Navarro Research and Engineering, Inc.
Legacy Management Support

Report from the Department of Energy
Voluntary Protection Program
Onsite Review
October 9-18, 2018

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

Foreword

The Department of Energy (DOE) recognizes that excellence can be encouraged and guided, but not standardized. On January 26, 1994, the Department initiated the DOE Voluntary Protection Program (VPP) to encourage and recognize excellence in occupational safety and health protection. This program closely parallels the Occupational Safety and Health Administration's (OSHA) VPP. Since its creation by OSHA in 1982 and implementation by DOE in 1994, VPP has demonstrated that cooperative action among Government, industry, and labor can achieve excellence in worker safety and health.

DOE-VPP outlines areas where DOE contractors and subcontractors can surpass compliance with DOE Orders and OSHA standards. The program encourages a *stretch for excellence* through systematic approaches, which emphasize creative solutions through cooperative efforts by managers and employees. Requirements for the DOE-VPP participation are based on comprehensive management systems with employees actively involved in assessing, preventing, and controlling potential health and safety hazards at their sites. All contractors in the DOE complex, including production facilities, laboratories, and various subcontractors and support organizations, may participate in DOE-VPP.

However, in keeping with OSHA and DOE-VPP philosophy, *participation is strictly voluntary*. Additionally, any participant may withdraw from the program at any time. DOE-VPP consists of three programs with names and functions similar to those in OSHA's VPP: Star, Merit, and Demonstration. The Star program is the core of DOE-VPP. This program is aimed at recognizing outstanding protectors of employee safety and health. The Merit program is a steppingstone for participants that have good safety and health programs, but need time and DOE guidance to achieve true Star status. The Demonstration program, expected to be used rarely, allows DOE to recognize achievements in unusual situations about which DOE needs to learn more before determining approval requirements for the Merit or Star program.

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

This report summarizes the results from the evaluation of Navarro Research and Engineering, Inc. (Navarro) Legacy Management Support, conducted October 9-18, 2018, and provides the Associate Under Secretary for Environment, Health, Safety and Security with the necessary information to make the final decision regarding Navarro's continued participation in DOE-VPP.

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ABBREVIATIONS AND ACRONYMS

ALARA	As Low As Reasonably Achievable
AU	Office of Environment, Health, Safety and Security
AU-12	Office of Worker Safety and Health Assistance
BLS	Bureau of Labor Statistics
CATS	Corrective Action Tracking System
CAWWT	Converted Advanced Waste Water Treatment
CFR	Code of Federal Regulations
CSS	Construction Safety Supervisor
CY	Calendar Year
DART	Days Away, Restricted, or Transferred
DOE	Department of Energy
EST	Employee Safety Team
GHA	General Hazard Analysis
GJDS	Grand Junction Disposal Site
IH	Industrial Hygiene
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
IWCP	Integrated Work Control Process
JATR	Job Analysis and Training Review
JSA	Job Safety Analysis
LOTO	Lockout/Tagout
LM	Office of Legacy Management
LMBC	Legacy Management Business Center
LMS	Legacy Management Support
NAICS	North American Industry Classification System
Navarro	Navarro Research and Engineering, Inc.
OSHA	Occupational Safety and Health Administration
P/AE	Project/Activity Evaluation
PBZ	Personal Breathing Zone
PEMP	Performance Evaluation Monitoring Plan
PPE	Personal Protective Equipment
RADCON	Radiation Control
RCT	Radiological Control Technician
RWP	Radiological Work Permit
S&H	Safety and Health
SME	Subject Matter Expert
Stoller	S.M Stoller Corporation
Team	Office of Environment, Health, Safety and Security DOE-VPP Assessment Team
TRC	Total Recordable Case
VOC	Volatile Organic Compounds
VPP	Voluntary Protection Program
ZVI	Zero Valent Iron

EXECUTIVE SUMMARY

The Department of Energy's (DOE) Voluntary Protection Program (VPP) Assessment Team (Team) from the Office of Environment, Health, Safety and Security (AU) recommends that Navarro Research and Engineering, Inc. (Navarro) Legacy Management Support (LMS) be admitted to DOE-VPP as a new participant at the Merit level. Navarro is the operating contractor for the LMS contract. This contractor group consists of Navarro Inc., Leidos, Inc., Weston Solutions Inc., and LMATA Government Services, LLC, the staff augmentation subcontractor. The LMS contract team conducts long-term surveillance and maintenance of 92 former weapons production sites, and maintains records associated with those sites. The previous contractor, S.M. Stoller Corporation (Stoller) Legacy Management achieved DOE-VPP Star status in 2012. Navarro assumed the LMS contract operation from Stoller on October 1, 2015 and requested to remain in DOE-VPP in a *transitional status,* per the requirements described in the VPP Manual.

Navarro experienced three recordable cases in calendar years (CY) 2016 and 2017. The Team did not find any evidence of underreporting, nor any evidence of disincentives or suppression of reporting. Navarro's average 3-year total recordable case (TRC) rate was 86 percent below the comparison industry rate; and the average 3-year case rate for days away, restricted, or transferred (DART) was 93 percent below the comparison industry rate.

Navarro managers successfully managed the original contract transition from Stoller to Navarro, exercising restraint on programmatic changes that could have alienated the workforce. Difficulties started when it committed to perform a programmatic assessment, but failed to follow through. Navarro then created internal schedule pressures when it decided to perform a complete revision to its safety and health procedures without input from a comprehensive assessment. The new procedures did not have support from workers who were expected to implement those procedures. Navarro created a condition where it was telling workers to comply with procedures they did not understand or support.

A subcontractor worker complaint to Colorado Occupational Safety and Health Administration (OSHA) in August 2018 made those problems evident, and Navarro managers are just beginning to address the programmatic deficiencies. In order to demonstrate the Management Leadership tenet of DOE-VPP, Navarro needs to reestablish its written procedures and policies that implement the worker safety and health program, train workers on those procedures, and restore an operational culture that protects workers and the environment.

Navarro employees understand their roles and responsibilities in the safety and health program and their rights under Title 10, Code of Federal Regulations (CFR), Part 851, *Worker Safety and Health Program*. There were no doubts expressed by any employees about their ability to ask questions, raise safety concerns, and stop or pause work if necessary. Employees have multiple means of participating in the safety and health program. Employees can participate on the Employee Safety Team (EST), raise safety concerns through the EST program, attend weekly safety meetings, perform worksite inspections, provide safety shares during meetings, and participate in safety promotion activities.

Navarro's integrated work control process uses a tailored, hazard-based approach to work planning. It uses a traditional job safety analysis (JSA) to identify, analyze, and prescribe controls for moderate- and high-hazard work. Navarro also uses permits to analyze and

document controls for hazards with specific regulatory controls. This allows for a more in-depth review and management of hazards associated with the work. However, routine or low-hazard work does not use a JSA. Routine and low-hazard work should include an initial hazard analysis process (such as using a general hazards analysis) to screen potential hazards for that work.

Navarro implements the hierarchy of controls to protect workers, equipment, and the environment. It also use "as low as reasonably achievable" (ALARA) methods and principles to minimize worker radiation exposures. Navarro has experienced and knowledgeable safety and health professionals with the necessary expertise to identify, evaluate, and control workplace hazards.

Navarro provides appropriate safety and health training to its employees. Workers are trained to control the hazards associated with their jobs. The Navarro training organization has gained efficiencies by using new technology and software to update training curricula that allows better collaboration between the training organization and subject matter experts (SME) during the curriculum development and change process. Navarro's staffing has nearly doubled over the past 3 years. As a result, Navarro should consider developing a more systematic approach to training to ensure all personnel consistently obtain and maintain necessary qualifications and skills.

The vast majority of Navarro's work is low-hazard and low-risk, so workers believe their skills and knowledge are sufficient to protect them. This belief led to several issues during performance of more complex tasks at the Grand Junction Disposal Site (GJDS). This systemic breakdown of the procedures implementing the Navarro safety and health management system requires broad action by Navarro, and does not meet the expectations for participation in DOE-VPP at the Star level. Navarro needs time to make improvements to achieve DOE-VPP Star Status.

TABLE 1
OPPORTUNITIES FOR IMPROVEMENT

Opportunity for Improvement	Page
Navarro should ensure managers conduct visits throughout the year rather than clustering the visits in the month prior to the end of the fiscal year.	**5**
Navarro should switch from a specific TRC and DART rate for its performance indicator to a trend line for TRC and DART rate.	**5**
Navarro needs to complete the comprehensive programmatic assessment of its S&H program and integrate those results with the *extent of condition review* from the disposal cell event. It also needs to revise the S&H procedures and forms, incorporate worker feedback on those procedures, identify training on those revisions, train personnel to implement those revisions, and then implement the new procedures.	**7**
Navarro should incorporate more advanced safety concepts into its safety message campaigns to stimulate interest and participation among its workforce.	**9**
Navarro should consider developing EST subteams for its populated locations to ensure all groups at those locations are represented.	**10**
Navarro should consider supporting local EST subteams by creating employee participation promotions, in addition to the company-wide initiatives, to better address each individual site's needs.	**10**
Navarro should develop a GHA that evaluates the common routine hazards workers encounter while performing tasks it considers as "Type 0," and revise its IWCP to use that GHA as a basis for screening work as "Type 0."	**12**
Navarro should consider revisiting the JATR approach to reinforce its commitment to excellence, improve training process consistency, and implement a systematic approach to training.	**19**
Navarro should ensure it has adequate training and proficiency requirements for the field safety technicians that align with their broad responsibilities specifically with regard to IH and industrial safety disciplines when operating independently in the field.	**20**

I. INTRODUCTION

Navarro is the operating contractor for the LMS contract, and heads a group that consists of Navarro Inc., Leidos, Inc., Weston Solutions Inc., and LMATA Government Services, LLC, the staff augmentation subcontractor. Navarro replaced Stoller Legacy Management as the LMS contractor on October 1, 2015. As the LMS contractor, Navarro is responsible for the long-term surveillance and maintenance of DOE's former weapons production sites. Navarro supports DOE's Office of Legacy Management (LM) in managing its responsibilities associated with the environmental legacy of World War II and the Cold War at 92 sites across the country. Navarro's work includes monitoring various media (surface water, groundwater, soil, and biological samples) at LM sites for residual radionuclides and analyzing the data from monitoring activities. Some ongoing remediation activities include treating groundwater where contaminant concentrations still exceed allowable limits for public release, and maintaining and operating low-level radiological waste disposal cells.

Navarro also maintains records at the Legacy Management Business Center (LMBC) in Morgantown, West Virginia. LMBC is a repository for maintaining all DOE legacy records and is the largest records management facility in the DOE complex. These records are maintained for Freedom of Information Act retrieval and to ensure documentation is available regarding the final state of sites, the basis of decisions, required controls, and background information to support former workers' benefits claims.

Navarro also operates visitor centers and interpretive centers for educational outreach. Navarro currently operates a Visitors Center at the Fernald Preserve Site in Ohio and an Interpretive Center at the Weldon Spring Site in Missouri. Navarro is also building Visitors' Centers at two additional sites where the public can learn about the history of DOE and the Cold War, local ecology, and environmental stewardship. Other public relations responsibilities include responding to stakeholder inquiries for all the LM sites.

DOE's former Office of Health, Safety and Security admitted Stoller to DOE-VPP in 2012. In accordance with the DOE-VPP Manual, Navarro requested to continue DOE-VPP participation in a *transitional status*. The Office of Worker Safety and Health Assistance (AU-12) within AU, granted Navarro transitional status, giving it 24 months to complete the transition. Under the transitional process, Navarro submitted its transitional application in October 2017. After reviewing the application, AU-12 scheduled this assessment.

The Team visited the Grand Junction Office, the Westminster Office (including the Rocky Flats site), the Fernald Site, and LMBC. The Team contacted managers, supervisors, and employees, through work observations, individual, and group interviews.

II. INJURY INCIDENCE/LOST WORKDAYS CASE RATE

Injury Incidence/Lost Workdays Case Rate (Navarro)					
Calendar Year	Hours Worked	Total Recordable Cases (TRC)	TRC Incidence Rate per 200,000 hours	DART* Cases	DART* Case Rate per 200,000 hours
2016	697,103	3	0.86	0	0.00
2017	809,449	3	0.74	2	0.49
2018[#]	534,411	0	0.00	0	0.00
3-Year Totals	2,040,963	6	0.58	2	0.19
Bureau of Labor Statistics (BLS-2016) average for NAICS** 562 Waste Management and Remediation Services			4.2		2.7
Injury Incidence/Lost Workdays Case Rate Subcontractors (Navarro)					
Calendar Year	Hours Worked	Total Recordable Cases (TRC)	TRC Incidence Rate per 200,000 hours	DART* Cases	DART* Case Rate per 200,000 hours
2016	34,931	0	0.00	0	0.00
2017	105,967	0	0.00	0	0.00
2018[#]	138,182	0	0.00	0	0.00
3-Year Totals	279,080	0	0.00	0	0.00
Bureau of Labor Statistics (BLS-2016) average for NAICS** 562 Waste Management and Remediation Services			4.2		2.7

* Days Away, Restricted, or Transferred
**North American Industry Classification System
[#] Data for 2018 is for 1st, 2nd, and 3rd quarter CY only

TRC Incidence Rates, including subcontractors: 0.52
DART Case Rates, including subcontractors: 0.17

Discussion
Navarro experienced three recordable cases in CY 2016 and 2017. The Team reviewed the accident and injury logs with the Navarro Case Manager. A committee makes recordkeeping decisions with the Safety and Health manager as the final authority. The Team identified one duplicate case in the Computerized Accident Incident Reporting System database for CY 2016. The Team did not find any evidence of underreporting, nor any evidence of disincentives or suppression of reporting. Navarro's average 3-year TRC case rate was 86 percent below the

comparison industry rate, and the average 3-year case rate for DART was 93 percent below the comparison industry rate. These rates and practices for injury and illness reporting meet the expectation for continued participation in DOE-VPP.

III. MANAGEMENT LEADERSHIP

Management leadership is a key element of developing and sustaining an effective safety culture. The contractor must demonstrate a senior-level management commitment to exceeding occupational safety and health requirements and meeting the expectations of DOE-VPP. Management systems for comprehensive planning must address health and safety requirements and initiatives. Elements of the management system include: (1) clearly communicated policies and goals; (2) clearly defined and assigned responsibilities and authority; (3) adequate resources; (4) accountability for both managers and workers; and (5) managers must be visible, accessible, and credible to employees. Authority and responsibility for employee health and safety must be integrated with the management system and must involve employees at all levels.

In 2012, the Team determined that LMS managers (under Stoller) had demonstrated the leadership and commitment necessary to pursue safety excellence. They had established a work environment that encouraged continuous improvement, provided necessary resources to implement new ideas, and implemented comprehensive management systems for worker safety and health. The next improvements for LMS were to implement a more systematic annual evaluation process, and empower employees to take greater ownership of the safety and health system.

Navarro managers demonstrated their support for safety and the elements of VPP. Managers knew their staff, spent time reviewing workplace conditions, and ensured workers had access to the necessary safety and health expertise. This support was reflected in interviews with workers who firmly believed they could ask questions, pause work, and address safety and health concerns. Many workers demonstrated their enthusiasm for the work they performed, and most managers and employees interacted easily with each other. Many managers travel several times per year to visit sites within their scope of responsibility. Managers are also expected to visit other sites at least twice a year to perform a safety assessment and provide a fresh view of conditions.

For the first 2 years of the contract, Navarro did an excellent job managing the transition from the previous contractor. Navarro did not begin by making wholesale changes to processes and procedures. Although there were some glitches, most employees described the transition as "seamless."

Navarro has implemented a system of contract performance measures that it reports to DOE-LM. These performance measures include leading indicators. Each performance indicator has a graph of the data numbers. The data analysis is presented in a "stoplight" graphic. Some of the leading indicators, however, can be further refined to help both Navarro and DOE-LM identify actions before conditions degrade and lead to accidents or incidents. For example, Navarro is tracking total attendance at safety meetings as a means to help measure employee engagement. That number is presented simply as a raw number. Navarro should consider including a second number on the same performance indicator chart that is either total employee population or percentage of current employee population that attends safety meetings. Percentage of employee population attending safety meetings can provide useful context for the total number of employee data currently reported.

Navarro also tracks the number of manager site visits. It expects managers to make two site visits per year. During this assessment, the current chart showed a large spike in manager site

visits during September 2018. Although the indicator showed green, the September spike indicates that many managers are not spreading their visits throughout the year. Managers maintain contact with their dispersed staffs through video conferences and teleconferences, but Navarro should ensure managers conduct visits throughout the year rather than clustering the visits in the month prior to the end of the fiscal year.

Opportunity for Improvement: Navarro should ensure managers conduct visits throughout the year rather than clustering the visits in the month prior to the end of the fiscal year.

Navarro uses TRC and DART rate as a performance indicator. The "stoplight" is green if the TRC rate is below 1.09. Navarro selected that number as a statistically significant difference from the overall DOE TRC average.. Navarro should consider removing a specific TRC and DART rate as a stoplight indicator. Instead, Navarro should consider using a trend for the stop light rather than a fixed number. For example, falling rapidly could be blue, falling slowly could be green, steady at a number above 0 would be yellow, and rising would be red. This would reinforce Navarro's continuous improvement perspective and help avoid any perceived disincentives for reporting injuries.

Opportunity for Improvement: Navarro should switch from a specific TRC and DART rate for its performance indicator to a trend line for TRC and DART rate.

Navarro has done an excellent job managing and providing resources to safely perform its mission. Interviewed workers identified manager's willingness to provide ergonomic improvements for office workers; improved tools for handling records in storage areas; improvements to record storage areas; and increased staff, including safety and health personnel. Navarro has also continued supporting reward and recognition programs begun by Stoller.

Shortly after taking over the contract in October 2015, Navarro asked for an independent assessment of its integrated safety management system (ISMS). This assessment, conducted by an outside consultant with extensive experience in VPP, identified some noncompliances with 10 CFR 851 and DOE's Integrated Safety Management (ISM). As a result of that assessment, Navarro included an action in its safety improvement plan to conduct a comprehensive assessment of its own safety and health plan in 2017. That assessment was not completed in 2017. Navarro had intended for that assessment to identify any additional program weaknesses that needed to be addressed, and then make revisions in its safety and health manual, procedures, and standards to address those weaknesses. When the assessment was not completed in 2017, Navarro pushed the action into 2018. DOE-LM, intending to encourage Navarro to perform that assessment, identified completion of the assessment in Navarro's Performance Evaluation Monitoring Plan (PEMP). The PEMP evaluation is the basis for the annual fee determination, which is how Navarro makes its profit on the contract. DOE-LM also identified Navarro's desire to replace the existing safety and health manual with individual procedures as a contract deliverable by the end of June 2018.

With the looming deliverable deadline for the comprehensive program evaluation and implementation of new safety and health procedures, Navarro deviated from its previous approach to implement changes. Navarro managers believed the old system of standards was

difficult to use, and many people considered those standards as guides rather than requirements. Navarro planned to issue a new general Health and Safety Plan and expected to issue approximately 60 individual procedures involving industrial safety, industrial hygiene (IH), and ergonomics. Navarro planned to extract many of those individual procedures from either the old Safety and Health Manual or the Safety and the Health Procedures Manual. By the end of December 2017, Navarro had only extracted three procedures from the Safety and Health Manual, and another eight were in the document development and production process. One procedure was issued in February 2018 and 19 others were expected to be extracted and reissued during 2018. Navarro issued the remaining procedures in June 2018 in order to meet the contract deliverable date.

When the contract deliverable date approached, Navarro instituted the new procedures without adequate feedback from employees. In July 2018, responding to employee complaints about the procedures and training, it suspended implementation of the new procedures and reinstituted the previous Safety and Health Manual for 90 days. The 90 days passed without implementing the training or addressing the employees' concerns with the procedures. Navarro managers identified, in connection with this procedure implementation, that they would only miss a contract deliverable if "they are dead or dying." Although it intended to develop training for the new procedures, as of October 2018 Navarro had not developed or scheduled that training and had no plans to complete the training. This willingness to implement the new procedures without proper training was contrary to Navarro's desire for workers to "do it right or don't do it."

The problems with the procedure implementation were not limited to managers not adequately including worker concerns. Some personnel stated they began reviewing the procedures, but found so many errors that they concluded the procedures were not ready for review, gave that feedback to managers, and quit reviewing them. Other employees, although given the chance to review the procedures, did not give sufficient priority to reviewing them because they did not have a strong procedure-based culture. Once Navarro issued the procedures, workers tried to implement them but felt the procedures were unusable.

This belief was prevalent particularly in connection with the lockout/tagout (LOTO) procedures. The Team's review of the LOTO procedure and comparison with the previous procedure that had been in place during the 2013 review showed the procedures were not significantly different from a technical perspective. There were some minor differences in how forms were referenced in the procedure and changes in position titles to match the current organization. This might imply that employees were not using the original LOTO procedure.

Navarro never completed the comprehensive safety and health (S&H) program review. A program review would have offered evidence of the need to change the S&H procedures program. It did commission an assessment to determine its readiness for the VPP onsite review, and that assessment also identified the problem with procedure implementation, but Navarro was unable to address the condition before this assessment.

The issues with procedure compliance became evident in August 2018 when a subcontractor employee at the GJDS made a safety and health complaint to Colorado OSHA. Colorado OSHA did not pursue the complaint because DOE had jurisdiction. However, DOE-LM performed an investigation of the complaint (referred to as the "disposal cell event") and identified several issues (see Hazard Prevention and Control). These issues all pointed toward weaknesses in

supervisors' and managers' expectations, implementation of procedures, and a lack of rigor in conducting work. DOE-LM directed Navarro to perform an *extent of condition review* and provide DOE-LM with a corrective action plan. Navarro delivered the review and action plan to DOE-LM on October 15, 2018. Many of those actions include commitments to revise procedures and forms, train personnel, and conduct follow-up assessments.

In order to demonstrate the Management Leadership tenet in DOE-VPP, Navarro needs to complete the comprehensive programmatic assessment of its safety and health program. The *extent of condition review* of the disposal cell event may provide a good starting point for that assessment. After completing that assessment, Navarro needs to revise the S&H procedures and forms, incorporate worker feedback on those procedures, identify training on those revisions, train personnel to implement those revisions, and then implement the new procedures.

Opportunity for Improvement: Navarro needs to complete the comprehensive programmatic assessment of its S&H program and integrate those results with the *extent of condition review* from the disposal cell event. It also needs to revise the S&H procedures and forms, incorporate worker feedback on those procedures, identify training on those revisions, train personnel to implement those revisions, and then implement the new procedures.

Conclusion

Navarro managers successfully managed the original contract transition from Stoller to Navarro, exercising restraint on programmatic changes that could alienate the workforce. Difficulties started when it committed to perform a programmatic assessment, then failed to follow through. Navarro then created internal schedule pressures when it decided to perform a complete revision to its safety and health procedures without input from a comprehensive assessment. The resultant change in procedures did not have support from workers expected to implement those procedures, and Navarro created a condition where workers were being asked to comply with procedures they did not understand or support. The disposal cell event made those problems evident, and Navarro managers are just beginning to address the programmatic deficiencies. In order to demonstrate the Management Leadership tenet of DOE-VPP, Navarro needs to reestablish its written procedures and policies that implement the worker safety and health program, train workers on those procedures, and create an operational culture that protects workers and the environment.

IV. EMPLOYEE INVOLVEMENT

Employees at all levels must be involved in structuring and operating the safety and health program. Employee involvement is a major pillar of a strong safety culture, in addition to the right to notify managers of hazardous conditions and practices. Managers and employees must work together to establish an environment of trust where employees understand that their involvement adds value, is crucial, and is welcome. Managers must be proactive in recognizing and rewarding workers for their contributions. Employees and managers must communicate and collaborate in open forums to discuss continuing improvements, to recognize and resolve issues, and to learn from their experiences.

In 2012, Stoller employees had many means of participating in the safety and health program, were strongly encouraged to take ownership of their own safety, and looked out for their coworkers. Efforts to achieve DOE-VPP Star status had been primarily management led, but employees participated in and supported those efforts.

Navarro employees also have multiple means of participating in the safety and health program. Managers support employee participation on the EST. Employees can raise safety concerns through the EST program, attend monthly (and weekly, as applicable) safety meetings, perform worksite inspections, provide safety shares during meetings, and participate in safety promotional activities.

Navarro employees understand their roles and responsibilities in the safety and health program and their rights under 10 CFR 851. There were no doubts expressed by any employees about their ability to ask questions, raise safety concerns, and stop or pause work if necessary. Workers interviewed by the Team were clear in their willingness to help coworkers and prevent unsafe, or at-risk behaviors.

Navarro maintains the EST charter. The EST includes representatives from each of the populated sites that meet monthly via telephone conference to discuss current safety issues or concerns. Navarro also holds All Hands Meetings via video conferencing to ensure communication across the multiple LM locations.

The Navarro EST charter establishes that the chairperson of the committee serves as a member of the program manager's Safety Council. Participation on the EST is primarily voluntary, but some members were strongly encouraged by their supervisors, managers, or peers to volunteer. All individuals interviewed were positive about their experiences on the committee.

The EST communicates information about the development and enhancement of VPP activities and contributes to continuous improvement of the S&H program. This team complements the roles of employees, safety professionals, and managers as they relate to the S&H program efforts. The EST supports the achievement of each of Navarro's strategic objectives for VPP.

In addition to describing the role of the chairperson, the charter states that the team should consist of a minimum of one representative from each occupied site. This number may be adjusted as necessary as the number of LM sites increases. Members can be exempt or nonexempt employees, as well as supervisors and managers. This structure helps ensure there are representatives from across the LM complex and provides a voice for all employees on S&H issues. The VPP coordinator occupies a staff position and chairs the EST. All other members of

the team are appointed to serve a limited term. Team membership is voluntary to ensure that members are active, productive participants of the team.

Each member serves a term of approximately 2 years. Ideally, all team members start service at different times to provide committee continuity. In the event that two or more team members start at the same time, some members may be asked to serve a shorter term to stagger the rotation, thus maintaining continuity. Team members may serve multiple terms in the event that: (1) no other volunteer from a vacating member's site can be identified to serve on the team; or (2) the member desires to volunteer for service again after sitting out one or more terms.

The Navarro (company-wide) EST team is well organized, communicates effectively, and shares ideas monthly via telephone conference calls to all populated sites. It jointly plans its new annual campaigns at a yearly offsite "safety summit" in July or August.

While the annual campaigns, safety messages, and safety topics at EST and All Hands Meetings do promote safety, the Team observed that many workers are not engaged with the campaign or messages. Many workers were not aware they were already participating in the current annual campaign. Although committed to their own safety, they believed the campaigns and safety messages were not giving them any new information, consisted of repetitive messages, and had little added value. Navarro could create more employee interest by finding topics that challenge its educated and experienced workforce. Messages and activities related to topics, such as Human Performance Improvement, Safety Culture, Human and Organizational Performance, or Highly Reliable Organizations may provide more intellectual challenges and be better received by workers with advanced technical and scientific degrees. Navarro should incorporate more advanced safety concepts into its safety message campaigns to stimulate interest and participation among its workforce.

Opportunity for Improvement: Navarro should incorporate more advanced safety concepts into its safety message campaigns to stimulate interest and participation among its workforce.

Team interviews found that the Westminster EST representatives do not consider themselves the "leads" for their location. While they are supported by the combined Navarro VPP Team EST, the two Westminster employees do not have their own "subteam" of employees to help develop internal improvements to address local needs and elevate local concerns through the company-wide EST for consideration. For example, the Westminster location consists of the Rocky Flats sampling team, assets management, and others representing a diverse set of people and skills with varying missions. By creating an EST subteam consisting of individuals from each organization within the Westminster location, the subteam could maximize its representation of all individual groups' concerns or ideas at that location and improve employee morale locally.

Another example of the need for local EST support, Team interviews found that the participants at the Morgantown site were lukewarm regarding employee involvement in safety. They did not perceive that many of the hazards applied to them, and only had limited participation in the company-wide EST safety campaign over the past year. Some employees had experienced accidents when off work, and could have contributed to the "Make it Home Safe" campaign, yet those employees contributed very little. In some cases, employees that were interviewed did not even realize that they were participating in the "Make It Home Safe" campaign.

In 2012, the previous contractor had begun to implement site safety committees to address local issues and report to the company EST. Navarro should consider reimplementing this approach to develop local ESTs as a means of encouraging greater employee ownership of the S&H program locally and company-wide. Navarro should consider developing EST subteams for its populated locations to ensure all groups at those locations are represented.

Opportunity for Improvement: Navarro should consider developing EST subteams for its populated locations to ensure all groups at those locations are represented.

The company-wide EST is essential in ensuring communication and understanding of company expectations for S&H. Navarro should also consider supporting local EST subteams by creating employee participation promotions, in addition to the company-wide initiatives, to better address each individual site's needs. For example, the previous contractor had locally oriented poster contests and families submitted drawings for calendars, as well as promotional items (such as shirts provided to teams for various major milestones and projects, not just safety), that became a strong point of improving the overall morale of the workforce and contributed strongly to the workers' sense of caring for others.

Opportunity for Improvement: Navarro should consider supporting local EST subteams by creating employee participation promotions, in addition to the company-wide initiatives, to better address each individual site's needs.

In addition to the EST, Navarro continues the use of the Employee Association that predates the LM contract. Although not directly tied to safety, the association promotes a familial atmosphere by hosting regular events that support outreach activities, such as blood drives, local charity support, employee recognition luncheons, and providing situations where employees and managers can socialize in a semi-work environment and form stronger relationships.

Conclusion

Navarro employees understand their roles and responsibilities in the S&H program and their rights under 10 CFR 851. There were no doubts expressed by any employees about their ability to ask questions, raise safety concerns, and stop or pause work if necessary. Employees have multiple means of participating in the S&H program. Employees can participate on the ESTs, raise safety concerns through the EST program, attend weekly safety meetings, perform worksite inspections, provide safety shares during meetings, and participate in safety promotional activities. Navarro should consider new opportunities to continue the improvement of the EST's effectiveness locally and company-wide.

V. WORKSITE ANALYSIS

Management of health and safety programs must begin with a thorough understanding of hazards that might be encountered during the course of work and the ability to recognize and control any new hazards. Implementation of the first two core functions of an ISMS, defining the scope of work and identifying and analyzing hazards, form the systematic approach to controlling hazards. The results of the analysis must be used in subsequent work planning efforts. Strong safety programs also integrate feedback from workers regarding additional hazards that are encountered and include a system to ensure that new or newly recognized hazards are properly addressed. Successful worksite analysis also involves implementing preventive and/or mitigating measures during work planning to anticipate and minimize the impact of hazards.

In 2012, Stoller had a comprehensive and systematic process for identifying and evaluating workplace hazards, and had conducted extensive hazard reviews. The Project/Activity Evaluation (P/AE) process provided a framework for the design, review, and approval of projects. The hazard analyses performed across the LM sites had not yet been compiled into a Baseline Exposure Assessment or used to develop a strategic plan for reviewing IH exposures at the time of the VPP review. The Team had recommended documenting analysis performed during JSAs or project reviews to help LMS capture assumptions made regarding work processes; provide future workers with a firmer understanding of those work processes and the established controls; and help ensure all appropriate standards, requirements, and regulations had been addressed. Workers interviewed by the Team clearly understood the hazards of their work and the controls necessary to protect themselves and their coworkers, and the Team did not identify any unknown or uncontrolled hazards.

Navarro uses an integrated work control process that is documented in LMS/POL/S11763-2.0, *Integrated Work Control Process (IWCP)*. The IWCP defines work types, provides guidance for determining when each work type is applicable, and defines the work planning control requirements for each work type. The IWCP applies to all work activities managed and performed by Navarro and its subcontractors at LM sites and facilities. The IWCP incorporates the tenets and guiding principles of DOE's ISM into its work planning process.

Work is categorized based on hazards, complexity, and risks. Training, qualifications, and worker skills are also considered when categorizing work. The IWCP establishes five work types. Work types range from "Type 0," (the least hazardous) to "Type 4," (the most hazardous). Work planning becomes progressively more rigorous as the hazards increase.

- Type 0 work that is short in duration and is categorized as the least hazardous work, relies on employee training, experience, and does not require specific work instruction steps or scheduling.
- Type 1 tasks, titled "Skill-Based Activity" is low-risk work that can be performed without permits, requires basic abilities and knowledge, and must be authorized and entered on the plan-of-the day/plan-of-the-week form. Type 2 tasks are "minor work tasks" and use Form LMS 1020, *Minor Work Task*, appropriate JSAs, and any other work control documents, such as work permits.
- Type 3 tasks are "Procedure-Based Activities," which are routine tasks that use approved procedures and associated JSAs. Work control documentation may include permits if required for specific hazards.

- Type 4 work is the most hazardous work and uses a P/AE form, LMS 1005. Type 4 or P/AE work includes complex or high-risk activities, requires significant SME input and review and involves more detailed work planning to ensure safe and efficient performance.

Navarro uses the JSA to analyze hazards for moderate to high hazard (Types 1 through 4) work. Most of the JSAs currently in use follow the standard OSHA model for JSAs, (i.e., three columns: task, hazard, and control). The Team reviewed a sample of JSAs and tasks that were clearly defined, had identified hazards, and specified adequate controls. SMEs had reviewed and updated JSAs within the last 3 years and workers interviewed said they had been involved in the JSA development. Navarro is currently modifying the JSA form to include two additional columns. The first column will include references to source requirements for identified hazard controls. The second will add references to the expected training for the task. The additional information will increase the user's understanding of the source of the established controls and ensure the worker has completed required training before performing the task.

Type 0 work does not require the use of the JSA. To be classified as Type 0 work, Navarro's IWCP indicates that the task must involve low risk, have a low impact on quality and environmental aspects, not require specific work permits, such as a *Confined Space Entry Permit* (CSEP) (LMS 1824); *Penetration Permit* (LMS 2180); *Radiological Work Permit* (RWP) (LMS 1588); *Safe Work Permit* (SWP) (LMS 1612); or *Lockout/Tagout Specific Equipment Plan* (SEP) (LMS 1009); and must be sufficiently controlled by employee general training and experience only. DOE-VPP criteria expects all hazards to be analyzed and that analysis needs to be documented. While DOE work planning and control policy allows for a tailored approach to hazard analysis, DOE-VPP expects a written system of job hazard analysis that provides for the analysis of all jobs over a given period, and sets priorities for the most hazardous jobs. In addition, ISM requires that all hazards be analyzed. Using a general hazard analysis (GHA), as described in DOE-HDBK-1211-2014, April 2014, *Activity-Level Work Planning and Control Implementation*, fulfills these requirements for routine or low-hazard activities. Navarro should consider developing a GHA that evaluates the common, routine hazards workers encounter while performing tasks it would consider as "Type 0" work. Work planners and supervisors could then refer to that GHA to determine if a task presents any hazards not already included in the GHA. A JSA would only be required for newly identified hazards. Planners and supervisors would use the results of that JSA to determine the correct planning type. Additionally, the GHA would provide a firm basis for safety training during general employee training. This process would help Navarro meet the ISM and VPP expectations that all hazards are evaluated, reduce redundant hazard analysis for routine activities, and provide a more rigorous and defensible approach to classifying low-hazard or routine work.

Opportunity for Improvement: Navarro should develop a GHA that evaluates the common routine hazards workers encounter while performing tasks it considers as "Type 0," and revise its IWCP to use that GHA as a basis for screening work as "Type 0."

Navarro's LMS/POL/S20043-0.2, *Health and Safety Plan*, also establishes a daily safety meeting policy. This policy states that daily safety meetings should include the following topics:

• Work planned for the day;
• Changes in site conditions and controls;
• Safety issues, such as work area conditions, equipment, and behaviors;

- Weather forecast;
- Lessons learned;
- New Safety Data Sheet information;
- Periodic review of JSAs and RWPs; and
- Changes to the HASP.

Controls from the JSA and permits are also reviewed in these daily safety meetings. Navarro form LMS 1554, *Prejob Brief/Safety Meeting,* documents these meetings. The form helps supervisors prepare workers for the task by providing a checklist of potential hazards to review. The form also has a place for workers to sign that they attended the brief and are ready to perform the work. If personnel are working in a radiological area, they must also receive the required task-specific RWP briefing(s) from a radiological control technician as determined by the radiological control manager. Team members attended several daily safety meetings/prejob briefings and observed the use of these forms and policies.

Navarro uses permits to analyze and document controls for hazards with specific regulatory controls. It requires permits for confined-space entries, hot work, excavations, radiological work, and lift plans. When used in conjunction with JSAs, permits provide additional hazard identification and control information. Navarro replaced the previous single, safe work permit form in favor of multiple, hazard-driven, individual permits with custom checklists. This allows for a more extensive review and control of hazards associated with the work.

Navarro hired an industrial hygienist in 2017 to improve its IH program. The industrial hygienist has been actively engaged in the S&H procedures revision initiative and completed a Baseline Hazard Assessment in early 2018. The IH baseline assessment covered all eight of the major LM sites. Each site visit included a tour of the facilities, interviews with onsite personnel familiar with the location and routine activities, and a qualitative evaluation of existing IH hazards and controls. IH hazards evaluated included physical hazards (noise, vibration, thermal stress, nonionizing radiation); and chemical, biological, and ergonomic hazards. Using the information from the baseline assessment, Navarro updated its chemical hygiene plan. Navarro also performs periodic baseline IH surveys at all occupied sites.

Navarro evaluates workspaces monthly such that it evaluates all workspaces at least quarterly. Inspection teams, comprised of office/site leads and local workers, use inspection checklists. Navarro's Corrective Action Tracking System (CATS) documents inspection results and follow-up corrective actions.

Navarro conducts accident/incident investigations per LMS/POL/S11736, *Incident Reporting Procedure,* and LMS/POL/S13590 *Fact-Finding Meeting Procedure*. Workers interviewed indicated that fact-finding meetings focus on establishing facts and not assigning blame. Like corrective actions from workplace inspections, Navarro tracks action items from accident, events, or incidents to closure in CATS.

Navarro's procedure LMS/PRO/S20037, *Pause/Stop Work Procedures*, defines the process for work pauses. Employees interviewed indicated that they regularly pause work when it is necessary to seek work instructions or procedural clarifications from their supervisors. In one location, the workers and their supervisor have been together for over 20 years; and a relaxed, trusting family atmosphere exists. These workers indicated that because of this familiarity, it was second nature to look out for each other's safety.

LMS/PRO/S16044, *Safety Concerns,* documents Navarro's employee safety concerns program. Workers interviewed believed they could report safety concerns without fear of retribution and provided examples where they had raised issues that managers/supervisors quickly fixed. Another example, included discussions about how they have been involved in the research, evaluation, and procurement of personal protective equipment (PPE) and heavy equipment.

Conclusion

Navarro's IWCP uses a tailored, hazard-based approach to work planning. It uses traditional JSAs to identify, analyze, and prescribe controls for moderate- and high-hazard work. However, the process for Type 0 work should include an initial hazard analysis process (such as using a GHA) to screen potential hazards for Type 0 work. Navarro uses permits to analyze and document controls for hazards with specific regulatory controls that allows for a more indepth review and control of hazards associated with the work. Workers do not hesitate to use pause/stop work when necessary and indicate they believe the discipline process to be fair and consistent. Navarro meets the expectations for continued participation in DOE-VPP for Worksite Analysis.

VI. HAZARD PREVENTION AND CONTROL

The third and fourth core functions of an ISMS, identify and implement controls and perform work in accordance with controls, ensure that once hazards have been identified and analyzed, they are eliminated (by substitution or changing work methods) or controlled using engineered controls, administrative controls, or PPE. Equipment maintenance processes must comply with requirements and emergency preparedness. Safety rules and work procedures must be developed, communicated, and understood by supervisors and employees. These rules and procedures must also be followed by everyone in the workplace to prevent, reduce the frequency of, and lower the severity of mishaps.

In 2012, Stoller had robust hazard controls in place based on its analysis process. The Team saw evidence of a hierarchical approach to controls at all sites visited. Opportunities for improvement in hazard control, in most cases, were more a result of lack of understanding of those controls by personnel rather than a weakness in the controls.

Navarro also uses the hierarchy of controls approach to mitigate hazards and protect workers and the environment. One example involved a failed valve in a collecting basin for the Fernald Converted Advanced Waste Water Treatment facility (CAWWT). The CAWWT operates intermittently to remove uranium from collected water. Water collects in the basin from a variety of sources until it can be fed to the CAWWT for treatment and release. The failed valve was a bulkhead fitting that could not be isolated from the basin. Rather than renting temporary tanks to pump the entire basin dry, workers constructed a cofferdam to isolate the inlet to the valve and allow access to replace the valve and bulkhead fitting. The Site Manager, CAWWT operations, ecological restoration, engineering and environment, safety, health and quality staffs collaborated to design and construct the cofferdam. After a mockup and dry run, workers installed the cofferdam, pumped out the water around the valve inlet and fitting, and made the repairs. This process minimized the chance of an environmental release, and provided workers with a safe, dry work environment to replace the valve. The workers' proposed action, along with support from the listed groups, not only protected the environment, but also decreased risk to the workers repairing the valve. In addition, schedule impacts to the CAWWT modification project were also avoided.

Another example included the Rocky Flats Projects' remediation treatment of the East Trenches Plume. When the Rocky Flats site was closed, a Zero Valent Iron (ZVI) tank system was installed to remediate a volatile organic compounds' (VOC) plume to meet water quality standards set by the Environmental Protection Agency. The ZVI system adsorbed the VOCs from the waste stream onto a filter. However, the ZVI system was less efficient than anticipated and required changing the system's adsorption material every 2 years rather than the 10-year expectation when originally installed. This increased frequency increased workers' risk of exposure to the concentrated VOCs during media changeout. Navarro evaluated other remediation options and selected an air stripper system. The air stripper system evaporates the VOCs from the water using water spray over plates and high velocity air from a fan. The VOCs accumulate in the air stripper tank and are then exhausted through a stack into the atmosphere where they rapidly break down when exposed to sunlight. The new system eliminates the need for filter media replacement, eliminates the VOCs rather than producing a hazardous waste byproduct, and uses less power than the original system. The new air stripping system is powered from a small solar array with batteries and a backup gas generator.

A final example of the use of the hierarchy of controls comes from efforts from Navarro's Applied Science and Technology Group. The Group identifies and evaluates new technologies that can improve efficiency and protect workers from hazards. The Group has identified and tested several new alternate approaches to performing surveillance work. Included in these efforts is the use of drones outfitted with different sensors. By eliminating the need for workers to physically walk surveillance areas, workers are protected from direct hazards associated with accessing abandoned sites.

Navarro has experienced and knowledgeable S&H professionals. These personnel have the expertise to perform a variety of activities, including training, policy, and standards development; radiological control coordination; and injury and illness record keeping. They are very involved with supporting the work activities in the field. A recently hired industrial hygienist has been involved with Navarro's procedures revision initiative.

Because of the number of facilities spread across the country, S&H professionals are not usually immediately available. Workers interviewed indicated some frustration from delays caused by the lack of ready access to support personnel. While many questions can be addressed with a phone call, some cases, such as personnel breathing zone monitoring, require an onsite presence. To address this, Navarro has S&H technicians to support field activities. Typical responsibilities for these technicians involve safety, health, and radiation control (RADCON) support. Navarro has implemented an extensive ongoing radiation control qualification program, driven by 10 CFR 835, *Occupational Radiation Protection* requirements. The qualification program requires technicians to complete a written exam, an oral board, and engage in continuing education/training to maintain their qualification to continue performing RADCON duties. However, there is no program to maintain qualifications to perform safety and IH functions. For Navarro's scope of work, industrial safety and IH hazards are more likely to cause death or serious harm than radiological hazards. Therefore, Navarro should ensure that S&H technicians who support tasks and activities where certified S&H professionals are not readily available are qualified and maintain a qualification to perform their S&H support duties (see Safety and Health Training).

A byproduct of uranium milling in Grand Junction was mill tailings. These tailings were used for many decades as fill materials for a variety of construction projects in the Grand Junction area. When buildings are demolished, or excavations identify mill tailings, these tailings are collected and temporarily stored until they can be permanently disposed. Approximately every 3 years, the LMS contractor opens the GJDS for these wastes. Navarro opened the GJDS in July 2018. A preconstruction conference was conducted that included an initial site briefing, and a review of the JSA. The disposal cell work was to be performed by a Navarro subcontractor who was going to provide its own equipment. A plan-of-the-day briefing was provided to the subcontractor field crew and the equipment was inspected and accepted.

A Navarro Construction Safety Supervisor (CSS) was directing the subcontractor's work. Prior to the start of work, the CSS inspected the subcontractor's equipment and identified that the water truck did not have functioning air-conditioning as required by contract. The CSS accepted the equipment for use without the functioning air-conditioning. As a compensatory measure, the CSS stipulated that a Navarro S&H technician would perform heat stress monitoring for the operator of that equipment. After performing work using the water truck, a subcontractor operator filed a written complaint to Colorado State OSHA claiming heat stress concerns associated with those activities. While the Colorado OSHA review of the complaint determined

no fault or cause against Navarro, DOE-LM initiated a review of the case and identified several concerns related to the CSS' actions and the subcontractor's activities.

The DOE-LM review identified another vehicle provided by the subcontractor, included a tracked bulldozer with an in-cab filtration system to ensure worker protection from potential hazards contained in the dust generated during operations (such as respirable crystalline silica). At some point, the in-cab filter housing came loose during, or prior to the start of, disposal cell operations resulting in the excessive buildup of dust in the cab. The subcontractor did not require an in-cab filtration system inspection in the daily operator vehicle inspection checklist, but instead was controlled by the subcontractor's preventative maintenance program. Personal breathing zone (PBZ) monitoring for equipment operators was performed during all activities. The PBZ sampling results identified two occurrences where workers exceeded the crystalline silica action level of 25 ug/m^3 averaged over an 8-hour day. Fortunately, on the day the housing failed, the operator mentioned at the end of shift that dust was building up in the cab. Workers inspected the cab, found the broken housing, and fixed it. However, the accumulation of dust in the cab was so heavy, Navarro suspected that the limit was again exceeded the next day because of the time needed for the filter system to bring the levels down in the equipment cab. Based on comments from the operator on the second day, Navarro recommended cleaning the cab of the bulldozer. Sampling results showed the filter housing repair and cab cleaning did correct the condition and no further exposures occurred, but those results were not available until 3 weeks after the work was complete.

The use of monitoring for exposure with a 21-day analytical cycle does not help Navarro reduce potential exposures. Essentially, the process only documents the existence of an exposure long after it has occurred. Navarro is evaluating methods for real-time dust monitoring.

The bulldozer operator may have delayed reporting the concern about excessive dust in the cab until the end of the shift to avoid losing pay. Construction personnel do not get paid if work is stopped and they are sent home. This hesitancy by construction personnel to raise issues or stop work increases the need for Navarro CSS' (or other personnel monitoring subcontractor work) to enforce contract requirements, ensure all procedures are followed, and be very attentive to any change in conditions or equipment status.

Navarro's emergency management program is documented in LMS/POL/S14748-0.1, and LM-Procedure-3-20.0-2.0-0.1, *LM-LMS Emergency Management Program Description (EMPD)*. In addition to the development of a General Emergency Plan for Unoccupied Sites and Activities, a site-specific Occupant Emergency Plan has been provided for each Navarro location. Two emergency management specialists have been hired recently to provide continuous improvement for this functional area. An Emergency Response Baseline Needs analysis was completed in early 2018.

The RADCON program is documented in LMS *Environmental Radiation Protection Program Plan* (LMS/POL/S13339), and LMS/POL/S04322, *Radiological Control Manual*. Occasionally, workers interact with radioactive material during routine and specific job activities. These radioactive materials emit Alpha, Beta, and/or Gamma radiation and are predominately a penetrating (whole body) radiation hazard. Because the dominant source term is uranium mill tailings, worker exposure is considered to be a low-hazard, low-risk activity within LM projects. Exposures are considered to be well below the regulatory threshold for exposure monitoring for occupational workers, which is 100 millirems per year. Navarro uses ALARA methods and

principles to minimize worker radiation exposures. These methods include: (1) using passive and active engineering controls within the operational and facility design; and (2) implementing administrative controls.

Navarro and its predecessors have evaluated the need for dosimetry. Analysis of radiological data from years of operations justified the elimination of the use of personal dosimetry. The analysis included personnel dose records, as well as personnel air samples conducted during ongoing operations.

Conclusion

Navarro implements the hierarchy of controls to protect workers, equipment, and the environment. Navarro has experienced and knowledgeable S&H professionals with the necessary expertise to identify, evaluate and control workplace hazards. Navarro uses ALARA methods and principles to minimize worker radiation exposures. Navarro meets the expectations for continued participation in DOE-VPP for Hazard Prevention and Control.

VII. SAFETY AND HEALTH TRAINING

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

The 2012 VPP report concluded that Stoller, the previous contractor, provided appropriate safety and health training to its employees and subcontractors. Its training prepared the workers to appropriately control the hazards associated with their jobs. The training records were maintained in an electronic database that notified the employees and their managers of the upcoming training. They self-identified problems with ensuring the training plans of some employees reflected their current training needs. Corrective actions in process were expected to correct the identified training delinquency deficiencies.

Navarro has nearly doubled its staffing over the last 2 years, and is expecting to hire many new personnel in the coming months. The current training process requires the new employee's supervisor to identify all training requirements based on the individual's experience. The Navarro training manager recognizes Navarro needs a more systematic approach to training to ensure all personnel consistently obtain and maintain necessary qualifications and skills. The Navarro training organization developed and tried to implement a Job Analysis and Training Review (JATR) process to provide that systematic approach based on position duties and responsibilities. The JATR approach uses a standardized form that identifies potential hazards associated with each job position and recommends training for that position. This process creates a set of core training required for each specific job position within Navarro. Additional training could be added based on specific needs identified by the direct supervisor (i.e., forklift training) or facility-specific training for the position. After the approach was developed, Navarro senior managers determined the JATR process was unnecessary, preferring to rely on the previous contractor's approach. Navarro should consider revisiting the JATR approach to reinforce its commitment to excellence, improve training process consistency, and implement a systematic approach to training.

Opportunity for Improvement: Navarro should consider revisiting the JATR approach to reinforce its commitment to excellence, improve training process consistency, and implement a systematic approach to training.

As discussed in the Management Leadership section, Navarro has overhauled its S&H procedures and JSAs in the past year. As a result, Navarro needs to evaluate and revise its training courses related to those S&H procedures and JSAs. Some managers and workers indicated the current training does not match the revised procedures. Interviewed workers said they have not been trained on the new procedures and training has not been updated or revised to reflect the new procedures' requirements. The Training organization and S&H staff have not been tasked to work together to screen current training, and revise or replace training materials as necessary (see Management Leadership for the Opportunity for Improvement).

DOE-LM has established a requirement for Navarro to develop a plan to address training updates to the procedure changes by December 2018; however, that expectation does not address the potential training deficiencies that exist in the interim. Navarro needs to evaluate and determine

if current procedural and JSA changes indicate a need for immediate training updates for personnel to ensure workers are performing work to its expectations (see Management Leadership).

Navarro has expanded it radiological controls program, and added additional radiological control technicians (RCT). In many cases, Navarro uses these personnel as field safety technicians covering industrial safety and IH in addition to radiological controls. The training organization recognized the need to ensure RCTs were trained to 10 CFR 835 requirements. While the training and proficiency requirements for these field safety technicians is strong for radiological control, their training in IH and industrial safety is less robust. Navarro should ensure it has adequate training and proficiency requirements for the field safety technicians that align with their broad responsibilities, specifically with regard to IH and industrial safety disciplines when operating independently in the field.

Opportunity for Improvement: Navarro should ensure it has adequate training and proficiency requirements for the field safety technicians that align with their broad responsibilities specifically with regard to IH and industrial safety disciplines when operating independently in the field.

The Navarro Training organization holds a biweekly "training sync" meeting for training representatives to address any developing training concerns, identify new concerns, and ensure communication between training personnel companywide. The "training sync" video conference calls help ensure consistent training expectations are maintained across the LM complex.

The Navarro training organization incorporated the use of SharePoint® and Storyline® software to improve the organization's ability to incorporate SME changes to training curricula. Previously, SMEs individually made changes to the PowerPoint training files. This process often required much SME time, with additional editing and revision by training organization personnel. The transition to SharePoint® and Storyline® eliminated the duplication of effort by allowing SMEs and training personnel to simultaneously edit the presentation files, allowing increased collaboration during the development and change process. The training organization personnel interviewed were especially satisfied with the time savings provided by this improvement.

The employees and their managers receive notifications of upcoming training via e-mail on a 30-15- and 5-day reminder schedule. The training group generates a weekly report that helps managers identify training delinquencies. Workers that are overdue on their training are not sent additional e-mails recognizing their delinquencies; individual managers are responsible for ensuring that the employees are current in their training based on the weekly delinquency report.

Conclusion

Navarro provides appropriate S&H training to its employees that helps them control the hazards associated with their jobs. Since the 2012 VPP review, Navarro's staffing has nearly doubled. As a result, Navarro should consider developing a more systematic approach to training to ensure all personnel consistently obtain and maintain necessary qualifications and skills. The Navarro training organization ensures consistent training expectations are maintained across the LM complex. The Navarro training organization gained efficiencies using new technology and software to increase collaboration between the training organization and SMEs during the curriculum development and change process.

VIII. CONCLUSIONS

Navarro successfully managed the transition from the previous contractor and established its commitment to perform its mission safely. However, once it identified deficiencies in the S&H program inherited from the previous contractor, it did not determine the extent of those deficiencies. Its approach to revising the policies, procedures, and forms did not gain broad support among the workforce prior to implementing revisions, did not ensure workers were trained prior to implementing new procedures, left workers believing their input was ignored, and told workers to follow procedures they did not know how to implement. The vast majority of Navarro's work is low-hazard and low-risk, so workers believe their skills and knowledge are sufficient to protect them. This belief led to several issues during performance of more complex tasks at the GJDS. This systemic breakdown of the procedures implementing the Navarro S&H management system requires broad action by Navarro and does not meet the expectations for participation in DOE-VPP at the Star level. In accordance with the DOE-VPP procedures, the Team recommends that Navarro be admitted to DOE-VPP as a new participant at the Merit level.

Appendix A: Onsite VPP Assessment Team Roster

Management

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