Independent Oversight Assessment of Nuclear Safety Culture at the Los Alamos National Laboratory Chemistry and Metallurgy Research Replacement Project

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Office of Safety and Emergency Management Evaluations
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Office of Health, Safety and Security
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Los Alamos National Laboratory Chemistry and Metallurgy Research Replacement Project**

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Appendices

Acronyms

BARS	Behavioral Anchored Rating Scales
CMRR	Chemistry and Metallurgy Research Replacement Project
CMRRPO	CMRR Federal Project Office
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DOGS	Daily Observation Getting Better
HSS	Office of Health, Safety and Security
IWD	Integrated Work Document
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
LASO	Los Alamos Site Office
MOX	Mixed Oxide Fuel Fabrication Facility
NNSA	National Nuclear Security Administration
PAT	Performance Assessment Team
PIP	Problem Identification Process (Sargent & Lundy)
STARRT	Safety Risk Analysis and Risk Reduction Talk
UPF	Uranium Processing Facility

1. Introduction

The U.S. Department of Energy (DOE) Office of Enforcement and Oversight (Independent Oversight), within the Office of Health, Safety and Security (HSS), conducted an independent assessment of nuclear safety culture[1] at the DOE Chemistry and Metallurgy Research Replacement Project (CMRR). The primary objective of the evaluation was to provide information regarding the status of the safety culture at CMRR project. The data collection phase of the assessment occurred in January 2012.

The CMRR includes design, construction, and start-up of new laboratory facilities at the Los Alamos National Laboratory (LANL) in support of the National Nuclear Security Administration's (NNSA) mission to maintain and certify the U.S. nuclear stockpile. CMRR is one of DOE/NNSA's largest nuclear projects with an estimated cost of over 4 billion and a workforce of over 700. However, NNSA recently proposed deferring CMRR construction for at least five years because of budget constraints. The NNSA proposal occurred about the time the Independent Oversight team had completed its data collection activities.

Within DOE, the National Nuclear Security Administration has line management responsibility for the CMRR project. At the site level, line management responsibility for CMRR and other LANL facilities and activities falls under the Los Alamos Site Office (LASO) Manager. Under contract to DOE/NNSA, Los Alamos National Security, LLC (LANS) is responsible for managing the CMRR project. Sargent & Lundy and Merrick & Company are major subcontractors performing design and safety basis work within the CMRR project.

In addition to providing information to line management, this assessment satisfies a Secretarial commitment to the Defense Nuclear Facilities Safety Board (DNFSB) related to DNFSB Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*. Specifically, in the Department's Implementation Plan dated December 27, 2011, the Secretary of Energy directed HSS to perform safety culture assessments of five major ongoing large nuclear design/construction projects to determine the extent of condition of safety culture concerns identified at the Hanford Site Waste Treatment and Immobilization Plant. The assessment of CMRR is the first of the five planned safety culture evaluations to be performed as part of the extent of condition review. A separate report documenting the results will be developed for each project evaluated.

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

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

2. Scope and Methodology

This Independent Oversight assessment covered the DOE and contractor organizations that have responsibilities for CMRR activities. Within DOE, the Independent Oversight team focused on the CMRR Federal Project Office. The contractor organizations that were assessed included LANS and its primary subcontractors: Sargent & Lundy and Merrick & Company.

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

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

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

The evaluation was conducted using the same methodology that aligns with the current NRC procedures for independent safety culture assessment, which identifies nine traits that are viewed to be necessary in the promotion of a positive safety culture:
• Leadership Safety Values and Actions
• Problem Identification and Resolution
• Personal Accountability
• Work Processes
• Continuous Learning
• Environment for Raising Concerns
• Effective Safety Communication
• Respectful Work Environment
• Questioning Attitude

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

3. Results and Conclusions

The safety culture evaluation performed by the external independent safety culture experts is provided in Appendix B, which provides positive observations and identifies areas in need of attention for each of the nine traits of a healthy safety culture. The independent safety culture experts evaluated the collective results to formulate conclusions about the status of the safety culture for the CMRR Federal Project Office, CMRR contractors (including LANS and its primary design and construction subcontractors), and for the project as a whole. The conclusions are provided to facilitate the identification of improvement strategies.

CMRR Federal Project Office

The independent safety culture experts determined that overall the CMRR Federal Project Office is exhibiting many of the behaviors important for a healthy safety culture. Employees in the Project Office are aware of the issues that need to be addressed and are working to resolve them within the available resources. One area specifically highlighted as warranting further evaluation is the perception that constructive criticism is not encouraged. This attitude, which may stem from the negative opinion of the differing professional opinion (DPO) process, and the belief that there is a strong hierarchical reporting line, could inhibit the proactive involvement of CMRR Federal Project Office individuals in raising concerns.

The independent safety culture experts also concluded that the safety roles and responsibilities of the CMRR Federal Project Office should be clarified in terms of their oversight and support activities for the Project. Such clarification would help reduce the overlap between CMRR groups and CMRR Federal Project Office. Accountability for CMRR Federal Project Office in terms of the Project could then be clearly defined and lines of communication between the organizations could be better delineated and supported.

CMRR Contractors

The safety culture experts determined that significant cultural differences exist within the CMRR Project Organization. Among the four different organizations (that make up the Project Organization), the Merrick & Company organization personnel are consistently more negative in their perceptions about behaviors related to the Project Organization. The LANS organization personnel generally exhibited more positive perceptions. These differences in opinions and perceptions may be attributed to several factors, including the nature of the parent organization, the role and function of the group in the Project and, not insignificantly, the physical separation of the Merrick & Company and Sargent & Lundy personnel from the site of the Project Office. The understanding and management of these cultural differences will become increasingly important if the project moves forward.

The safety culture experts observed a pervasive desire on the part of the CMRR Managers to create more of a team environment within the Project. The absence of a sense of teamwork may be attributed to the lack of strong organizational and programmatic processes (e.g., corrective action process, communication, decision-making, lessons learned, and DPO) that would afford them opportunities for ownership and engagement. The Project is currently managed on more of a personalized accountability model than on an organizational and programmatic one.

The safety culture experts identified the willingness to raise concerns and identify problems across the CMRR Organization is not as pervasive as it should be to ensure that the organization is preventing

events and learning from its performance. Some elements of fear of retaliation were identified in some groups as inhibiting the identification of problems. Negative perceptions around feeling free to challenge management decisions and believing that constructive criticism is not encouraged may be contributing to the behavior.

CMRR PROJECT

The safety culture experts identified two conclusions that are applicable to both the CMRR Federal Project Office and CMRR contractors that are impacting the safety culture for the Project.

A potential conflict for the Project is the informal nature of the relationships and roles of all the different organizations involved in the Project. While the Project has established some of its own processes and procedures, it must follow the LANS processes and procedures in other areas. The processes and procedures of a research laboratory may not meet the standards of a project such as CMRR. Without clear guidance on what should take precedence, the CMRR Federal Project Office cannot be as effective in its oversight role. In this environment, Project personnel must often decide what course to follow and risk not meeting the expectations of all of its stakeholders appropriately.

The two primary organizations involved with the Project, LANS and the CMRR Federal Project Office, have identified resource issues in trying to meet the established goals and schedules of the Project. In some instances, the quality of the work conducted is perceived to have been compromised because of shortages in available resources.

4. Recommendations

A healthy safety culture is most often found within an aligned organization that has effective processes, and motivated people. The independent safety culture experts provided the following recommendations for the CMRR Project that are necessary initial steps for effectively implementing and executing actions that will result in improved safe and reliable performance.

1. Consideration needs to be given to having greater representation of all participating organizations located at the same site. Such co-location will increase the probability of more effective communication, common understanding of the Project's goals and values, greater commitment and stronger work group cohesion.

2. The CMRR Federal Project Office and CMRR contractors need to re-evaluate their organizational and programmatic processes and procedures and ensure that they will establish the behaviors that are necessary to facilitate a healthy safety culture and safety conscious work environment. Consideration needs to be given to construction and operational phases of the Project as well as completion of the design. A formal Safety Culture Program and Policy for the Project would facilitate meeting this recommendation.

NNSA, LASO, and LANS should evaluate the results of this Independent Oversight safety culture report in their entirety, including the culture insights provided in Appendix B and the above conclusions and recommendations, in accordance with established issues management processes and initiate appropriate causal analysis, corrective actions, organizational enhancements, and effectiveness reviews as appropriate. Any actions should also consider the potential impacts of the recent NNSA proposal to defer further activities.

Appendix A
Supplemental Information

Appendix A
Supplemental Information

Dates of Review

Scoping Visit   December 14-15, 2011
Onsite Data Collection: January 16-26, 2012
Closeout: March 8, 2012

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

Expertise and Credentials of the Independent Safety Culture Experts

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

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

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

The principals are:

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

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

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

Appendix B
An Independent Evaluation of Safety Culture at the Chemistry and Metallurgy Research Replacement (CMRR) Project

Independent Safety Culture Experts:

Dr. Sonja B. Haber, Consultant, HPA
Dr. Deborah A. Shurberg, Consultant, HPA

Appendix B
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B.1   Introduction

This Appendix describes the detailed results of an independent evaluation of the existing Safety Culture at the Department of Energy Chemistry and Metallurgy Research Replacement (CMRR) Project. The population of the evaluation was all employees, Federal, contractor, and subcontractor assigned to the CMRR Project including personnel from the DOE CMRR Project Office, the Los Alamos Site Office, the Los Alamos National Laboratory, Sargent & Lundy, Merrick & Company, and other subcontractor organizations.   The evaluation was conducted during December 2011 and January 2012. The primary objective of the evaluation was to provide information regarding the status of the safety culture traits at the CMRR Project. The evaluation was conducted using the same methodology that aligns with the current U.S. Nuclear Regulatory Commission (NRC) procedures for independent safety culture assessment. In addition, the framework applied to the collection and analysis of data is that recently described by the NRC. Positive observations and areas in need of attention with respect to the traits necessary for a healthy safety culture are presented. The detailed results presented in this Appendix support the summary results and recommendations provided in the main report.

B.2   Background

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

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

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

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

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

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

Most of the methodology used in this evaluation was originally developed with the support of the U.S. Nuclear Regulatory Commission (1991) to assess the influence of organization and management on safety performance. While the methodology used in this evaluation was based upon work originally developed with the support of the NRC to assess the influence of organization and management on safety performance, the methodology has also been effectively implemented in non-nuclear organizations, such as mining, health care, research, engineering, and transportation.

The methodology entails collecting a variety of information that is largely based upon the perceptions of the individuals in an organization, as well as conducting structured observations of individuals performing work activities. Perceptions are often reality when it comes to influencing behavior and understanding basic assumptions. Therefore, the data collected regarding individuals' perceptions are critical to this type of evaluation.

B.3   Scope of Safety Culture Evaluation

The scope of this safety culture evaluation was defined to include all employees, federal, contractor, and subcontractor assigned to the CMRR Project including personnel from the DOE CMRR Project Office, the Los Alamos Site Office, the Los Alamos National Laboratory, Sargent & Lundy, Merrick & Company, and Other Subcontractor organizations. The Safety Culture Data Collection Team was on site at the CMRR Project (located at Los Alamos National Laboratory) as well as at various subcontractor organization offices between December 2011 and January 2012. In addition, the Organizational Safety Culture Survey was electronically administered during that same time period with the survey being open for completion by employees from January 9 to January 23, 2012.

The Safety Culture Data Collection Team was used by the Independent Safety Culture Evaluation Team to assist in collecting onsite data and was comprised of the HSS Independent Oversight Team (including a HSS specialist in Human Performance Improvement). The external independent safety culture experts trained HSS staff on applying the data collection techniques and conducting focus group interviews.

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

B.4   Methodology

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

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

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

B.4.1   Functional Analysis

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

In addition, a scoping visit was conducted December 13-15, 2011 so that documentation could be reviewed at the facility and select interviews could be conducted so that plans for the onsite evaluation could be developed. During the scoping visit, interviews or focus groups were conducted with approximately 17 individuals associated with the CMRR Project.

Documentation Review

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

Organizational Behaviors

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

A total of 30 individual interviews and 19 focus groups were conducted as part of the assessment. A total of 131 individuals were involved in one these activities. Each interview lasted one hour and each focus group lasted approximately one and a half hours. A few less formal follow-up interviews were conducted to provide further clarification when necessary.

The Behavioral Anchored Rating Scales (BARS) were administered to most individuals who participated in the structured interviews and/or focus groups. Each interviewee was administered the BARS associated with four different organizational behaviors. The BARS provided the opportunity to quantitatively summarize qualitative data associated with the interviewee's perceptions of the organization. Approximately 524 BARS were collected representing 10 organizational behaviors. Of those 524 BARS, 228 were from Los Alamos National Laboratory personnel, 164 were from Sargent & Lundy personnel, 76 were from Merrick & Company personnel, and 56 were from DOE personnel.

B.4.3 Behavioral Observations

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

During the course of the Safety Culture Evaluation, approximately 14 observations were conducted. The data represent observations of Daily White Board Meetings, Monthly All Hands Safety Meeting, Nuclear Facility Integration Meeting, Special Facility Equipment Group Schedule Update Weekly Meeting, Sargent & Lundy CMRR HVAC Weekly Assignment Meeting, Sargent & Lundy CMRR Architectural Review Meeting, Sargent & Lundy CMRR Structural Review Meeting, Sargent & Lundy Structural Model Meeting, Sargent & Lundy Model Design and Engineering Coordination Meeting, CMRR Plan of the Day Meeting, Glove Box Meeting, Infrastructure Meeting, and Change Control Meeting.

B.4.4 Organizational and Safety Culture Survey

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

A total population of approximately 843 personnel was invited to participate in the survey of which 707 actually completed the survey, representing a response rate of 84%. This is a very acceptable rate of response from which representative conclusions regarding employee, contractor and subcontractor perceptions and attitudes concerning the work environment can be made.

B.5 Results

The results presented below summarize the insights gained from the evaluation team's analyses of the structured interviews and focus groups, BARS, observations, and survey data. Survey data was obtained

for the CMRR Project Contractor, Subcontractors, and Federal Employees who are dedicated to the Project on a full-time basis, as well as those individuals from all organizations that support the Project on a part time basis. The results are presented in terms of the Safety Culture traits for both the Contractor and Federal organizations. Positive Observations and Areas in Need of Attention related to each trait are presented and provide the observations, insights and data to understand their impact on the overall health of Safety Culture. In addressing improvements, the Areas in Need of Attention should be considered and used as examples for an action that would address a behavior that would help several if not all of these points. It is not the intention that each Area in Need of Attention result in a corrective action as would occur with an Area for Improvement. Developing a massive amount of corrective actions only perpetuates a compliance mentality, which is not conducive to creating and promoting a 'healthy safety culture'.

B.5.1   Leadership Safety Values and Actions

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

Positive Observations

> *CMRR Federal Project Office (CMRRPO)*

- Interviewees indicated that individuals from the Los Alamos Site Office (LASO) were not inhibited to raise issues.
- Many individuals indicated that CMRRPO has a strong focus on nuclear safety.
- CMRRPO Management has indicated that they will use their own resources in overseeing how the CMRR Division monitors nuclear safety in the Project.
- Most individuals acknowledge that time pressures exist but when additional time is requested to complete work it is normally given.

> *CMRR Division (CMRR)*

- CMRR is perceived by many interviewees to have a strong focus on nuclear safety.
- Interviewees and observations by the Team indicated that safety issues are addressed regularly and that every meeting and activity at the job site begins with a safety moment.
- Several individuals indicated that they would not hesitate to stop work if they believed that safety would be compromised. Examples include instances where some contractors did not have radiological safety training and their work was stopped until they received the necessary training; and craft workers that stopped work on a number of occasions during construction of the RLOUB for construction deficiencies (e.g. mounting of a hood on a wall)
- Many believe that they all have the responsibility for safety.
- Most interviewees indicated that they did not perceive a tradeoff between production and safety. While most acknowledged that schedule was important they did not perceive it to be at the expense of safety.
- Most interviewees indicated that they are not aware of financial incentives for them to complete jobs ahead of schedule.
- Most interviewees indicated there were no real inhibitors to raising safety concerns.
- Results on the Attention to Safety Scale on the electronic survey were on the high end of scores compared to a database of other organizations' responses to the same questions. This indicates that survey respondents did have a high perception of the importance that safety has to success in their organization as measured by the value placed on various safety promoting behaviors.
- Results from the Behavioral Anchored Rating Scale on Attention to Safety indicate that almost all of the interviewees from Sargent & Lundy and Merrick & Company perceive that individuals in

the project believe that safety is the number one priority. These results correspond to interviewees from those organizations who indicated that safety was built into the Sargent & Lundy and Merrick & Company cultures. Merrick & Company employees described the 'Merrick Way' which they perceived to be indicative of the organization's value on safety.

- Results from the Behavioral Anchored Rating Scale on Time Urgency indicate that almost all Sargent & Lundy and over 80% of Merrick & Company individuals that completed this scale perceive that most tasks are completed on time without compromising safety or quality.
- Results from the Behavioral Anchored Rating Scale on Resource Allocation indicate that 100% of the interviewees from Sargent & Lundy and Merrick & Company that completed this scale perceive that employees have sufficient resources to implement corporate goals and that they understand how these goals relate to their daily activities.

Areas in Need of Attention

CMRR Federal Project Office (CMRRPO)

- CMRRPO interviewees indicated that all organizations involved in the project are still struggling to incorporate DOE Standard 1189, Integration of Safety into the Design Process.
- Most CMRRPO interviewees indicated that they have more jobs than people to complete their work. Resources are often shifted to meet assignments but the perception is that they have to do more with less.
- CMRRPO interviewees indicated that they have received support from DOE HSS in some of their reviews. The question was raised whether this support by HSS would present a conflict of interest in terms of being able to perform its oversight role.
- Results on the Behavioral Anchored Rating Scale for Attention to Safety indicate that approximately 32% of CMRRPO individuals that completed this scale provided a mid-range score which indicates that they perceive that project management reflects a delicate balance of emphasizing safety, while at the same time making it clear that there is a need to keep the project on schedule. This coincides with the belief by several CMRRPO interviewees that schedule appears to be more important than safety and quality to some of the project management team.
- Results on the Behavioral Anchored Rating Scale for Time Urgency indicates that almost 30% of the CMRRPO interviewees that completed this scale provided a mid to low rating which indicates that they perceive that there is little concern among some employees for timely completion of tasks. This often results in work extending beyond deadlines and interruptions in the project's progress.

CMRR Division (CMRR)

- Interviewees and observations by the Team provided some examples of where decision making was not perceived to reflect the highest commitment to safety.
    - o Issues with the contractor not wanting to go above and beyond the fire protection code on this project.
        - • CMRRPO individuals indicated that meeting the code per se is not enough and that exemptions and equivalencies put forth have to be resolved before the final design.
        - • CMRRPO individuals do not perceive the contractors' responsiveness to their questions on the reasons that the contractor has for their position on this issue to be cooperative.
    - o Some CMRRPO interviewees perceive that the period of time allotted for design reviews are too short and have not yielded the most critical reviews. Examples were cited where CMRRPO reviewers had 40-50 comments on a review and LANS reviewers had none.

- o LANS uses institutional subject matter experts as reviewers that are not on the project and have competing priorities in their work load. These individuals are also accountable to non-project managers.
- The Team observed a meeting that discussed the process for design reviews. The CMRR Deputy Manager indicated that no more vertical slice reviews of systems would be conducted and that the normal process of review would be resumed. No discussion or challenge by the other participants in the meeting, including CMRRPO individuals, about the possibility of any extent of condition of issues identified on the vertical slice review was observed.
- Results on the Behavioral Anchored Rating Scale for Attention to Safety indicate that approximately 30% of LANL individuals that completed this scale provided a mid-range score, which indicates that they perceive that project management reflects a delicate balance of emphasizing safety, while at the same time, making it clear that there is a need to keep the project on schedule.
- Results on the Behavioral Anchored Rating Scale for Time Urgency indicates that approximately 28% of the LANL interviewees that completed this scale provided a mid to low rating on this scale which indicates that they perceive that there is little concern among employees for timely completion of tasks. This often results in work extending beyond deadlines and interruptions in the project's progress.
- Results on the Behavioral Anchored Rating Scale for Resource Allocation indicate that 70% of the LANL interviewees who responded to this scale were either negative or uncertain in their perceptions of how resources are allocated across the project.
- There is a perception among some interviewees that the non-LANL craft workers do not have the same concern for quality and safety that the LANL MSS craft workers have.
- While many interviewees indicated that they believed that safety would not be compromised for schedule, several examples were provided by other interviewees that could be perceived to be contrary to that expectation.
  - o While appropriate documents were not yet approved, a contractor trying to save schedule time, pushed to get a foundation for a fuel tank poured.
  - o Some engineers indicated that they believe that system design documents are being produced too early for review because of schedule pressures and that it becomes a waste of time for them to review them.
  - o Some individuals indicated that cost estimates for work where the scope is not yet detailed enough are being provided because managers 'just need a number'.
  - o There is a perception among some interviewees that the schedule is being driven by the schedule for personnel evaluations of managers by DOE so that they can ensure their bonuses.
- Some interviewees indicated that staffing issues may have a potential impact on safety performance.
  - o Interviewees, including those from CMRRPO, indicated that additional resources are required in Quality Assurance, LANL Project Engineering, and Procurement.
  - o CMRR Senior Management no longer has the authority to hire engineers; hiring must now go through the LANL Engineering Line Manager and then gets assigned to the project.
  - o Positions on the project are of a limited term and consequently interviewees indicated that resources are difficult to obtain, even from within LANL, because of the risk to job security associated with coming to the project.
  - o Interviewees described the hiring process as problematic even when resources are available.

B.5.2   Problem Identification and Resolution

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

Positive Observations

   CMRR Federal Project Office (CMRRPO)

- Multiple mechanisms for identifying problems within CMRRPO were described by interviewees including, independent peer reviews, contractor surveillances and assessments, facility representatives and an open door policy with supervision and management.
- Interviewees described the interface with DOE Headquarters as a very accessible line and indicated that there are daily interactions with the Federal Project Director, weekly calls with the project team and quarterly video conferences.

   CMRR Division (CMRR)

- Most interviews identified that multiple mechanisms exist within CMRR to report problems and that everyone is encouraged to do so. Mechanisms described included management and supervision open door policy, safety awareness at the beginning of each meeting, Daily Observation Getting Safer DOGS teams, PIPs (Problem Identification Process – a Sargent & Lundy corrective action reporting and tracking system), safety rewards, emails, meetings, verbal discussions, and human resources.
- Some interviewees indicated that there were no inhibitors to identifying problems.
- Data from the Behavioral Anchored Rating Scale on Problem Identification and Resolution indicated that 100% of the Sargent & Lundy and Merrick & Company interviewee respondents who completed this scale provided a high rating indicating that they perceived that the organization encourages project personnel to draw upon knowledge, experience and current information to identify and resolve problems positively.

Areas in Need of Attention

   CMRR Federal Project Office (CMRRPO)

- Some CMRRPO interviewees described that LASO has no specific procedure that governs the criteria in safety reviews. MP01.01 and MP 01.03 are procedures that govern safety basis review that were issued in 2009 and are now being updated.
- Within LASO, interviewees indicated that the Differing Professional Opinion (DPO) Process is negatively perceived. Interviewees stated that this perception resulted from the large amount of paperwork required for the process as well as the fact that efforts to date have all gone in management's favor.
- Some interviewees indicated that the current LASO Management prescribes a very hierarchical line of reporting which may inhibit the raising of some concerns. Most individuals perceived, however, that if they had a significant concern they could bypass the line to get quick resolution of the issue.
- Interviewees perceive that continued budget cuts dictate that if they raise a concern, it better be valid because there are not enough resources to waste time on the wrong issues.

   CMRR Division (CMRR)

- Interviewees and observations by the Team did identify problems with the problem identification and resolution processes at CMRR that may inhibit a healthy safety culture.
    - CMRR does not have a DPO process. However, as a result of the root cause analysis of the glove box performed by the CMRR project, the Project Director indicated that they would consider the implementation of such a process.
    - Some Sargent & Lundy interviewees indicated a fear of being 'PIPed '(having an improvement action assigned to them for completion by a designated due date).
    - Several interviewees indicated that external stakeholder pressure can inhibit the raising of concerns so as not to delay the schedule.
    - Some interviewees indicated that the management assessment processes at LANL site were immature and not yet contributing to performance improvement initiatives.
    - Some individuals indicated that they believe that the corrective action process is being controlled at too high a level in the organization.
    - Interviewees indicated that craft workers do not have access to computers; how do they feel free to raise concerns into the system?
    - Not all of the subcontractor organizations contribute to the formal problem identification process in a systematic way, e.g. Merrick & Company provides only verbal information.
- The 'glove box event' was not perceived by several interviewees to be a good example of a healthy use of the problem identification and resolution process. Individuals described concerns over the attributions, the identification of the causes, the implementation of the procedures involved, the way in which the resolution was handled, and the lack of information and communication about the event in general.

B.5.3   Personal Accountability

All individuals take personal responsibility for safety.

Positive Observations

CMRR Federal Project Office (CMRRPO)

- CMRRPO interviewees indicated that roles and responsibilities on the Federal side of the project are well defined.
- CMRRPO interviewees indicated that a formal interface document is being written with the AM for Safety Operation in LASO.
- DOE has also created a Safety Basis Academy and it is NNSA's expectation that by 2015 all Federal Employees will be qualified by the Academy.
- Several interviewees indicated that there would be no repercussions for self-reporting if the individual notified the Federal Project Director right away. It was not clear to these interviewees if there would be a similar situation on the LANS side of the project.
- Scores on the Commitment Scale from the electronic survey indicated that approximately 70% of the CMRRPO respondents felt positively committed to the project.

CMRR Division (CMRR)

- Most interviewees indicated that their job descriptions were accurate but not very detailed. Performance review job descriptions were more specific.
- The project created a Quality Council for the Quality Assurance Managers of all of the contractors. The Laboratory picked up on the idea and now chairs the meetings.
- Data on the Behavioral Anchored Rating Scale for Roles and Responsibilities indicated that 88% of Sargent & Lundy and 80% of Merrick & Company interviewees who completed this scale

provided a high rating indicating a perception that employees understand their duties, know who to go to when a task needs to be done and understand their role in completing cooperative activities.

- Data on the Behavioral Anchored Rating Scale for Performance Quality indicated that 75% of Sargent & Lundy and 75% of LANL interviewees who completed this scale provided a high rating suggesting that they perceive that employees understand their duties and have a sincere desire to do top quality work. Among Merrick & Company interviewees, approximately 68% perceived performance quality positively.
- Scores on the Commitment Scale from the electronic survey indicated that approximately 70% of the LANL respondents felt positively committed to the project. This was a statistically significant difference from the Sargent & Lundy and Merrick & Company respondents to the survey who scored lower.

Areas in Need of Attention

CMRR Federal Project Office (CMRRPO)

- Several interviewees indicated that there has been some overlap and friction in the roles of the LASO Safety Engineering Group and the LASO Quality Assurance Group. The friction is primarily over what areas each group assesses when there are aspects of a program that have both quality and nuclear safety implications. The conflicts have been resolved but may need better clarification.
- CMRRPO interviewees describe that an oversight procedure is needed to clearly identify what role the Federal Project Office has; there is a perception that they are trying to take away LANS jobs.
- Some CMRRPO interviewees indicated that they did not understand how they could be held accountable when their role on the project is oversight.
- Data on the Behavioral Anchored Rating Scale for Performance Quality indicates that about 68% of the CMRRPO interviewees who completed this scale are either negative or uncertain in their perceptions that project personnel take personal responsibility for their actions and the consequences of the actions.

CMRR Division (CMRR)

- Several interviewees perceive that accountability for safety is appropriately handled through processes such as performance standards, performance appraisals, safety criteria in work activities, drawings, procedures, and the PDSA. There is a lack of recognition of personal accountability.
- Accountability is perceived by several groups to be an issue at CMRR. Some examples include:
  - Many craft interviewees perceive a double standard between outside contractors and LANL MSS workers. Poorer quality of work by the outside contractors is believed to be accepted and then MSS has to rework their jobs.
  - Interviewees indicated that accountability at the laboratory is not a clearly reinforced behavior.
  - Attendance or late arrival at meetings is not consistently challenged.
  - The Team could not identify an initiative to enhance personnel performance through the use of human performance tools or a better personal accountability to standards.
- Some interviewees indicated that management's reaction to self-reporting is dependent upon how much time it takes to fix the problem.
- Several individuals identified that the Laboratory struggles with the concept of quality and perceives it to be a paper exercise with too much of an audit mentality.

- Several interviewees did indicate that the matrix organizational structure has created some issues for the project. These include:
    - Performance evaluations are conducted by Functional Area Managers, not Project Managers.
    - Responsibility for functional areas is not clearly defined as either inside or outside of the Project.
    - Project organizational charts show only managers.
    - Organizational charts on the website are not up to date.
    - Line of responsibility between LANL and NNSA were not very clear for a long period of time and while improving they still need better explanation.
- Several interviewees indicated that they perceive that there is too much controlled from the Project Director's position e.g., all communication, decision making.
- Data on the Behavioral Anchored Rating Scale for Roles and Responsibilities indicates that 60% of LANL respondents to this scale have a negative perception of the extent to which facility personnel's positions and departmental work activities are clearly defined and carried out.
- Scores on the Commitment Scale from the electronic survey indicated that slightly over 50% of the Sargent & Lundy and 55% of the Merrick & Company respondents were negative or uncertain in their commitment to the project. This was a statistically significant difference from the LANL and Other respondents to the survey who responded more favorably in terms of commitment.

B.5.4 Work Processes

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

Positive Observations

CMRR Federal Project Office (CMRRPO)

- CMRRPO interviewees described regularly scheduled meetings with CMRR to facilitate the coordination of work.
- CMRRPO interviewees indicate that there is a general assessment plan that is integrated fairly well with CMRR activities.
- Interviewees indicated that the physical proximity of CMRRPO employees with CMRR individuals facilitated interaction and workflow paths.
- Interviewees indicated that CMRRPO has a combined integrated safety management and functions, responsibilities, and authorities document. LASO processes are used to implement elements of each part of the document.
- Interviewees indicated that LASO and the Program Office were supportive of the CMRRPO.
- Data on the Behavioral Anchored Rating Scale for Coordination of Work indicates that 68% of the CMRRPO respondents to this scale have a positive perception of the planning, integration, and implementation of work activities of individuals and groups.
- Data on the Behavioral Anchored Rating Scale for Formalization indicates that 82% of CMRRPO respondents to this scale have a positive perception of the extent to which there are well-identified rules, procedures, and/or standardized methods for routine activities as well as unusual occurrences.

CMRR Division (CMRR)

- Plan of the Day meetings and daily status white boards were described by interviewees as good ways to know what everyone is doing and places to avoid.

- Interviewees described that Integrated Schedule meetings between LANL, Sargent & Lundy, and Merrick & Company are held regularly.
- Data on the Behavioral Anchored Rating Scale for Coordination of Work indicates that 100% of the Merrick & Company, 82% of the Sargent & Lundy, and 68% of the LANL respondents to this scale have a positive perception of the planning, integration, and implementation of work activities of individuals and groups.
- Data from the Coordination of Work Scale on the electronic survey indicated that were no statistically significant differences between any of the project organizations on this scale and the overall scores for the Project were high compared to other organizations that have responded to the same scale.
- Interviewees indicated that project work is required to be performed according to NQA1 standards.
- Most interviewees indicated that verbatim compliance to standards and procedures is the underlying management expectation. If the procedure is deficient the expectation is to raise a concern to management. At Sargent & Lundy PIPs are often created to change a deficient procedure.
- Interviewees described that most procedures are very clear and not problematic.
- Interviewees from the various contractor organizations identified their own project instructions, codes and standards as well as Quality Assurance and Quality Control program documents.
- Data on the Behavioral Anchored Rating Scale for Formalization indicates that 95% of Sargent & Lundy, 80% of Merrick & Company, and 78% of LANL respondents to this scale have a positive perception of the extent to which there are well-identified rules, procedures, and/or standardized methods for routine activities as well as unusual occurrences.

Areas in Need of Attention

CMRR Federal Project Office (CMRRPO)

- Issues with the planning and coordination of work identified by interviewees across CMRRPO were primarily focused on the shortage of resources to get reviews and assessments done in a timely manner.

CMRR Division (CMRR)

- Several interviewees described that work is often held up often because delays with materials, permits, getting LANL to meet the schedule for review, reaching agreement on comment resolutions, NNSA decisions.
- Some interviewees indicated that because procurement is understaffed, it can create a bottleneck in getting work done. In addition, a recent procedural change requires any procurements of more than $100K must be approved by Senior Management/Leadership in Stewardship Council (LISC) which creates more delays.
- Many interviewees discussed the issue of having to use both LANL institutional procedures and project procedures which can create confusion and that some of these procedures contain conflicting requirements. The training received on institutional procedures was often described as not relevant to the project and in some cases even counterproductive to the project.
- Interviewees also described having to fill out two sets of forms for some processes, one set for the project and the other for the laboratory.
- Some interviewees indicated that LANL employees do not get consistent direction from their management for following processes, but perceive that contractor employees receive better guidance.

- Several interviewees described how poor IWDs resulted from planners cutting and pasting information into work packages and leaving things out.

B.5.5 Continuous Learning

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

Positive Observations

CMRR Federal Project Office (CMRRPO)

- CMRRPO interviewees indicated that CMRR uses LANS processes for lessons learned. While there is no comparable process on the Federal Project side, DOE does have a complex – wide lessons learned database that is also used.
- CMRRPO interviewees indicated that communication with other federal personnel on other projects is easy if it is within NNSA.
- The LASO Manager has his personnel prepare briefs on various topics that are sent to other site offices.
- CMRRPO interviewees indicated that CMRR is following DOE Standard 1189 and is ahead of other projects in doing so. They will provide the lessons learned for others.

CMRR Division (CMRR)

- Interviewees identified multiple mechanisms to communicate operating experience and lessons learned. These include, weekly meetings, awards, newsletters, PIPs, all hands meetings, training, DOE and LANL Lessons Learned Programs, Safety Task Analysis and Risk Reduction Talk (STARRT) Cards.
- Performance Assessment Team (PAT) Meetings are also described as another way to discuss lessons learned to improve future performance.
- RLOUB was perceived as a successful project by being under budget and ahead of schedule. Lessons learned are being used for the Nuclear Facility.
  - An example of a lesson learned from RLOUB is some ductwork that was off by 15 degrees on one glove box. Better detail needs to be put into the work for CMRR.
  - Structural issues related to expansion joints were also identified from RLOUB. Now a common 3D software is being used to integrate all aspects of the design.
- Interviewees indicated that UPF, CMRR and MOX are sharing lessons learned for the radiological laboratory glove boxes. Communication between these projects has been ongoing and described as useful.
- Interviewees from the contractor organizations indicated that they communicate lessons learned within their own organizations as well.
- Interviewees identified that all Merrick & Company and Sargent & Lundy new hire engineers get mentoring support from an experienced engineer.

Areas in Need of Attention

CMRR Federal Project Office (CMRRPO)

- Interviewees from CMRRPO indicated that in order to facilitate continuous learning for CMRR they needed to better understand LANS policies and procedures so that they can make suggestions for improvements.

- Data on the Behavioral Anchored Rating Scale for Organizational Learning indicated that 50% of CMRRPO interviewee respondents provided mid-range ratings suggesting that they believe that while the organization usually holds review sessions to discuss operating problems and attempts to uncover solutions to past difficulties, the information is generally only communicated to the population when it concerns significant activities.

CMRR Division (CMRR)

- Interviewees indicated that in general CMRR does not do a good job in learning from successes.
- While the concept of lessons learned was identified by many CMRR interviewees, the organization is missing opportunities to use this information as part of a learning process.
    - o Interviewees expressed that a lot of the information shared comes from the Project Director who keeps up well with what is going on at the laboratory side as opposed to being a function of a systematic process.
    - o Interviewees primarily described technical opportunities for lessons learned, not organizational or programmatic opportunities.
- Interviewees indicated that LANL has never endorsed NQA-1 and it has created gaps between CMRR and LANL in their Quality Assurance Programs.
- Information obtained from many interviewees about the glove box event indicates that the opportunity to learn from this event has not been used in the most effective manner.
    - o No formal communication had been released on the event.
    - o The Evaluation Team was provided the report on the root cause analysis of the event, despite reluctance by LANL Management to provide it.
    - o Some interviewees indicated that they believed there was pressure to 'tone down the report.';
    - o Dialogue on the issues around the event needs to be conducted to resolve unanswered questions and to use the information as a learning opportunity.
- Data on the Behavioral Anchored Rating Scale for Organizational Learning indicated that over 78% of the Merrick & Company, 42% of the LANL, and 38% of the Sargent & Lundy respondents to this scale provided mid-range ratings suggesting that they believed that while the organization usually holds review sessions to discuss operating problems and attempts to uncover solutions to past difficulties, the information is generally only communicated to the population when it concerns significant activities.

B.5.6   Environment for Raising Concerns

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

Positive Observations

CMRR Federal Project Office (CMRRPO)

- CMRRPO interviewees clearly understand the mechanisms available to identify safety concerns, e.g., supervisors, managers, ECP, HR, GAO, IG, and Hotline.
- Most CMRRPO interviewees identified that they did not perceive any inhibitors to reporting concerns within their organization.
- The statement that management does not tolerate retaliation of any kind for raising concerns was agreed to by a majority of the CMRRPO survey respondents, approximately 80%.
- Among CMRRPO survey respondents approximately 95% agreed with the statement that everyone in the organization is responsible for identifying problems.

- Among CMRRPO survey respondents approximately 95% feel that they can openly challenge decisions made by management. This was a statistically significant difference from all the other CMRR Organizations.
- Approximately 95% of CMRRPO survey respondents agreed with the statement that they feel that they can approach their management team with concerns.
- Approximately 88% of CMRRPO survey respondents agreed with the statement that management wants concerns reported.

CMRR Division (CMRR)

- Most interviewees clearly understand the mechanisms available to identify safety concerns, e.g., supervisors, managers, safety representatives, ECP, HR, and Hotline.
- Interviewees from certain functional groups identified that they did not perceive any inhibitors to reporting concerns within their organization.
- The Sargent & Lundy mentoring program was identified by interviewees as another avenue, especially for new young engineers, to have someone to raise concerns to if they were not yet comfortable to do it on their own.
- The statement that management does not tolerate retaliation of any kind for raising concerns on the electronic survey was agreed to by a majority of the CMRR survey respondents. Specifically, approximately 78% of the Sargent & Lundy and 75% of the LANL respondents agreed with this statement.
- Approximately 85% of the Sargent & Lundy, 80% of the LANL, 78% of the Other, and 75% of the Merrick & Company survey respondents agreed with the statement that they feel that they can approach the management team with concerns.
- Among CMRR survey respondents, 82% of the Sargent & Lundy, 78% of the Other, 75% of the LANL, and 70% of the Merrick & Company employees agreed with the statement related to management wants concerns reported.
- Approximately 80% of the Sargent & Lundy survey respondents believe that constructive criticism is encouraged.

Areas in Need of Attention

CMRR Federal Project Office (CMRRPO)

- Among CMRRPO survey respondents only 62% believe that constructive criticism is encouraged.
- CMRRPO does not have a formal Nuclear Safety Culture Policy for the project.

CMRR Division (CMRR)

- Among CMRR survey respondents, about 80% of the LANL, 80% of the Other, 78% of the Sargent & Lundy, and about 70% of the Merrick & Company respondents agreed with the statement that everyone in the organization is responsible for identifying problems. While overall this represents a higher percentage of people agreeing than disagreeing, it is still lower than is seen in other organizations and indicates that between 20 to 30% of the population did not agree with this statement.
- The statement on the electronic survey that management does not tolerate retaliation of any kind for raising concerns was agreed to by a majority of the CMRR survey respondents. However, only 65% of the Merrick & Company and 65% of the Other respondents agreed with this statement.

- Among CMRR survey respondents 68% of the Sargent & Lundy, 68% of the Other, 60% of the LANL, and only 48% of the Merrick & Company employees feel that they can openly challenge decisions made by management.
- Approximately 70% of the Other, 70% of the Merrick & Company, and 68% of the LANL survey respondents believe that constructive criticism is encouraged.
- Results from a survey conducted by CMRR prior to this evaluation indicated that employees would not use Human Resources to raise concerns because of the belief that HR was more concerned with process transparency than with people's integrity.
- Several interviewees indicated that while supervision and management claim there will be no retaliation for identifying issues, some recent examples have given some individuals cause for concern.
  - An individual who placed a stop work order on contracting work will not have their employment contract renewed.
  - As a result of the glove box event finger pointing was leveraged against a single individual during the investigation process.
  - LANL Senior Leadership responses to the root cause analysis of the glove box event.

B.5.7   Effective Safety Communication

Communications maintain a focus on safety.

Positive Observations

CMRR Federal Project Office (CMRRPO)

- Interviewees identified multiple mechanisms for communication in the CMRRPO organization.
  - Frequent meetings are held with different organizations within CMRR.
  - Direct and frequent communication with the Federal Project Director.
  - Weekly discipline meetings, all hands meetings, emails are used regularly for communication.
  - Information through Plan of the Day meetings.
- Interviewees described a lot of direct interaction with Directors on the Project and Federal side and a lot of one on one interactions.
- CMRRPO survey respondents had some of the highest scores on the Desire for Interaction and Trust in Communication Scales.

CMRR Division (CMRR)

- Interviewees identified multiple mechanisms for communication in the CMRR Organization. They included:
  - Newsletters
  - Weekly meetings
  - Staff meetings
  - Emails
  - Supervisor updates
  - Plan of Day Meetings
  - Face to face interactions
  - Safety representatives
  - PIPs.
- Many CMRR interviewees indicated that they believe that they are well informed about what is going on around the Project.

- Several interviewees indicated that some groups have coordinators to facilitate communication.
- Team building efforts were initiated to improve communication between all organizations involved with CMRR.
- Data from the Behavioral Rating Scale on Communication indicated that 85% of the LANL interviewee respondents who completed that scale had positive perceptions about the exchange of information, both formal and informal, between the different departments or units in the project, including the top-down and bottom-up communication networks.

Areas in Need of Attention

CMRR Federal Project Office (CMRRPO)

- Several CMRRPO interviewees identified examples in communication that may impact safety performance.
    - CMRRPO individuals have to be actively engaged to get information as it is not routinely provided to them unless they ask, search, or attend meetings.
    - CMRRPO individuals described being perceived as second class citizens by some groups within CMRR.
    - The CMRRPO Safety Basis Team indicated that they are only cognizant of information relevant to their job.
    - Several CMRRPO individuals believe that there needs to be more formality in what and how they are to communicate with the contractor.
- Data from the Behavioral Rating Scale on Communication indicated that only 50% of the CMRRPO interviewee respondents who completed that scale had positive perceptions about the exchange of information, both formal and informal, between the different departments or units in the project, including the top-down and bottom-up communication networks.

CMRR Division (CMRR)

- Many CMRR interviewees indicated that the project could benefit from more interdisciplinary meetings.
- Several CMRR interviewees indicated that they perceived a very strong project center management that keeps information and limits the flow down of communication.
- Some groups (Craft Workers) indicated that they could be better informed about many things, e.g. change orders which can be safety related, if they were aware of what others are working on.
- Interviewees indicated that there is a lot of variability in the quality and quantity of communication and information that is received and it is dependent upon who you are working for whether you get the big picture or just your picture.
- Many interviewees expressed the view that they don't always know or hear about emerging issues.
- Interviewees indicated that there have been discrepancies in the information that employees have received concerning the glove box event.
- Data from the Behavioral Rating Scale on Communication indicated that only approximately 38% of the Sargent & Lundy and 55% of the Merrick & Company interviewee respondents who completed that scale had positive perceptions about the exchange of information, both formal and informal, between the different departments or units in the project, including the top-down and bottom-up communication networks.

B.5.8   Respectful Work Environment

Trust and respect permeate the organization

Positive Observations

CMRR Federal Project Office (CMRRPO)

- Results from the Communication Trust Scale on the electronic survey indicated that over 90% of the CMRRPO survey respondents had very positive perceptions regarding the freedom they feel to discuss the problem and difficulties in their jobs with an immediate supervisor without jeopardy.
- Results from the Work Group Cohesion Scale on the electronic survey indicated that approximately 86% of the CMRRPO survey respondents had very positive perceptions regarding their identification with and involvement in their work group.

CMRR Division (CMRR)

- Results from the Communication Trust Scale on the electronic survey indicated that overall CMRR survey respondents had very positive perceptions regarding the freedom they feel to discuss the problem and difficulties in their jobs with an immediate supervisor without jeopardy. CMRR scores on this scale were among the highest across several different organizations that have responded to this same scale.

Areas in Need of Attention

CMRR Federal Project Office (CMRRPO)

- Results on the electronic survey for CMRRPO survey respondents indicated statistically significant higher scores on overall job satisfaction than respondents in the Sargent & Lundy, Merrick & Company and Other organizations. However, within the CMRRPO organization over 50% of the survey respondents were either negative or neutral about their overall job satisfaction.
- Results obtained on the Communication-Accuracy Scale from the electronic survey indicated that overall CMRR Project survey respondents did not have the most positive perceptions of the accuracy of information that they receive from other organizational levels (superiors, subordinates, and peers).

CMRR Division (CMRR)

- Results on the electronic survey for CMRR survey respondents indicated statistically significant higher scores on overall job satisfaction for LANL respondents than for Sargent & Lundy and Merrick & Company respondents. However, even within the LANL organization 60% of the survey respondents were either negative or neutral about their overall job satisfaction. In both the Sargent & Lundy and Merrick & Company Organizations, approximately 75% of the survey respondents were either negative or neutral about their overall job satisfaction.
- Results obtained on several of the scales already discussed in this report present a consistent profile of the organizational culture of the Merrick & Company employees working on the CMRR project. For the most part these individuals are the least committed, least satisfied, least cohesive and least positive about their safety conscious work environment.
- Results obtained on the Communication-Accuracy Scale from the electronic survey indicated that overall CMRR survey respondents have negative perceptions of the accuracy of information that they receive from other organizational levels (superiors, subordinates, and peers).

B.5.9   Questioning Attitude

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

Positive Observations

    CMRR Federal Project Office (CMRRPO)

- CMRRPO Interviewees indicated that their line management was supportive of their challenging conditions and activities.

    CMRR Division (CMRR)

- Some examples of fostering an environment where a questioning attitude is desired and accepted were described. Individuals voluntarily took on reviewing specification packages to ensure that safety related issues had been addressed. In cases where they questioned whether the safety related aspects of the work in the package had been fully considered, they raised the issues with the owner of the package.

Areas in Need of Attention

    CMRR Federal Project Office (CMRRPO)

- Results from the electronic survey indicated a fairly negative perception among many CMRRPO survey respondents about management's interest in encouraging constructive criticism. .
- Several interviewees indicated that stakeholders with personal agendas were influencing DOE and that it was sometimes compromising their oversight activities through schedule and cost pressures.

    CMRR Division (CMRR)

- While many CMRR interviewees described the expectation for all employees to maintain a questioning attitude in all aspects of their work, they also often indicated a reluctance to do so because of their perception of other expectations by management, e.g., schedule pressure, not feeling free to challenge management decisions, management not encouraging constructive criticism.
- There has not been a DPO process for CMRR, although recently there has been some discussion about implementing one. Several interviewees indicated that they have some uncertainty or doubt about how or if the process will actually be implemented.
- Many interviewees in certain CMRR organizational groups had indicated that as a result of the fear of retaliation as well as the way they perceived that some supervision and management treated them; they no longer felt comfortable to challenge existing conditions or activities.

B.8   References

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