance, flexible work schedules and programs to promote employee health. SFO and Sandia employees expressed strong pride in their work, a sense that their work is important, and share a passion for the missions they support. Within Sandia there was a sense of collegial respect and mutual responsibility for the safety of each other, including a healthy willingness to positively question peer actions out of concern for mutual safety. Sandia employees frequently reported that they are empowered to stop work and cited examples of when they had taken such actions for the sake of safety caution.

A number of opportunities for improvement were also identified. SFO and Sandia sometimes had differing perceptions of risk, use different methods to identify and communicate risk, and lack clarity in who is authorized to accept risk. This may result in indecision, schedule delays, conflict or risk aversion.

Within SFO there was confusion over expectations for oversight versus collaboration; the relative immaturity of the governance concept was often cited as a significant factor. A sense of being in a reactive mode was shared by both SFO and Sandia management; competing or shifting stakeholder expectations were often cited factors. Both SFO and Sandia perceived that management tends to overreact to events or issues, and that such overreaction or fear of disproportionate reaction inhibits reporting of low level concerns and thus dis-incentivizes a true learning culture. A particularly poignant expression was that management only engages when something goes wrong.

Within Sandia there were numerous examples of misalignment between management communication and commitment to safety as compared to how communications and actions were perceived by staff. While managers reported a generally shared philosophy of safety expectations, staff perceptions differed on management philosophy and commitment. Most notably this misalignment was evident in differing views on management response to error versus violation, with management articulating a view that there is a clear distinction between the two, yet staff reporting perceptions that non-intentional or system induced errors are also penalized. Also, there appeared to be confusion between management response to job performance issues, as for instance in annual performance appraisals and management reaction to reporting safety concerns or low level occurrences. One factor cited, related to this

misalignment, is lack of management feedback on safety issues that staff report out of a concern for improvement. Another notable illustration of differences of intent versus perception is that Sandia operating procedures often contain warnings that failure to follow the procedure could result in disciplinary action. Management views the statement as a method of instilling safety accountability, while employees view the statement as disciplinary action will occur if employees make a mistake. As Sandia embarks on a new initiative on Engineered Safety, Sandia management should pay particular attention to the messaging to employees to avoid confusion regarding intent and expectations.

Both SFO and Sandia reported that operational processes and associated paperwork are cumbersome, overly complex and make it difficult for staff to succeed. Often operational processes seem oriented to compliance without regard for staff expertise. Responses to events seem to result in adding additional layers of paperwork (or training) without regard to safety or work process impacts. Similarly, there is dissatisfaction for support tools such as databases and issue tracking systems. These databases were identified as being hard to search and hard to use to correlate data.

Within Sandia, schedules are often perceived to be unrealistic and driven by customer expectations. Contributing to schedule and performance concerns is a laboratory culture that is steeped in a 'Can Do' attitude with a willingness to work considerable overtime under high pressure (known as the Sandia Hero Culture). While such dedication may be laudable in some respects and under certain critical circumstances, such cultural attitudes may result in accepting customer expectations without challenge or coordination, thus creating a vulnerable situation where safety or quality could be compromised to schedule.

As noted earlier, progress has been made in shifting responsibility for safety to line operations, yet there remain elements where environment, safety and health (ES&H) may not be well integrated into operations. Also, the ES&H organization was not well regarded in some cases, referred to as 'compliance cops', and perceived as not focusing on what is most important. Some did not consider the ES&H organization to be an effective partner to operations.

Within Sandia there is a perception of a caste system which makes some employees feel disenfranchised. Sandia versus contractor, staff versus technologist, mission versus support were examples cited of caste distinctions. Of interest, recent changes in the laboratories' compensation system (TotalComp) may have magnified this sense of caste distinctions.

The above examples represent themes from the data that was collected during this review. While these themes should be examined by both SFO and Sandia for implications of positive aspects to be maintained and reinforced as well as areas where improvement should be considered, further analysis of the data may reveal correlations that could inform additional targeted opportunities. For example, it became evident during the review that Sandia is not a homogenous organization; rather it is a collection of diverse, distinct sub-cultures interconnected in some cases only though

linkages of labels and compensation systems. Understanding the diversity of the sub-cultures is important, as is ensuring that the sub-cultures can collaboratively work to accomplish missions in a safe, sustainable manner.

1.0 BACKGROUND AND APPROACH

This review examined staff and management perceptions around safety culture at the U.S. Department of Energy's (DOE's) National Nuclear Security Administration (NNSA) Sandia Field Office (SFO) and Sandia National Laboratories. Sandia National Laboratories is operated and managed by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation. Sandia Corporation operates Sandia National Laboratories (Sandia) as a contractor for the NNSA and supports numerous federal, state, and local government agencies, companies, and organizations.

Established in 1949, Sandia has responsibility for nuclear weapon ordnance engineering and production coordination, playing a pivotal role in ensuring the safety, security, and reliability of the nation's nuclear arsenal. Sandia has evolved into a multi-program national security laboratory that provides technologies to protect the nation's infrastructure, including its transportation, energy, telecommunications, and financial networks; ensure clean, abundant, and affordable energy and water; reduce the proliferation of weapons of mass destruction; help maintain U.S. military systems superiority; and defend our nation against terrorist attacks. Sandia maintains a workforce of almost 10,000 employees with main facilities in Albuquerque, New Mexico and in Livermore, California.

The NNSA SFO consists of approximately eighty-five (85) federal employees with technical and administrative expertise in diverse subjects including contract management, business management, environment, safety and health, quality, security, engineering and nuclear safety basis. The SFO is co-located with Sandia at the Albuquerque, New Mexico facilities.

As a result of a series of safety incidents over the last sixteen months, the NNSA SFO Manager, Mr. Geoffrey Beausoleil, issued a letter to the President and Director of Sandia, Dr. Paul Hommert on November 28, 2012. This letter (see Appendix A) included specific past incidents as examples of Integrated Safety Management (ISM) implementation challenges at Sandia, and proposed that a joint contractor and Federal effort, focused on the implementation of the ISM functions, be conducted. Mr. Beausoleil wrote of this joint contractor and Federal team:

“The Team should evaluate the above and similar incidents for systematic lessons that could be learned, using the lines of inquiry for evaluating an organization's safety culture, the Safety Conscious Work Environment Review Guide.”

On December 10, 2012, Dr. Hommert responded to Mr. Beausoleil regarding ISM challenges at Sandia (See Appendix A) agreeing to this proposed review. Dr. Hommert stated:

“We appreciate the opportunity to partner with NNSA to identify opportunities to improve ISM effectiveness and the safety culture at Sandia.”

As a result, a focused review of both Sandia and SFO implementation of ISM, including safety culture was initiated in January, 2013. This review used the lines of inquiry for evaluating aspects of an organization's safety culture, the Safety Conscious Work Environment (SCWE) Self-Assessment Guidance document, and supplemented the SCWE guidelines with additional lines of inquiry seeking to understand cultural factors that may have influenced these events. The Review Plan for this review is included in Appendix B.

For the purpose of this review, the following definitions were used:

- **Safety Culture:** DOE G 450.4-1C (ISMS Guide) defines safety culture as 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 the workers, public, and the environment.
- **Safety Conscious Work Environment (SCWE):** a subset of safety culture related to a work environment in which employees feel free to raise safety concerns to management (and/or a regulator) without fear of retaliation.

This review was intentionally limited in scope and was characterized as an initial self-inquiry designed to accomplish two objectives:

1. To begin creating cultural awareness and developing cultural literacy within SFO and Sandia as to how organizational culture influences the safety of activities, and
2. To provide initial insights into employee and management perceptions about key organizational behaviors that may influence how both SFO and Sandia conduct their complicated mission activities while still assuring that work is performed safely.

1.1 Team Composition

In recognition of the joint review (i.e., Sandia and SFO), the review team was comprised of representatives from both the NNSA (including both SFO and other NNSA organizations) and Sandia. The team was led by a senior representative from the NNSA (as the Team Lead) along with a Director from Sandia (as the Deputy Team Lead). Each of the team members brought a diverse technical background and range of operational experience, as can be seen in the individual team member biographies (see Appendix C).

Of note, several of the team members had significant knowledge in the area of safety culture. To establish a common understanding of safety culture, the team was supported by a technical advisor/nuclear safety culture subject matter expert who provided materials, briefings and review advice. Finally, the review team was supported by an administrative lead who managed daily support, and the SFO Executive Officer who supported and coordinated logistics.

1.2 Summary of Review Methodology

The review team met on January 8-11, 2013 for training on safety culture and assessment methodologies, and to plan the review. This planning included adaptation of assessment tools

used elsewhere in DOE, selection of Sandia and SFO organizations to include in the review, and logistics for the on-site review. The on-site review was performed at Sandia from January 14-25, 2013.

Selecting Review Methodology

To provide an operational focus, the assessment approach followed a methodology developed by research sponsored by the U.S. NRC (Haber, *et al.*, 1991) and the Canadian Nuclear Safety Commission (Haber and Barriere, 1998). Systematic understanding of the organizational behaviors that impact safety performance is enabled by using multiple data collection tools to assess organizational behaviors. For a comprehensive approach, a combination of quantitative and qualitative assessment instruments including functional analysis, a validated survey, behavioral anchored ratings, semi-structured focus group and individual interviews, and performance observations is recommended.

This methodology includes a set of organizational behaviors reflective of positive safety culture and question sets to elicit reliable data about those behaviors. 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.

Since this review was intended as a self-assessment to provide initial insights about safety culture, the tools selected included document reviews (augmented by team knowledge of safety programs and performance), interviews, focus groups and observations. Interviews and focus groups captured perceptions of culture using a standardized question set. Within the time frame established for this review only limited performance observations were accomplished, therefore the majority of data is primarily representative of perceptions without the benefit of comparative validation from observed performance. The survey and the behavioral anchored ratings were not used because the team was neither proficient in developing these tools nor in analyzing the resulting data.

Choosing Organizational Behaviors to Evaluate

Based upon the information obtained through the team's safety culture training, charter expectations, and recent HSS reviews, the following organizational behaviors were selected for evaluation:

Attention to Safety – 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. This includes the degree to which a critical, questioning attitude exists that is directed toward site improvement.

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

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

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

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

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

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

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

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

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

Results collected under each of these organizational behaviors were then mapped to the three focus areas and associated attributes framework identified in the SCWE Self-Assessment Guidance:

Leadership Focus Area

- a. Demonstrated safety leadership
- b. Risk-informed, conservative decision-making
- c. Management engagement and time in the field
- d. Staff recruitment, selection, training, and development
- e. Open communication and fostering an environment free from retribution
- f. Clear expectations and accountability

Employee Engagement Focus Area

- a. Personal commitment to everyone's safety
- b. Teamwork and mutual respect
- c. Participation in work planning and improvement
- d. Mindful of hazards and controls

Organizational Learning Focus Area

- a. Credibility, trust and reporting errors and problems
- b. Effective resolution of reported problems
- c. Performance monitoring through multiple means
- d. Use of operational experience
- e. Questioning attitude

Choosing Organizational Units to Review

With such a large workforce at Sandia (e.g., approx. 10,000 members of the workforce), the review team decided to take vertical slices – from the Laboratory Director and Vice Presidents, through middle management and front line supervisors, to technical staff, technologists and contractors. The selection of organizations was determined through the use of the incidents highlighted in the Team's Charter Memorandum, frequency of Occurrence Reporting and Processing System (ORPs) reported events, types of work activities (NNSA and Work for Others) and types of employees (prime contractor and subcontractor). The team selected four Centers within the laboratories to include in the review.

Although orders of magnitude smaller, SFO vertical slices were also used, and federal groups were chosen based upon the frequency of interaction/oversight of Sandia activities.

Documentation Review

The team reviewed a variety of documents including organizational structure and policy documents, program and project plans, technical and administrative procedures, work instructions, past safety culture reviews, corrective action reports, and causal analyses. Many of the functional insights were obtained from team members and the assessment sponsors.

Due to the limited time available, a detailed review of documents related to operations in the organizations selected for review was not performed.

Interviews, Focus Groups, and Work Observations

Using the identified organizations within Sandia and SFO, individual members of management were selected for interviews, in order to provide a cross section of front line management through senior executives. A total of 31 individual interviews with management were conducted during the on-site portion of the review.

To assess technical and professional staff culture, focus groups were conducted with staff from the selected Sandia and SFO organizations. These focus groups consisted of approximately ten personnel who represented a unique peer group within a particular organization. To encourage open and candid discussion in these focus groups, no personnel with performance review authority were allowed to participate in the focus groups. A total of 21 focus groups were conducted during the on-site portion of the review.

All ten organizational behaviors could not be evaluated during each interview or focus group due to the timeframes allotted (60 minutes for interviews and 90 minutes for focus groups).

Therefore, the team grouped the ten organizational behaviors into three question sets – each question set included four organizational behaviors (Time Urgency was included in all three question sets since perceived schedule pressure by employees to accomplish work was a primary concern to the team). To randomize data collection and avoid bias, for both the interviews and focus groups, the questions sets were randomly selected in advance and systematically applied throughout. That is, a particular question set was not selected based on an organization's work function. Finally, each interview and focus group was asked questions on what was working well, and on what one would do if he/she were King/Queen for a Day. These latter questions allowed for both fostering communication as well as capturing ideas/issues that were important to staff and management.

To conduct each interview or focus group, the review team was assigned into sub-teams of two individuals. As much as possible, each of these sub-teams consisted of a federal and a Sandia staff member. In these two person sub-teams, one individual would ask the questions from the assigned question set, and the other person would take notes.

During the conduct of the interview, detailed notes were collected focusing on capturing statements 'as-is', with no editorializing by the sub-team members. Observational notes on body language and unspoken cues were identified. Following completion of the interview or focus group, the detailed notes were finalized and posted to the review team's SharePoint site. Each day, results from each interview and focus group were discussed by the entire review team.

Work observations were also conducted by team members during the review. These work observations were generally associated with the organizations targeted for interviews and focus groups. The key objective of these observations was to note behaviors of staff and managers in

diverse work settings. Detailed notes were collected during the observations, and were posted on the SharePoint site, and results were discussed with the review team.

Data Analysis

Following completion of the data collection phase (i.e., interviews, focus groups, and observations), statements related to a particular behavior (e.g., Attention to Safety) from each interview and focus group were consolidated into a spreadsheet to enable sorting and evaluation. Review team members then analyzed the data, looking for common themes. Evidence for a particular theme could be found in the data associated with any behavior. These themes were then binned against SCWE focus areas and attributes.

During the course of data collection, if any comments suggested safety issues requiring further follow-up, these issues were noted and they were assigned to one of the Sandia review team members for follow-up (e.g. “just do it”).

2.0 REVIEW RESULTS

Data evaluation by review team members identified fifteen (15) distinct themes reflecting both positive and negative observations. There were six positive themes identified in this review, along with nine themes that identified opportunities for improvement or the need for further attention by management.

2.1 Positive Themes

These six positive themes reflect the things that management and staff reported were working well within their organizations. These should be encouraged to continue. Each theme, the organization (Sandia and/or SFO) to which it applies, and the SCWE cross-walk focus area or attribute is listed below.

Theme 1: (Sandia) There is evidence that management at all levels is actively communicating the importance of safety, engaging with work planning activities, and has formalized the inclusion of safety management in their operations.

- **SCWE Crosswalk: Demonstrated safety leadership**

There is evidence that management at all levels is actively communicating the importance of safety. Many interviewed noted their management has an open door policy with respect to discussions about safety. Others noted that their management is engaged on safety topics, and that safety themes are regularly included in most meetings.

It is clear that safety issues and incidents are being openly discussed by Sandia managers with the intent of making improvements. Sandia managers, at all levels, stated that they conduct walkthroughs of laboratory spaces to observe work, and to understand the condition of their operations. Many of the managers mentioned status information they use to monitor their

operations. Some managers mentioned they have a strong reliance on their Environmental, Safety and Health (ES&H) coordinators to monitor, communicate, and facilitate safe work. Executive management conveyed their personal interest in the safety of the workforce and conveyed a passion to make lasting systemic improvements.

Theme 2: (Sandia) There is evidence that line management owns and takes responsibility for safety within their organization.

- **SCWE Crosswalk: Demonstrated safety leadership**

A number of interviews suggested that the line has taken ownership of safety in their organization. Managers discussed changes they had made in their organization to support safety, including standing up support organizations and engagement with their ES&H coordinators. Managers also discussed processes and other mechanisms they have implemented in their organizations to help manage safety – including work planning and control (WP&C), management walkthroughs, and regular safety meetings.

This was supported by discussions with ES&H personnel who further substantiated that there has been a transition to where the line owns safety in their own organizations. While the ES&H organization continues to provide technical subject matter experts (SMEs) to those requesting support, it is up to the line organization to both make and own the decisions concerning safety. These responses were an improvement to a June 2005 DuPont led safety culture assessment at Sandia, where the following observation was included in the final report from that study: “Line management must accept responsibility and be held accountable for Sandia’s safety performance and not delegate to the ES&H organization.”

Theme 3: (Sandia and SFO) Workers enjoy autonomy and work/life balance resulting in employee satisfaction.

- **SCWE Crosswalk: Employee/Worker engagement**

Staff generally expressed satisfaction with their ability to work independently to solve difficult problems, and with the autonomy they have over their schedule and assigned tasks. Staff also enjoyed working with their peers and collaborating with experts across the laboratories.

Both SFO and Sandia employees appreciated flexible schedules (e.g., 9/80, 4/10, flexible start times) and the ability to take leave as needed. Sandia employees referenced several continuous learning opportunities, such as tuition assistance, professional development, and attendance at conferences, and emphasized that they had support of their management to avail themselves of these opportunities. Enhancements at some facilities, such as ice machines and recreational areas, were appreciated by the staff. Overall, staff and management were both perceived as appreciating the work/life balance afforded in their organizations, resulting in overall employee satisfaction.

Theme 4: (Sandia) Employees feel empowered to stop work and discussed several examples of when they had successfully done so.

- **SCWE Crosswalk:**
 - **Questioning attitude**
 - **Credibility, Trust & Reporting errors & problems**
 - **Open Communication and fostering an environment free from retribution**

Discussions with staff from all organizations that were reviewed supported the employees' willingness to stop work based on perceived safety issues. Many positive, supportive statements were made regarding employees stopping work. Several specific examples were given where staff had stopped work, and most reported that they had support of their management in doing so. It was also stated that in many cases it was not an onerous process to restart the operation. It was noted by the review team that even where employees expressed some dissatisfaction with their management, these employees still reiterated their ability and their management's expectation to stop work if anything is perceived to be unsafe.

Theme 5: (Sandia) There is evidence that peers are respected and appreciated; workers feel accountable for co-workers safety and are willing to engage in crucial conversations.

- **SCWE Crosswalk:**
 - **Teamwork and mutual respect**
 - **Questioning attitude**

Throughout the focus groups, the staff consistently voiced how much they respected and appreciate their coworkers, emphasized the accountability of the group for performance (including safety) within their organization, and indicated that there was a questioning attitude amongst the staff. It was evident that there is a strong sense of collaboration amongst peers within an organization. In fact, responses around this theme were some of the most commonly heard in response to the "what works well" question asked of all interviewees and focus group participants.

A number of staff also suggested that they would be willing to raise difficult issues with their coworkers, and to engage in crucial conversations about operational issues. This was noted by the review team as a visible improvement since the 2005 DuPont assessment.

Theme 6: (Sandia and SFO) Employees and managers expressed strong pride in the work that they do; that the work is important and valued. There is a strong passion for the mission and a desire to do the right thing.

- **SCWE Crosswalk: Teamwork and mutual respect**

Both SFO and Sandia employees expressed pride in the work they do, and recognized the value and importance of their work for the nation. Statements like "We solve the hard problems for the nation," were expressed by several interviewees. Many staff voiced their appreciation for the diversity of the work, and for the opportunities to work on a variety of technical problems throughout their career. There was a strong desire to meet customer mission requirements, and to do the right thing.

2.2 Themes suggesting Opportunities for Improvement

These nine themes reflect opportunities for improvement for Sandia and/or SFO. These themes reflect the synthesis of the comments heard from management and staff in response to the questions posed during the interviews and focus groups. Each theme, the organization (Sandia and/or SFO) to which it applies, and the SCWE cross-walk focus area or attribute is listed below.

Theme 7: (Sandia and SFO) SFO and Sandia do not perceive risks in the same manner, use different methods to identify and communicate risk and there is a lack of clarity on who is authorized to accept risks causing indecision, time delays, conflict, and risk aversion.

- **SCWE Crosswalk: Clear expectations and accountability**

Information from focus groups and individual interviews suggests that both SFO and Sandia staff and management do not feel they are aligned on risk, and that the two organizations have different approaches for considering risk. Due to this misalignment, risk aversion is perceived as becoming more prevalent, and is also limiting staff and management's willingness to elevate risk acceptance arguments.

There is a perception from SFO staff that Sandia staff are unwilling to ask for deviations or exceptions to rules or policies, even when it may be appropriate. Because of perceived management reaction, Sandia staff indicated that they were unwilling to even take the argument on risks to their management. Further, there was some concern that risk aversion at Sandia may be affected by the organizational structure of the laboratories (line management vs. strategic management unit (SMU) management), since risk may not be communicated effectively from one entity to another.

Interviewees identified that management's unwillingness to accept project or program risk may be associated with DOE/NNSA Headquarters (HQ) or other external organization's opinion of risk for Sandia projects or activities, and also by a sense that they will be second-guessed.

Because of past unfavorable interactions, it is perceived that Sandia management would rather have NNSA change rules/policies than ask for deviations even when there is valid reasoning. There was a clear preference to have SFO (or NNSA) assume responsibility for risk decisions. Interviews suggested that some Sandia interactions with SFO, such as simple clarification requests, are a reflection of fear within Sandia of accepting the risk; obfuscating their responsibility for decisions.

Of note, interviews did not suggest that risk aversion was practiced at all Sandia activities. Sandia line managers indicated that they would be more willing to accept risk if they feel they will not be penalized for decisions made. Conversely, SFO staff voiced a concern that they would bear a disproportionate amount of liability and accountability for Sandia activities should an occurrence happen. Further, SFO staff indicated that they rely on Sandia programs and processes to both work effectively and be self-critical as part of risk informed operations. Finally, SFO staff offered that in some situations, classification issues (e.g., their inability to know details of some programs due to classification) may be impacting their understanding of risk evaluation and mitigation.

Concerning work execution, interviews indicated that overreaction by both Sandia and SFO management on safety incidents impacted employee perceptions of risk at the line level. That is, that there is a perceived unwillingness to take even well characterized and understood risks due to the consequences if something were to go wrong. There was also concern noted about poor communication regarding those reactions, which could further negatively impact perceptions of risk informed programmatic decisions.

It was suggested that incorporation of risk acceptance into work activities did not include recognition of a graded approach. Staff commented that a common sense approach should be pursued that includes early participation and integration of ES&H into operations. Interviewees questioned whether the right metrics were in place to capture the true mission risks. In some Sandia organizations, there is an employee perception that the management team is making it increasingly difficult to accomplish work. This was referred to as creating a ‘work-free safe zone.’

Finally, differences in the size of mission scope of Sandia work activities (e.g., small, short-term projects versus larger multi-year and well-funded projects) seem to drive differences in the application of formal processes, perhaps based on differences in how risk is perceived. Some interviews indicated that inadequate planning and control may exist for these small projects based on a willingness to accept risk primarily to perpetuate the project. Because these smaller projects are constantly looking for funding to sustain their programs, interviewees referred to staff and management as having a ‘hunter/gatherer mentality’.

Theme 8: (SFO) Management is not clear on expectations of staff as partners with Sandia versus contract compliance, causing federal staff frustration.

- **SCWE Crosswalk:**
 - **Clear expectations and accountability**
 - **Management engagement and time in the field**

The current model for oversight at the SFO is referred to as the Governance model which expects oversight to take a systems approach; this has been in place for a few years. This model replaced a risk-based compliance approach that drove oversight activities. This change has caused confusion among SFO staff in that they are not sure how their work activities should be changed in order to support the systems approach expected by management.

On a positive note, some staff stated that good dynamics exist between the SFO and Sandia, resulting in strong strategic partnerships. Some interviewees stated that the Governance system oversight approach is important and more effective than prior oversight approaches. Some commented that SFO should comprehensively evaluate the cause and effect relationship between SFO oversight behaviors and Sandia responses, and develop a strategy to align SFO oversight behavior to explicitly promote laboratory behaviors.

However, the implementation of the Governance model has resulted in a number of challenges for the SFO staff. Some staff indicated that the expectations for Governance have not been defined to either NNSA or Sandia. There is not a common understanding of terms and definitions such as “eyes on hands off” and “assurance” for oversight activities. Some staff stated that, with the Governance model, they do not perform periodic walkthroughs of facilities as they had in the past which reduces their operational awareness. In addition, while Governance is viewed as having reduced contractor requirements, it had not lessened responsibilities for SFO.

It was stated in some of the interviews that the roles and responsibilities for SFO staff are defined in terms of oversight. There were a number of comments related to not having clear guidance and expectations from SFO management related to assisting the contractor, especially under the current Governance model. Some individuals commented that because of the lack of a formalized process and expectations, it was unclear as to whether staff should provide advice on operational issues or “play Monday morning quarterback” and respond as enforcers. In addition, there is a perception that HQ will chastise field office staff if they help or coach Sandia. Some staff stated that they are willing to help Sandia but they are unclear if that is their mandate. Some interviewees stated that some of their SFO staff continues to engage in the work that is typically Sandia’s responsibility, driving the results of Sandia corrective actions, rather than maintaining operational awareness and monitoring their response.

External entities (e.g., Defense Nuclear Facilities Safety Board (DNFSB), HQ, HSS, Inspector General (IG), and Government Accountability Office (GAO)) frequently provide input to SFO

via audits and direction. A number of SFO staff stated that there is not a consistent set of standards being flowed down to SFO and Sandia. The perception exists that the external entities are not in alignment with the Governance model and thus maintain different expectations for SFO oversight of the laboratories operations.

Some information from Sandia personnel corroborated these statements of confusing oversight direction. An example was provided by Sandia personnel that Sandia had more electrical reports than other sites. Sandia management perceived this as positive, as it suggests a healthy reporting culture, but negative feedback was received from outside entities that saw the increased events negatively. Other staff discussed interactions with the DNFSB as being negative, and that Sandia was accused of abandoning ISM principles when discussing the implementation of Engineered Safety.

The SFO utilizes the Periodic Contractor Performance Report (PCPR) to provide quarterly feedback to Sandia's Executive Management. Some SFO staff stated that the PCPR is an effective tool in obtaining Sandia management's attention on issues that could otherwise not be resolved; referring to the report as a "big hammer" since it is sent to the Laboratories' Director. The PCPR is viewed as the way in which SFO communicates the NNSA's opinion of Sandia's priorities. However, SFO staff is not clear on the criteria that management uses to determine which information is actually included on the PCPR. The SFO staff raises issues to their management in different ways, and SFO management decides what information ultimately is included in the PCPR. Staff stated that they often did not receive feedback from management on why particular issues were not being included. In other cases, the drive to consolidate issues and to keep the PCPR issues short resulted in issues being communicated to Sandia that are unclear or lack context.

Theme 9: (SFO) SFO staff and management perceive themselves as being reactive and not highly efficient.

- **SCWE Crosswalk:**
 - **Clear expectations and accountability**
 - **Credibility, trust and reporting errors and problems**

There is a pronounced sentiment that many within the SFO continue to focus on compliance and some believe that all non-compliance issues are equally important. The lack of issue prioritization is viewed as reducing efficiency and effectiveness of Sandia's responses. SFO staff perceive a lack of engagement from their middle management on prioritization of tasks, leading to each staff member setting their own priorities. Some stated that SFO management is quick to change focus to the "task of the day" as prompted by external organization such as HQ or the DNFSB. The perceived ever changing nature of SFO priorities is seen to impede effective coordination; work isn't always coordinated within the organization and management doesn't appear to have a firm grasp on the individual work assignments and associated resources

required. Interviewees also suggested that there are not many self-assessments or other efforts to improve operations within SFO; rather most such efforts are focused on Sandia. Human resource management at SFO does not appear to the staff to include succession planning. Many subject matter areas are staffed one deep and people who leave the organization are not being replaced. Position Descriptions for some jobs are vague and generic, and it was reported that some of these Position Descriptions have not been maintained and perhaps could not even be found by NNSA Human Resources. In terms of staffing, there is a perception that HQ influences the outcome of resource studies that are performed at the SFO. However, the desired end state for the Field Office has not been communicated with staff; therefore, many are unsure of the work scope and jobs that will remain in a smaller organization.

There were also concerns expressed that staff may not be as prepared as they could be for the work they perform. It was noted that Computer Based Training, as compared to in-person training, is impersonal and may not always provide a full understanding of a subject. Mentoring doesn't always completely convey requirements and the context of the rules. Interviewees also suggested that some of the tools they use to manage work (including the e-Pegasus system, FORECAST process, and others) are difficult to use and do not meet all of their needs. For example, concerning e-Pegasus, many interviewees did not understand how the data being entered into the system is being used by SFO management. They stated that the system doesn't allow easy tracking, trending, or retrieval of the data and is thus ineffective. Some staff suggested that FORECAST could be an effective process to help manage and coordinate work, but that the process is applied inconsistently and staff do not always understand the criteria for which projects it will be used.

Theme 10: (Sandia and SFO) Management's overreaction to events/issues causes reluctance to report or track lower level issues to provide for a learning culture.

- **SCWE Crosswalk:**
 - **Credibility, trust and reporting errors and problems**
 - **Open communication and fostering an environment free from retribution**
 - **Management engagement and time in the field**

Numerous comments revolved around Sandia and SFO management reaction to events and issues. The reactions were generally perceived as over-reactions, negative and punitive in nature. There were numerous comments about how both Sandia and SFO management react to minor and major events in the same way ("make mountains out of molehills"). Some interviewees suggested that there was reluctance to report and track lower level issues because the result would be additional negative consequences based on that data.

Further, Sandia and SFO management both appear not to handle preliminary information well, which was often viewed as another form of overreaction. There is a drive for early information and corrective actions before investigations can be completed. Management in both SFO and

Sandia does not appear to follow a clear, disciplined, process in responding to events that occur, in understanding the data collection and analysis process that is required throughout the event, or in approaching staff discipline that may result.

Some people reported feeling personally and professionally damaged by the perceived punitive nature of management and SFO reaction to events and problems that have been raised or identified. They also lamented the overreaction that would occur to even minor events, which may make them less likely to report minor things that occur. In some instances, this fosters a perception by staff of personal and professional retaliation and the fear of one's project being delayed or shut down due to a safety issue.

There were many examples from the focus groups and interviews that the staff and some management felt Sandia and SFO focused too much on the negative and rarely on the positive. Various comments were made like "one negative will erase ten positives; one response for all issues; no graded approach; and reporting and corrective action process is so punitive that everyone is protecting themselves." Some staff suggested that they hardly see their upper management unless there is a problem.

Theme 11: (Sandia) Management has not yet fully or effectively communicated Sandia's safety philosophies to staff.

- **SCWE Crosswalk:**
 - **Credibility, trust and reporting errors and problems**
 - **Open communication and fostering an environment free from retribution**
 - **Demonstrated safety leadership**

It is clear from interviews that management, at all levels, has been talking about safety frequently and has implemented processes to address safety within their organization. However, discussions with the staff suggested that the staff do not always have the same perspective as management regarding safety.

The interviews with Executive Management suggest that they are currently emphasizing the need to engage with the "hearts and minds" of the staff around safety. They are also emphasizing the implementation of Engineered Safety more broadly across Sandia. The interviews with managers and staff did not make explicit connections to the messages being expressed by Executive Management. However, many of the managers and staff we interviewed had heard of the Engineered Safety effort. A number of interviewees also had personal experience with implementing Engineered Safety concepts, and expressed that they believed the effort would be a valuable addition to operations. There was concern expressed by some interviewed that the effort would not be comprehensive enough to address all safety issues and/or would just be another "flavor of the month" initiative.

A number of staff indicated that management goals such as “zero incidents” or “no reportable incidents” are not received positively. Rather, they viewed these statements as unrealistic expectations and suggested that that management doesn’t fully understand the nature of their work or appreciate the risks involved. There was evidence that the managers interviewed clearly understand the need to address errors (unintentional) and violations (purposefully ignoring safety rules) differently in their organizations. They suggested that they would welcome reports of errors with no negative consequences for those reporting. However, some staff did not believe that these would be handled differently if they were to occur, and a number suggested that they perceived that even errors would result in discipline or other negative consequences. A number of those involved in this review suggested that they would be unwilling to raise or report issues due to the potential for retaliation or other negative consequences.

A number of staff interviewed reported feeling damaged by the perceived punitive nature of Sandia management and the SFO reactions to events and issues raised, or suggested that they have seen punitive actions implemented in response to events elsewhere in the laboratories. They suggested that since they have not heard feedback from management about the actual actions (or rationale behind the actions) that have occurred in response to such events, they presume that such actions (e.g., personal and professional retaliation or having the worker’s operation shut down) would be the result if they were to have a safety issue. For example, a number of staff and managers noted that the Plasma Materials Test Facility (PMTF) had been recently shut down after an incident and indicated they were afraid that their operations would be similarly shut down if there was a safety incident.

A number of staff interviewed suggested that they do not always receive feedback on issues that have been raised, including how the issues have been addressed (or why a decision was made to not take action). These employees expressed frustration and indicated that they are less willing to raise additional issues in the future.

Management interviewed had clear expectations with respect to safety in their organizations, and did articulate the systems (processes, tools, procedures, etc.) that have been implemented to support the staff. However, in many cases, the staff interviews suggested that they did not perceive the effectiveness of these systems in the same way and could describe situations in which the system as designed was complex and operated in ways that differed from that what was prescribed (system as reality vs. system as designed). It was also observed that what Sandia management sees as holding staff accountable for their safety performance through the performance management process (inclusion of safety on staff’s PMF (Performance Management Form)) is perceived by staff as a punitive measure - if they are involved in a safety incident then they will “take a hit” during their performance review. Further, it was noted that all policies, processes, procedures in the Sandia Corporate Policy System include a statement that “Violating a policy, process, or procedure may be cause for disciplinary action up to and including termination of employment.” This statement further perpetuates the perception of negative consequences if events occur.

Theme 12: (Sandia and SFO) Operational processes and associated paperwork that are cumbersome and overly complex create an environment that makes it difficult for people to succeed and reduces efficiency.

- **SCWE Crosswalk:**
 - **Effective resolution of reported problems**
 - **Performance monitoring through multiple means**

Multiple corporate systems are used as tools to identify, plan, control, and authorize work involving hazards. There are also a multitude of DOE/NNSA requirements to which organizations must comply. In addition, organizations develop and use technical work documents (procedures) specific to the hazards and tasks in their operations. The administrative burden (documentation and paperwork) associated with planning and controlling hazards was a consistent concern throughout interviews and focus groups. Many lamented that procedures and processes related to safety at Sandia continue to become more complex. Both Sandia and NNSA have layered, and continue to layer, new requirements onto existing processes in response to events, audits, and new regulations. A general conclusion among staff was that procedures to address safety were unnecessarily complex, the safety intent of procedures has been lost, and in some cases, controls and procedures may undermine safe work due to their burdensome nature. A large number of staff and management stated the need to simplify procedures and processes.

Some believe that the current state of complexity was established to ensure that Sandia is “lawyer proof”. Most interviewed noted an absence of a graded approach regarding responses to major and minor incidents, and that responses to events simply result in another layer of requirements and/or training. This continued layering of requirements was noted as a potential reason that staff may not report safety incidents.

Theme 13: (Sandia) Mission schedules can be driven internally by management or externally by customers, and the schedules may be unrealistic from inception.

- **SCWE Crosswalk:**
 - **Credibility, trust and reporting errors and problems**
 - **Questioning Attitude**
 - **Demonstrated safety leadership**

Members of the work force are driven by the Sandia “Can Do” culture and expressed a strong aversion to failure (identified as the A-student mentality). There was a frustration expressed by staff that they are not able to participate in the development of meaningful time schedules to which they must then abide. Some staff perceived expanded work scope and constrained schedules to be established in order to please customers and maintain contracted work at Sandia. Some view these management commitments as out of touch with the actual work that can be accomplished, and that some projects have an unrealistic schedule at inception. The term “Schedule Chicken” was discussed in focus groups where an unreasonable schedule is

promulgated, but no one wants to be the first to raise the issue or cause delay as they will be blamed for failure to adhere to the mission schedule.

Dealing with mission schedules by going the extra mile, staying late, working nights, weekends and “getting it done” (the Hero Culture) is the approach that the workforce uses to deal with schedule demands. However, it was also noted that organizations are becoming better at predicting and using program management tools to deal with deadlines that cannot be met. Organizations are coming up with mitigation plans or raising awareness for schedule slips.

Theme 14: (Sandia) There was a perception from both ES&H SMEs and line organizations that there is not always effective integration of ES&H into operations.

- **SCWE Crosswalk:**
 - **Teamwork and mutual respect**
 - **Demonstrated safety leadership**
 - **Clear expectations and accountability**

Information from both focus groups and individual interviews indicated that there is still not consistent or effective integration of ES&H into line functions. Interviews with the ES&H personnel indicated that they are generally service organizations and would provide support to whomever requests that support. ES&H is viewed by some line organizations as the “compliance cop”, not focused on the critical hazards, and not an effective partner in operations.

The ES&H staff does have strong relationships with some organizations, and do feel that they are part of some work planning teams. However, in other organizations, requests for support often come late in the planning process (e.g., the day before an operation is to occur), and thus require extraordinary efforts by the ES&H SMEs in order to support mission deadlines. Further, if ES&H issues arise at that late stage, there is conflict with the line in that ES&H is seen as the “bad guys” who delay operations, which results in unnecessary schedule pressures and stress for all involved. One need for improvement clearly shared among ES&H professionals and management is that engaging earlier in the work planning process allows for more flexibility in addressing ES&H issues that might arise, and also is less likely to have an impact on mission deadlines.

Line organization interviews and focus groups also indicated that staff and management were sometimes reluctant to request ES&H organization support. This reluctance stems from a perception that ES&H SMEs would focus only on compliance and would not be of assistance in resolving safety problems. In some cases, the line staff stated that they have more technical knowledge about their hazards and that consulting with ES&H SMEs would not be of value. Of note, data indicated that there is a perception by many line staff that ES&H focus during assessments or assistance visits tends to be on minor issues versus substantive programmatic issues. Some suggested ES&H SMEs feel compelled to find issues during assessments or other

walkthroughs and routinely identify minor non-compliances. In generally, there was a question raised on whether we are focusing on the right things when it comes to safety.

Interviews with both staff and management indicated that some organizations preferred to have their own ES&H coordinators (a staff function of the line organization) as a means of monitoring and complying with requirements, and interfacing as necessary with other ES&H SMEs. The line organization ES&H coordinators are perceived as working very well in meeting line organization needs.

Theme 15: (Sandia) Some workers perceive a caste system, leading to a feeling of being disenfranchised.

- **SCWE Crosswalk:**
 - **Teamwork and mutual respect**
 - **Demonstrated safety leadership**
 - **Clear expectations and accountability**

The review involved focus groups and interviews using a vertical slice through several Sandia organizations. The focus groups further delineated the organization by functional assignments. This helped identify that some of these groupings had distinct perceptions of being excluded or undervalued. There is some evidence to suggest that this may be influenced by subcultures across the organization. This review could not fully address this aspect due to the small sample sizes and recommends that this be looked at closer in future efforts. However there were common themes reported in the areas around sub-contractors, technicians and support personnel.

One of the first potential problem areas identified was in the relationships with sub-contractors to Sandia. While some sub-contractors noted that they felt supported and integrated with operations, others perceived an ‘us versus them’ attitude, and a feeling of being second-class citizens. A common theme with all sub-contractor focus groups was they did feel excluded during team celebrations and team rewards.

Several technologists acknowledged feelings of not being respected for their technical skills. There were discussions of not having input on the procedures they worked to, work approaches or problem resolution. Some felt the technical staff and management viewed them as “interchangeable” and on par with hardware. They felt that they were also given tasks that no one else wanted to perform, which took time away from completing their technical work.

Several interviews and focus groups raised the recent implementation of the TotalComp process. The comments came from staff and management on both the mission and support sides of the house. Management concerns included the difficulty of implementation, concerns over whether their staff had been treated equitably, and the potential for unintended consequences such as discouraging personnel to rotate through support organizations. Staff perceived TotalComp as

further separating the support personnel (including ES&H staff) from being part of the mission delivery team. Some viewed it as further stratifying the existing caste system.

It was noted that ES&H expertise was sometimes brought in late in operational planning, which could create frustration and time pressure. It also gave an impression to the ES&H organization that their input was not valued, and that ES&H staff were considered second class citizens in the eyes of line staff. There was a gap in recognizing and valuing expertise on both sides. Another perception of feeling of unvalued is the emerging Engineered Safety initiative, in which ES&H SMEs felt they were not involved in the development.

3.0 CONCLUSIONS AND RECOMMENDATIONS

A healthy safety culture is most often found within an aligned organization that has both clear and effective processes, and a motivated and learning workforce. These tenets are the basis for a SCWE where both management and staff embrace and consistently demonstrate the following traits of a healthy safety culture (INPO, 2012):

- **Personal Accountability** – Work processes are adhered to and fully understood. Cooperation occurs at all levels and across all organizational boundaries.
- **Questioning Attitude** – Existing assumptions are challenged. When faced with a question or unknown condition, work is stopped to ensure risks are understood before work proceeds.
- **Open Communication** – Communication occurs without regards to organizational hierarchy. Information is shared candidly on an ongoing basis. Barriers do not exist in sharing information during assessment processes or with oversight organizations.

In conjunction with individual responsibilities, management has an additional role in ensuring that the organization promotes:

- **Leadership Accountability** –Assigned roles are clearly understood. Necessary authority, responsibility and resources exist. Roles and responsibilities are clearly defined. Successful performance is recognized and failure to perform yields consequences.
- **Effective Decision-Making** – A consistent, systematic approach to decision-making is utilized. Decisions are made with safety in mind. Managers are held accountable for their decisions.
- **Workplace Respect** – A high-level of trust exists within the organization. Divergent opinions are valued. Conflict resolution is conducted in a fair and open manner.

It was clear in the review that both the SFO and Sandia management team express commitment to promote these philosophies in their interactions. The number of positive comments made by

staff suggests that this management commitment is genuine. However, the review identified that there are number of issues on which both Sandia and the SFO should focus their attention.

The review team recommends that both SFO and Sandia review the contents of this report and initiate efforts to address the areas for improvements identified for both organizations, but notes that some of these issues will be best solved together (e.g., clear understanding and execution of risk). While the prioritization and attention to address these themes is an obligation of management, it is recommended that both SFO and Sandia give a particular focus on several comments that suggested that there is, or has been, perceived management retaliation as a result of raising a concern. While the review team could not validate the veracity of the comment, such an observation should not be discounted. It is imperative that the actions and behaviors exhibited throughout an organization collectively prevent a “chilled” work environment in which employees are reluctant to raise concerns.

In a related sense, the most notable opportunity for improvement would be to undertake a concerted, multi-faceted SFO and Sandia long term effort to establish reporting as a desired, valued, and rewarded behavior. This would require behavioral change by both SFO and Sandia (and perhaps other external organizations) and could not succeed if perceived as simply another ‘flavor of the day’. To effect true, lasting change in this area would be complex but has the potential to be the key leverage point to engender the trust, open communication and collaborative engagement necessary to effect change in other aspects of relationships and operations.

A secondary opportunity emerges from data that suggests behavioral differences among laboratory subcultures. One of the key understandings of organizational culture is that there is no single homogenous culture within organizations; rather organizations are composed of many subcultures. Each subculture is uniquely defined by professional and craft education, training and experience, shaped by organizational structures and influenced by both internal and external forces. A healthy culture is designed not by attempts to impose a singular culture, rather by aligning subcultures with unifying purpose, vision and goals. Safe performance of mission is both a goal and a value that, as suggested by the data, is already shared by many at the laboratories. However, how that goal and value are expressed in work performance appears variable. How is it that some areas of the lab appear, based on existing data, to consistently achieve quality performance safely, while others do not? Are there particular variables that in some cases inhibit actualization of the desired goals and values and other variables that enable such actualization? Data obtained in this admittedly limited review may suggest behavioral differences among subcultures. Further analysis of data obtained during this self-assessment, supplemented with follow-on targeted inquiries emphasizing work observations, could produce more nuanced understanding of behavioral differences among subcultures and thus lead to more targeted, value producing interventions.

The primary focus of the report was operational, yet a second objective was to focus on developing cultural literacy at Sandia. While this assessment was intentionally limited in scope and execution, the data obtained and insights the data enable offer a new perspective for understanding and improving factors that contribute to safe performance of work at the laboratories. The team recommends that SFO and Sandia incorporate safety culture self-assessment into the existing repertoire of performance assessment and improvement competencies. As noted in the Executive Summary and Review Plan (see Appendix B), culture assessment requires a unique skill and knowledge set. Competent culture assessment and interventional guidance for a multi-faceted laboratory requires engagement of multi-disciplined specialists from physical science, engineering, and operations guided by specialists from the social sciences; Sandia is fortunate to be one of the few DOE sites that have a cadre of qualified human and organizational science professionals. Building upon the existing expertise within the laboratories, the experience and results of this self-assessment, and the joint executive commitment from SFO and Sandia that chartered this self-assessment, Sandia can be poised to establish a unique organizational core competency in cultural self-assessment leading to lab-wide cultural literacy.

Finally, the review team strongly recommends that both SFO and Sandia use the results of this review to catalyze a major step forward in addressing safety culture related weaknesses within both organizations. Leveraging such an approach, coupled with what the data suggests is a dedicated workforce and management team, both SFO and Sandia have an opportunity to achieve a new level of safety culture that could be both an inspiration and a model for the rest of the DOE complex.

4.0 REFERENCES

Haber, S.B. and Barriere, M.T. (1998). *Development of a regulatory organizational and management review method*. Research Report RSP-00600, Canadian Nuclear Safety Commission, Ottawa, Canada.

Haber, S.B., O'Brien, J.N., Metlay, D.S., and Crouch, D.A. (1991). *Influences of Organizational Factors on Performance Reliability*. NUREG/CR-5538, U.S. Nuclear Regulatory Commission, Washington, D.C.

Institute of Nuclear Power Operations (2012). INPO 12-012: *Traits of a Healthy Nuclear Safety Culture*. December 2012.

Letter from G. Beausoleil to P. Hommert, Subject: *Environment, Safety & Health at Sandia National Laboratories, Contract Number DE-AC04-94AL85000*, November 28, 2012.

Letter from P. Hommert to G. Beausoleil, Subject: *Appointment of Deputy Team Leader*, December 10, 2012.

U.S. Department of Energy (2011). *Safety Conscious Work Environment Self-Assessment Guidance*, Revision G.

U.S. Department of Energy (2011). DOE G450.4-1C: *Integrated Safety Management System Guide*, Washington, D.C.

APPENDIX A: NNSA and Sandia Laboratories Charter Letters



National Nuclear Security Administration
Sandia Site Office
P. O. Box 5400
Albuquerque, NM 87185



NOV 28 2012

Dr. Paul J. Hommert
President and Laboratories Director
Sandia Corporation
P.O. Box 5800, MS-0101
Albuquerque, NM 87185

Subject: Environment, Safety & Health at Sandia National Laboratories, Contract Number
DE-AC04-94AL85000

Dear Dr. Hommert:

As you know, a safe work environment for its contractor employees is of utmost importance to the Department of Energy and the National Nuclear Security Administration (NNSA). There is an extraordinary breadth of activities that occur at Sandia Corporation (Sandia) on any given day, making it challenging to achieve uniform implementation of Sandia's Integrated Safety Management (ISM) System. A number of incidents have occurred over the last sixteen months that illustrate this challenge. These incidents should be evaluated from a systems perspective to identify opportunities to improve ISM effectiveness at a system level. Examples of these incidents include, but are not limited, to the following:

- Lead Exposure (88 times the Permissible Exposure Limit) in Building 963 (7/2011)
- Lithium Fire at the Plasma Materials Test Facility (8/2011)
- Small fire at Z-Machine (Building 983 Hi-Bay) (12/2011)
- Fire at Kauai Test Facility (1/2012)
- Inappropriate storage and transportation of explosive material – live detonator (2/2012)
- Lithium-Thionyl Chloride Battery event (9/2011) and Lithium Ion Battery event (10/2012)

I recognize that Sandia has already conducted individual extent of condition reviews, supplemental causal analyses, event case studies and assurance reviews, as part of its Performance Assurance System model. These reviews have looked at the identified root causes, contributing causes, and organizational factors and resulted in lessons learned and corrective actions to improve future operations at Sandia.

However, NNSA considers that a joint contractor and Federal effort, focused on the implementation of the ISM functions, is necessary. The Team should evaluate the above and similar incidents for systematic lessons that could be learned, using the lines of inquiry for evaluating an organization's safety culture, the Safety Conscious Work Environment Assessment Guide. This joint effort will result in comprehensive and consolidated recommendations that will further enhance existing safety initiatives, such as Engineered Safety, and identify new opportunities to continue to further improve safety performance at Sandia.

NOV 28 2012

Mr. Kirk Keilholtz will serve as the Federal Team Leader (TL). I request you appoint a senior individual as the Deputy Team Leader (DTL). The TL and DTL will jointly select the remainder of the review team, limited to an additional four NNSA and four Sandia employees. It is recommended the Sandia members represent a crosscut of your organization from both a functional and positional perspective. Reviews of this nature derive a greater benefit if those conducting the review are closer to the day-to-day work.

The Team will execute the following schedule:

- Identify Team membership – December 10, 2012
- Initiate Team kickoff – January 3, 2013
- Safety Culture Training (DOE/NNSA provided) – TBD
- Team Scope and Protocols approved by the TL – January 11, 2013
- Perform the analysis – January 14 – 28, 2013
- Submit draft report to NNSA and Sandia for factual accuracy review – February 6, 2013
- Return factual accuracy feedback to the Team – February 20, 2013
- Issue the final report – February 27, 2013

We must continue to build on our shared commitment for worker safety and protection of employees, the public, and the environment.

If you have questions please contact me at (505) 845-6036 or Shirley Mondy, Acting Assistant Manager for Environment, Safety and Health, at (505) 845-4609.

Sincerely,



Geoffrey L. Beausoleil
Manager

cc:

James Eanes, SNL/NM, MS-0180
Michael Hazen, SNL/NM, MS-0143
Jerry McDowell, SNL/NM, MS-0104
Kim Sawyer, SNL/NM, MS-0109
William Eckroade, HQ/FORS, HS-1
Michael Lempke, HQ/FORS, NA-00
Kirk Keilholtz, HQ/FORS, NA-00
Neile Miller, HQ/FORS, NA-1
Don Nichols, HQ/FORS, NA-SH-1
Lloyd DeSerisy, SSO/MO, MS-0184
Shirley Mondy, SSO/ES&H, MS-0184
JoAnn Wright, SSO/CABM, MS-0184
13-072-480362



Operated for the U.S. Department of Energy's
National Nuclear Security Administration
by **Sandia Corporation**

P.O. Box 5800
Albuquerque, NM 87185-0101
P.O. Box 969
Livermore, CA 94551-0969
Phone: (505) 844-7261
Fax: (505) 844-1120
Internet: pjhomme@sandia.gov

Dr. Paul J. Hommert
President and Laboratories Director

December 10, 2012

Mr. Geoffrey Beausoleil, Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office, MS-0184
P.O. Box 5400
Albuquerque, NM 87185-0184

Dear Mr. Beausoleil:

Subject: *Appointment of Deputy Team Leader*

Reference: *Environment, Safety & Health at Sandia National Laboratories,
Contract Number DE-AC04-94AL85000*

I agree that a safe work environment is of the utmost importance to the Department of Energy, the National Nuclear Security Administration (NNSA) and Sandia National Laboratories. In support of continuous improvement for worker safety, Sandia has identified Rick Fellerhoff, Director of Surety Assessment, Engineering and Analysis (00400), to serve as the Deputy Team Lead (DTL) for the Integrated Safety Management (ISM) effectiveness review. The DTL will coordinate with Michael Hazen and Kirk Keilholtz for approval of Sandia review team members, which will be sent under separate cover. Also, as requested, Sylvia Chavez (04000) has been assigned logistics, coordination, and administrative responsibilities in support of the team.

We look forward to working with Kirk Keilholtz to develop a common understanding of the objectives for this review and to define specific expectations for the team's deliverables. We appreciate the opportunity to partner with NNSA to identify opportunities to improve ISM effectiveness and the safety culture at Sandia.

Should you have any questions, please contact Michael Hazen at (505) 284-3191 or Sylvia Chavez at (505) 284-1267.

Sincerely,



Exceptional Service in the National Interest



Mr. Geoffrey Beausoleil

- 2 -

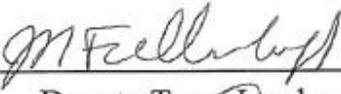
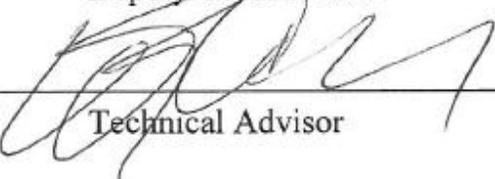
December 10, 2012

Copy to:

MS-0184 Lloyd DeSerisy, SSO/MO
MS-0184 Shirley Mondy, NNSA/SSO
MS-0184 JoAnn Wright, NNSA/SSO
William Eckroade, HQ/FORS, HS-1
Kirk Keilholtz, HQ/FORS, NA-00
Michael Lempke, HQ/FORS, NA-00
Neile Miller, HQ/FORS, NA-1
Don Nichols, HQ/FORS, NA-SH-1

APPENDIX B: Review Plan

Review Plan
For
Integrated Safety Management Implementation
Utilizing
Safety Culture Factors
At
Sandia National Laboratories
And
NNSA Sandia Field Office

 _____	<u>1/11/13</u> _____
Team Leader	Date
 _____	<u>1/11/13</u> _____
Deputy Team Leader	Date
 _____	<u>1/11/13</u> _____
Technical Advisor	Date

January, 2013

Attachment 1: November 28, 2012 NNSA letter

Attachment 2: December 10, 2012 Sandia National Laboratories letter

I. Background and Definitions

In response to safety culture encountered at the Waste Treatment and Immobilization Plant, the DOE's Implementation Plan for DNFSB Recommendation 2011-1 committed to performing an extent of condition review. The extent of condition review includes both independent reviews and self-reviews.

While not directly tied to the extent of condition effort, on November 28th, 2012, the NNSA Sandia Field Office Manager, Mr. Geoff Beausoleil, issued a letter to the President and Director of the Sandia National Laboratories (SNL), Dr. Paul Himmert. This letter included six incidents as examples of Integrated Safety Management (ISM) implementation challenges at SNL. Mr. Beausoleil writes of this joint contractor and Federal team:

“The Team should evaluate the above and similar incidents for systematic lessons that could be learned, using the lines of inquiry for evaluating an organization's safety culture, the Safety Conscious Work Environment Review Guide.”

On December 3rd, 2012, the NNSA Administrator, Mr. Thomas D'Agostino, issued a memorandum to the Deputy Associate Administrator for Infrastructure and Operations, Mr. James McConnell. This memorandum establishes an NNSA Safety Culture Working Group. Regarding the group, Mr. D'Agostino writes:

“The Safety Culture Working Group will take and direct actions to more clearly operationalize the term “safety culture” in NNSA, articulate safety culture expectations, responsibilities, interfaces, and provide me with counsel on associated schedule and resource needs.”

On December 10th, 2012, Dr. Himmert responded to Mr. Beausoleil regarding ISM challenges at SNL. Dr. Himmert states:

“I agree that a safe work environment is of the utmost importance to the Department of Energy, the National Nuclear Security Administration (NNSA) and Sandia National Laboratories.”

Therefore, the NNSA Sandia Site Office Manager and the Sandia Laboratories President and Director have decided to conduct a focused review of Sandia's implementation of ISM. This review will use the lines of inquiry for evaluating an organization's safety culture, the Safety Conscious Work Environment Review Guide and supplement the guidelines with additional lines of inquiry seeking to understand cultural factors that may have influenced these events.

For the purpose of this review we are using the following Definitions:

- Safety Culture: DOE G 450.4-1C (ISMS Guide) defines safety culture as 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 the workers, public, and the environment.

- SCWE: Safety Conscious Work Environment is a subset of safety culture related to a work environment in which employees feel free to raise safety concerns to management (and/or a regulator) without fear of retaliation.

II. Purpose

This Review Plan serves as a tool to assist the joint Federal and Management & Operations contractor Review Team in evaluating the adequacy of an implemented ISM system through a process that considers organizational culture aspects at both the Sandia National Laboratories and the NNSA Sandia Field Office.

III. Roles and Responsibilities

A successful review depends on an experienced and qualified team. The team is augmented with appropriate subject matter experts selected to complement the specific technical concerns of the organization being reviewed. In the case of this review, the specific type of expertise needed is not as important as having an understanding of the ways that behaviors and management expectations (perceived or real) may impact activities. The team has a wide range of technical expertise and knowledge of safety culture effects on an organization. To strengthen the team's understanding of safety culture review methodology, a 2 day training session was conducted prior to starting the review.

Field Office Manager and Laboratories Director

- Provides support and resources to the Review Team Leader in carrying out the review.
- Facilitates the conduct of the review. Assigns office space, computer equipment, and support personnel to the team as necessary to accomplish the review in the scheduled time frame.
- Ensures the development and implementation of improvement plans if required.

Review Team Leader

- Coordinates the review team pre-visit activities and follows up review team requests for personnel to interview or material to review.
- Leads the planning, logistics, coordination and other necessary prerequisites with the involvement of team members for a successful review.
- Coordinates the necessary training and orientation activities to enable the review team members to access the facilities and perform the review.
- Selects the areas, facilities, organizations to be reviewed.
- Selects the Federal members of the team.

- Verifies team member qualifications to include technical knowledge, process knowledge, facility specific information, and independence.
- Signs the final review plan.
- Leads the on-site portion of the review.
- Ensures the review team members complete and document their portions of the review.
- Writes the final report.
- Coordinates incorporation of preliminary review comments by Federal and Contractor personnel on the draft report.
- Forwards the final review report to the Sandia Field Office Manager and to the Sandia President and Laboratories Director.

Deputy Review Team Leader

- Supports the Review Team Lead in execution of his/her responsibilities.
- Signs the final review plan.
- Acts as the site liaison with the review team. Tracks status of requests for additional information.
- Coordinates the contractor preliminary review of the draft report.
- Selects the contractor members of the team.

Technical Advisor/Safety Culture SME

- Supports the Review Team Lead in execution of his/her responsibilities.
- Provides safety culture training to the review team.
- Signs the final review plan.
- Provides technical guidance to the Team Leader to ensure adequacy of the review.
- Develops and provides tools to be used by team members such as Interview Introductory Scripts, Question Sets, sampling/data collection techniques, and data binning guidance.
- Supports the analysis of data sets to identify trends.
- Provides quality check of submitted team member products.

Field Office and Laboratory Logistics POC

- Supports the Field Office Manager and Laboratories Director in facilitating the conduct of the review.
- Aids the Team Lead in coordinating the review team pre-visit activities and following up review team requests for personnel to interview or material to review.
- Coordinates interviews, focus groups, and work observations.
- Provides Record Management function for the team.

- Standardizes team member product submittals.
- Formats and drafts the review report.
- Establishes a network of logistical support to coordinate the review.

Review Team Members

- Refine and finalize the criteria for the review.
- Develop and provide the data call of documents, briefings, interviews, and presentations needed.
- Complete training and orientation activities necessary for the review to include pre-visit document reviews.
- Participate in the on-site review activities, conduct interviews, facilitate focus groups, review documents, and observe work.
- Based on data collected, analyze, evaluate, and make recommendations to the Review Team Lead for continuous improvement.
- Document results and prepare input to the review report.
- Resolve applicable Federal and Contractor preliminary review comments.
- Prepare the final review report for his/her area of review.
- Provide lessons learned and suggested improvements for inclusion in the final report.

IV. Review Approach

The review of safety culture is an ambitious undertaking that requires unique expertise and a rigorous behavioral science based methodology. Therefore it is imperative that our expectations for this review be clearly understood within the context of an ongoing journey to improve laboratory safety. Accordingly this review will be intentionally limited in scope and characterized as an initial self-inquiry designed to accomplish two objectives:

1. To begin creating cultural awareness and developing cultural literacy within the Sandia Field Office and Sandia National Laboratories as to how organizational culture influences the safety of our activities, and
2. To provide initial insights into employee and management perceptions about key organizational behaviors that may influence how we conduct our complicated mission activities in order to perform work safely.

The team will be supported by a technical advisor who is one of the Department of Energy's most experienced safety culture subject matter experts. The technical advisor will train the team in safety culture theory and safety culture review methodology, and assist the team in analyzing the data collected. Results of the review will be reported aligned with the two objectives:

1. Insights on issues that might require immediate attention and identification of areas of concern that may require further review and analysis.
2. Perceptions of the team on developing safety cultural literacy within the laboratory, developing NNSA and Sandia National Laboratories competencies in safety culture review, and follow-on activities that should be undertaken to institutionalize safety culture monitoring and awareness in all aspects of laboratory operations.

V. Confidentiality Expectations

The data collected during the course of this review shall be controlled. Specific names will not be used in the report nor written in a way that can be easily attributed to a specific person. Team Member field notes and draft material will not be retained.

VI. Planned Review Schedule

January 7th – Team arrives at Sandia
January 8th – Kickoff Meeting and In-brief with management
January 8th – 9th – Team Training
January 10th – 11th – Complete Review Preparation and approve Review Plan
January 14th – 25th – Conduct Review
January 25th – Out-brief with management
February 6th – Draft review report submitted for preliminary review
February 20th – Receive all preliminary review feedback
February 27th – Issue Final Review Report

VII. Review Methods

- Interviews – 2 team members – 60 minutes (Management Focus).
- Focus Groups – 2 team members – 6 to 8 focus group members – discussion format – 90 minutes (Worker Focus).
- Direct Observations – 1 or 2 team members – includes safety working groups, pre-job briefs, management meetings, work observations.
- Document Reviews – as needed.
- Daily Team Briefs – (1) Morning – partner assignments, (2) Afternoon – team observations.

VIII. Review Focus Areas

Organizations were chosen to provide a representative sample of the Sandia National Laboratories based on leadership expectations, customer types, and work activities. The following Centers/Operations were chosen to be reviewed by the team:

- Sandia Field Office
- Center 1600 Pulsed Power Sciences Center/Z machine Operations (1670)
- Center 2500 Energetic Components/ Power Sources and Explosives (2540, 2550)
- Center 4100 Radiation Protection, Waste Management, and ES&H (4120, 4140)
- Center 5700 Monitoring Systems Center/National Space Programs (5710)

IX. Starting Document Requests

Contract – Performance Evaluation Plan

Alternative Processes for raising concerns (DPO, ECP, etc.)

Sandia Strategic and Operational Plan for FY13

Sandia Organizational Charts and Roles and Responsibilities

Procedures – as needed

Charters for Safety Committees

Annual Review Schedule

Recent Self Reviews/Evaluations

Recent External Reviews and Peer Reviews

VPP Reviews

Corrective action process, causal analysis process, verification process, and tracking tools

Performance Improvement Initiatives and status

List of routine meetings

Other documents that organization thinks may be of interest to team

APPENDIX C: Team Biographies

Kirk Keilholtz, Team Lead

Head of Field Coordination Office
NNSA, Office of Infrastructure and Operations

Kirk's Federal civil service spans over 2 decades, commencing with the Department of Defense in Norfolk, Virginia in 1990 as a Nuclear Engineer responsible for submarine reactor servicing. In 2001, Kirk transferred to the NNSA field office at Los Alamos and then to Livermore, California in 2006. His assignments focused on operations, safety, health, and environmental areas associated with nuclear and non-nuclear facilities.

In 2011, Kirk transitioned to NNSA HQ in Defense Programs as the Deputy Sites Chief Performance Officer. He served in a senior advisory capacity to the Presidential Appointees and senior SES involved with programmatic and operational matters at the various NNSA sites.

In 2012, Kirk helped to establish a new NNSA organization - the Office of Infrastructure and Operations (NA-00). He heads up the Field Coordination Office that provides direct management support to the Deputy Associate Administrator and is responsible for coordination and interface with the NNSA sites and associated Field Offices.

J. Rick Fellerhoff, Deputy Team Lead

Director of the Surety Assessment, Analysis and Engineering Center
Sandia National Laboratories

Rick's career at Sandia spans 30 years, working about half that time in Sandia's work-for-others programs (Guidance and Control systems for Missile Defense and Airborne Radar Systems). Rick spent the second half of his Sandia tenure in a variety of management positions supporting Sandia's Nuclear Weapons programs, including an assignment as a technical advisor to NNSA NA-12 in 2006-2008. Most recently Rick is serving as the Director of the Surety Assessment, Analysis and Engineering Center, a key element of Sandia's implementation of weapon surety.

W. Earl Carnes, Technical Advisor/Safety Culture Subject Matter Expert

Senior Advisor, High Reliability
Department of Energy, Office of Health, Safety and Security

W. Earl Carnes' experience spans 39 years working with complex organizations performing hazardous, critical scientific and technical operations. He is a Senior Advisor for the U.S. Department of Energy's Office of Health, Safety and Security and the Department's Liaison with the Institute of Nuclear Power Operations (INPO). He has served DOE in various oversight and policy positions for 22 years. Mr. Carnes prior affiliations included 17 years in commercial nuclear power with INPO, as a management consultant working with U.S. and Canadian nuclear plants, and with a nuclear operating utility. Prior to entering the nuclear industry he taught and conducted academic research.

Earl established the DOE Human Performance initiative; developed the DOE Human Performance Handbook; and contributed to numerous DOE & international directives and technical documents on safety management. He engages with government agencies such as the National Transportation Safety Board, the U.S. Chemical Safety Board, the Nuclear Regulatory Commission and the International

Atomic Energy Agency; with private sector organizations such as the Joint Commission for health care accreditation, the North American Electric Reliability Corporation; the North American Transmission Forum; and the academic community.

Mr. Carnes academic training includes degrees and certificates in chemistry; social sciences; engineering management; nuclear, chemical & biological emergency management; and Human Performance Improvement. Earl is an associate of the Center for Catastrophic Risk Management at the University of California Berkeley and a member of the INPO Safety Culture Advisory Group.

R. Danny Beets, Team Member

R&D Systems Engineering, National Security Mission Integration
Sandia National Laboratories

Danny has 12 years of US Navy nuclear experience associated with nuclear reactor operations, 3 years commercial nuclear experience as a manager in technical support of electrical systems and emergency core cooling systems, and 18 years at Sandia National Laboratories associated with radioactive and mixed waste management facilities, nuclear reactor and non-reactor nuclear facilities in TA-V, and presently mission integration for Sandia corporate. His primary experience involves engineering support, operations, and management of reactor nuclear facilities. He has a bachelor's of science degree in electrical engineering and is pursuing a master's degree in systems engineering.

Michael Brown, Team Member

Facility Representative and Emergency Management Program Manager
U.S. Department of Energy
National Nuclear Security Administration Sandia Field Office

Michael's Federal service began in 2003 after joining the NNSA at the Sandia Site Office (now Sandia Field Office) in Albuquerque, New Mexico. He joined the NNSA under the Career Intern Program and participated in a number of rotational assignments such as Work for Others project reviews related to nuclear weapons, special nuclear material accountability and revision of the Development and Production Manual for NA-122, and support of the Sandia Field Office Quality Assurance group related to quality assurance assessments of the neutron generator production process.

In 2005, Michael was assigned as the Facility Representative for the Gamma Irradiation Facility. In 2009 and 2011, he was assigned as the Facility Representative for the Auxiliary Hot Cell Facility and the Manzano Nuclear Facility/Hazard Category 3 Transportation activities respectively. In 2012 he was assigned as the Sandia Field Office Emergency Management Program Manager.

Michael has participated in a number of nuclear facility startup reviews and shadowing activities such as the Sandia Pulse Reactor/Critical Experiments, Auxiliary Hot Cell Facility and the Logistics Nuclear Operations. These reviews focused on nuclear operations principles such as Conduct of Operations, Contractor Training and Qualification, Nuclear Maintenance and Radiation Protection. He has also been involved with other non-nuclear activity reviews such as the Liquefied Natural Gas burn that focused on design and Process Safety Management requirements.

N. Bess Campbell-Domme, Team Member

Manager, Mission Support ES&H, Security and Operations Department
Sandia National Laboratories

Ms. Campbell-Domme (04021) is the Technical Manager for the Mission Support ES&H, Security and Operations Department, assisting the Executive Support Division and the Infrastructure Operations Division as their ES&H and S&S Manager. She has 32 years of experience at Sandia, beginning in materials science/analytical chemistry, then moving to supporting several Divisions as an ES&H/S&S Manager and a long-term member of the SNL Emergency Response Organization, all of which lead to a broad working knowledge of Sandia operations. She is a skilled facilitator and a senior causal analyst, specializing in higher rigor events. Since joining Sandia, she has been involved in a wide range of projects including development of analytical techniques for the WIPP project, the USS Iowa Foreign Materials analysis investigation, initial development and implementation of ISMS at SNL, implementation of ACREM, and improvement of reporting mechanisms (OOPS). She has a Bachelors Degree in Biology and a Masters Degree in Industrial Safety Management.

Sylvia Chavez, Administrative Support and Logistics

Office Management Assistant
Sandia National Laboratories

Sylvia M. Chavez (04000) is the Office Management Assistant for the Infrastructure Operations Department, assisting the Division Vice President, Deputy Director and Division Business Manager. She has several years of experience at Sandia, beginning in Security Operations as an Office Administrative Assistant for 100+ staff, then moving to support several organizations including Physical Security, Technical Security and Material Control and Accountability. Sylvia has a Lean Six Sigma Green Belt certification and is the facilitator for the Sandia-wide Security Tactical Assurance Team (STAT). Since joining Sandia, she has been involved in a wide range of lab-wide projects including development of SharePoint sites for various centers and divisions, lean events for several organizations, facilitator and logistics support for management and “Speed of Trust” forums.

Jeff Jarry, Team Member

Manager, Waste Management and Pollution Prevention Department
Sandia National Laboratories

Jeff has an extensive background working with hazardous and radioactive waste. Beginning in 1990 his career started out at the Nevada Test Site (NTS) while nuclear testing was being conducted. At NTS, Jeff performed radiochemistry and radiological analysis before taking over the hazardous waste management program. From there he went to the Pantex Plant and took over the Waste Certification Program where his group was responsible for the compliant management and disposal of radioactive, mixed and hazardous waste.

In 1995 Jeff Jarry moved to Albuquerque, NM to work at Sandia National Laboratories (SNL). Currently he is the Manager of the Waste Management and Pollution Prevention Department. He is responsible for the Radioactive and Mixed Waste Management Facilities, Manzano Nuclear Storage Facilities, Hazardous Waste Management Facilities, Solid Waste Transfer Facility and the Pollution Prevention Program. Previously at SNL he was the Technical Team Leader at the Weapons Evaluation Test Laboratory at the Pantex Plant, the Site Operation Program Manager at the Kauai Test Facility, Regulatory Support Project Leader at the Waste Isolation Pilot Plant (WIPP) in Carlsbad, and the Nuclear and Non-Nuclear Operations Supervisor at the Radioactive and Mixed Waste Management Facilities.

Lynn Maestas, Team Member

U.S. DOE/National Nuclear Security Administration
Albuquerque Complex

Lynn Maestas has an undergraduate degree in Physics from Kenyon College, a Masters in Business Administration from the University of Richmond, and completed the Sandia National Laboratories Weapon Intern Program as well as NQA-1 Lead Auditor Training. She participates on and/or leads various reviews (e.g., Operational Readiness Reviews, Integrated Safety Management, Accident Investigation, Contractor Training and Qualification, Safety Analyst (with an emphasis in Weapons Systems and Transportation). She has also managed several institutional programs (e.g., Technical Standards Program; Performance Indicator Program; Occurrence Reporting Program; Corrective Action Management Program; and Lessons Learned Program) and served as Operational Surety Site Liaison for Kansas City, Mound and Pinellas Plants, Waste Isolation Pilot Project, and Uranium Mill Tailings Remediation Project).

Shirley Mondy, SFO Logistics

Executive Officer
U.S. Department of Energy
National Nuclear Security Administration Sandia Field Office

Shirley has a degree in Geological Engineering from the South Dakota School of Mines & Technology and has over 20 years of Federal service. She started her career as a Petroleum Engineer with the Bureau of Land Management (BLM) in Rock Springs, Wyoming. She moved to Albuquerque and served as a Petroleum Engineer, Mining Engineer, Supervisor, Manager and lastly as an Equal Employment Manager, all with the BLM.

In 1996, Shirley started working with the U.S. Fish and Wildlife Service as an Organizational Development Liaison, working with top management to resolve employee and workplace issues. She served as a Conflict Resolution Specialist and authored the Department of Interior's initial Conflict Resolution (CORE) program policies. Shirley then transitioned to the Interim Program Coordinator for the Middle Rio Grande Endangered Species Collaborative Program, a program with many different Federal, state and local agencies as well as many Tribes, all working to preserve the endangered species while allowing for water development. She then served as Program Coordinator for the San Juan River Recovery Implementation Program, a similar program for fish in the San Juan River.

Shirley took a seven year hiatus from Federal service to jointly operate and manage a facility maintenance company with her husband. In 2011, she started with the NNSA as Executive Officer at the Sandia Field Office where she provides expertise in a wide range of organization and management issues and serves as an authority on internal policies and requirements. Shirley assists the Senior Leadership team with office-wide staffing, training, and planning. She recently was detailed as the Assistant Manager for Environment, Safety and Health at the Field Office.

Michelle Rodríguez de Varela, Team Member

Program Manager

U.S. DOE/National Nuclear Security Administration

Albuquerque Complex

Ms. Rodriguez de Varela is a recognized trainer and an expert in alternative dispute resolution. She has extensive experience in conducting investigations for the U.S. Office of Personnel Management Office of Federal Investigations, Personnel Security investigations, and allegations of retaliation and employee concerns. Ms. Rodríguez de Varela has successfully resolved hundreds of workplace disputes and established a thriving mediation program as the Executive Director for the Albuquerque-Santa Fe Federal Executive Board. Additionally, she has assessed Employee Concerns Programs (ECPs) under the purview of the NNSA. She assisted in developing the DOE Safety Conscious Work Environment course and is an assistant trainer of the DOE Safety Conscious Work Environment course being taught throughout the complex.

She has served as an EEO Counselor, trained and has experienced in conducting EEO inquiries and investigations; and additionally has experience in Safeguards and Security audits. As a trainer, she has facilitated discussions and retreats for both government and non-profit entities.

Ms. Rodríguez de Varela's educational background includes a Bachelor degree in Education and Communication and a Masters Degree in Family Studies and Counseling from the University of New Mexico. She is a Certified Mediator and served as a Certified Contracting Officer Representative.

William Ortiz, Team Member

Quality Assurance Team Leader

U.S. DOE/National Nuclear Security Administration

Sandia Field Office

William has worked fourteen years for the NNSA Sandia Site Office (now the Sandia Field Office) in Albuquerque, New Mexico. He is the Quality Assurance Team Leader for the Sandia Field Office. William has experience as both a Federal Project Director and as a Facility Representative at Sandia. Prior to work at Sandia, he worked for ten years for the DOE Office of Science and was responsible for project and operations oversight at the Jefferson Laboratory Site Office in Newport News, Virginia.

Scott A. Wade, Team Member

Assistant Manager for Environmental Management

U.S. Department of Energy

National Nuclear Security Administration Nevada Site Office

Scott A. Wade is the Assistant Manager for Environmental Management with the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. He is responsible for overseeing and implementing the Department's Environmental Management program at the Nevada National Security Site (formerly known as the Nevada Test Site) and the Tonopah Test Range.

Before this appointment, Mr. Wade held several senior management positions with the Yucca Mountain Project including Acting Director of the Yucca Mountain Site Office and the Director of the Office of Facility Operations.

Prior to joining DOE in 1994, Scott worked in staff and management positions for varied contractor organizations supporting the Department of Energy and the U.S. Environmental Protection Agency. In

these positions he supported such diverse functions as analytical chemistry research and development, quality assurance, waste management, and environmental compliance.

Dr. Caren Wenner, Team Member

Manager, Human Factors and Statistics Department
Sandia National Laboratories

Caren is the Manager of the Human Factors and Statistics Department (00431) at Sandia National Laboratories. She was a Human Factors Engineer at Sandia for 11 years, and was involved in various efforts relating to human performance, human error prevention and mitigation, usability assessment, and human reliability assessment. She previously supported Sandia's Safety Basis Department as the Readiness Review Project Lead, and has served as a Team Leader for a number for Operational Readiness Reviews, Readiness Assessments and Implementation Validation Reviews for both nuclear and industrial facilities at Sandia. She has a Ph.D. and M.S. in Industrial Engineering/Human Factors and a B.S. in Mechanical Engineering.