S.M. Stoller Corporation
Legacy Management Support Team

Report from the Department of Energy
Voluntary Protection Program
Onsite Review
January 17-30, 2012

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

Foreword

The Department of Energy (DOE) recognizes that true excellence can be encouraged and guided but not standardized. For this reason, on January 26, 1994, the Department initiated the DOE Voluntary Protection Program (VPP) to encourage and recognize excellence in occupational safety and health protection. This program closely parallels the Occupational Safety and Health Administration (OSHA) VPP. Since its creation by OSHA in 1982 and DOE in 1994, VPP has demonstrated that cooperative action among Government, industry, and labor can achieve excellence in worker safety and health. The Office of Health, Safety and Security (HSS) assumed responsibility for DOE-VPP in October 2006. Assessments are now more performance-based and are enhancing the viability of the program. Furthermore, HSS is expanding complex-wide contractor participation and coordinating DOE-VPP efforts with other department functions and initiatives, such as Enforcement, Oversight, and the Integrated Safety Management System.

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

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

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

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

This report summarizes the results from the evaluation of S.M. Stoller Corporation Legacy Management Support Team during the period of January 17-30, 2012, and provides the Chief Health, Safety and Security Officer with the necessary information to make the final decision regarding its participation in DOE-VPP.

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS

BLS	Bureau of Labor Statistics
CATS	Corrective Action Tracking System
CFR	Code of Federal Regulations
CPR	Cardio Pulmonary Resuscitation
CSS	Construction Site Supervisor
DART	Days Away, Restricted, or Transferred
DOE	Department of Energy
EMS	Environmental Management System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HS-12	Office of Worker Safety and Health Assistance
HSS	Office of Health, Safety and Security
IH	Industrial Hygiene
IT	Information Technology
JSA	Job Safety Analysis
LM	DOE Office of Legacy Management
LMS	Stoller Legacy Management Support Team
NAICS	North American Industry Classification System
NARA	National Archives and Records Administration
OSHA	Occupational Safety and Health Administration
P/AE	Project/Activity Evaluation
PPE	Personal Protective Equipment
SME	Subject Matter Expert
STS	Safety Trained Supervisor
Team	Office of Health, Safety and Security DOE-VPP Assessment Team
TRC	Total Recordable Case
VPP	Voluntary Protection Program
WAVe	Work Assist Vehicle

EXECUTIVE SUMMARY

S.M. Stoller Corporation is the operating contractor for the Legacy Management Support (LMS) team, a contractual group that consists of S.M. Stoller, Source One, ProLogic, and JG Management Systems, Inc., with approximately 370 full-time employees. The LMS team began operating under the current contract with the Department of Energy's (DOE) Office of Legacy Management (LM) in March 2008. The LMS team submitted its application for participation in the DOE Voluntary Protection Program (VPP) through LM in July 2011. The Office of Worker Safety and Health Assistance (HS-12), within the Office of Health, Safety and Security (HSS), reviewed the application and conducted an onsite assessment from January 17-30, 2012.

The HSS DOE-VPP Assessment Team (Team) visited the Grand Junction Office, the Grand Junction Disposal Cell, the Westminster Office (including the Rocky Flats Site), the Weldon Springs Site, the Fernald Site, the Mound Site, and the Morgantown Records Center. This report documents the results of that assessment, and provides the Team's recommendation to the Chief Health, Safety and Security Officer regarding LMS' participation in DOE-VPP. This report also provides several opportunities for improvement that LMS can use to continue its pursuit of safety excellence.

LMS has seen a steady reduction in accidents and injuries over the past 3 years. This reduction has been achieved by encouraging workers to identify and eliminate hazards, improve work processes, and report even minor concerns. None of the personnel contacted by the Team indicated any hesitancy to report injuries, and LMS did not have any management systems that might be construed as discouraging reporting by workers. The 3-year average for accidents and injuries is 75 percent below the comparison industry average.

LMS managers have demonstrated the leadership and commitment necessary to pursue safety excellence. They have established a work environment that encourages continuous improvement, provided necessary resources to implement new ideas, and implemented comprehensive management systems for worker safety and health. The next improvements for LMS will be to implement a more systematic annual evaluation process, and empower employees to take greater ownership of the safety and health system.

LMS employees have many means of participating in the safety and health program, are strongly encouraged to take ownership of their own safety, and look out for their coworkers. Efforts to achieve DOE-VPP Star status have been primarily management led, but employees have willingly and actively participated in and supported those efforts. LMS has significant opportunities to expand employee ownership and leadership in the safety and health program.

LMS has a comprehensive and systematic process for identifying and evaluating workplace hazards, and has conducted extensive hazard reviews. The hazard analyses performed across the LMS sites have not yet been collected into a Baseline Exposure Assessment or used to develop a strategic plan for reviewing industrial hygiene exposures. Documentation of the analyses performed during work and project reviews will 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 that all appropriate standards, requirements, and regulations have 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.

LMS has effective hazard controls in place based on its analysis process. Evidence of a hierarchical approach to controls was identified at all sites visited. In some cases, workers did not have a full understanding of controls in place. Addressing opportunities for improvement in hazard control will help LMS further strengthen an already robust system of controls.

LMS provides appropriate safety and health training to its employees and subcontractors that prepares the workers to appropriately control the hazards associated with their jobs. LMS self-identified problems ensuring the training plans of some employees reflect their current training needs. Corrective actions in process are expected to correct those identified deficiencies.

Overall LMS has implemented a sound, effective worker safety and health program that meets or exceeds the requirements for the type of work performed. Employees, supervisors, and managers have formed a teaming relationship that provides effective communication up and down the organizational chain. Visible, credible managers actively encourage employees to participate in the program, submit improvement ideas, and be continually vigilant for safety. Employees were enthusiastic about their participation in the safety and health program, and in their belief that the company truly cares for their well-being. Additional improvements should be sought through greater employee leadership of the safety program. LMS clearly demonstrates its commitment to excellence and continuous improvement, and the Team recommends that LMS be admitted to DOE-VPP as a Star participant.

TABLE 1
OPPORTUNITIES FOR IMPROVEMENT

Opportunity for Improvement	Page
LMS should develop a systematic process to integrate the multiple assessments into a single annual evaluation of the worker safety and health program that addresses the tenets of DOE-VPP.	**6**
LMS should consider expanding the role of the Employee Safety Committee, encouraging the safety committee to lead in corrective action recommendations, revising the charter to allow the committee to select the chair, and establishing a rotation schedule for committee membership.	**8**
LMS should consider mirroring the EMS approach in the health and safety program as it looks for opportunities to further empower the Employee Safety Committee.	**8**
LMS should collect the existing IH monitoring data, evaluate it to determine if it adequately addresses the range of potential hazards, establish an IH baseline, and then develop and maintain a comprehensive IH monitoring plan, and use that plan to determine IH resource needs.	**11**
LMS should train personnel on hazard analysis, ensure they document their assumptions and conclusions as part of the analysis portion of the JSA, and ensure all controls and requirements are reviewed during the JSA process.	**12**
LMS should eliminate the use of generic hazard and control descriptions from JSAs and include as much specific information as necessary to ensure workers clearly understand the hazards, controls, and expectations.	**12**
LMS should increase its focus on meaningful leading indicators, such as error precursors, to further its continuous improvements.	**14**
LMS should review its hearing conservation program, ensure workers understand the time-weighted average method for establishing the limit, and establish mechanisms to track worker time in the space when hearing protection is not used.	**16**
LMS should evaluate the WAVe machine to ensure it does not exceed the posted dynamic floor loading limit, evaluate the construction of the warehouse floor and determine if the 250 pounds per square foot is the correct limit, and ensure that analysis is documented and captured in procedures or processes to ensure future changes to handling methods do not exceed the limits established for facility certification.	**17**
LMS should perform a corporate extent of condition analysis for the conditions that led to the acid burn at the Tuba City site and implement corrective actions as necessary.	**17**

I. INTRODUCTION

S.M. Stoller Corporation is the operating contractor for the Legacy Management Support (LMS) team, a contractual group that consists of S.M. Stoller, Source One, ProLogic, and JG Management Systems, Inc., with approximately 370 full-time employees. The LMS team began operating under the current contract with the Department of Energy's (DOE) Office of Legacy Management (LM) in March 2008. The LMS team supports DOE in managing its responsibilities associated with the environmental legacy of World War II and the Cold War. This legacy includes radioactive and chemical waste, and environmental contamination and hazardous material at more than 100 sites across the country. LMS work consists of monitoring groundwater at the sites for residual radionuclide or other chemical contamination, analyzing the data that monitoring activities generate, treating groundwater where contaminant concentrations still exceed allowable limits, maintaining and operating low-level, radiological waste disposal cells, and where possible, restoring the sites to their former ecological condition.

The LMS team maintains DOE LM records for possible future reference and for Freedom of Information Act retrieval at the LM Business Center in Morgantown, West Virginia. At two sites, the LMS team operates visitors' centers that teach the public about the history of the Cold War, local ecology, and environmental stewardship. The LMS team delivers its services using personnel at 11 occupied offices/sites, working in a modified matrix management organization. Personnel at any of these occupied sites, including individuals responsible for environmental monitoring, operations, ecological restoration, data management, and construction, can be mobilized to perform work at any of DOE's former weapons production sites nationwide. The LMS team has national policies, procedures, and standards that are supplemented by site-specific procedures as necessary to direct the workforce. Personnel and equipment have been allocated to each site according to its needs. Most of an employee's work is performed at his or her home site. However, the monitoring, inspections, and maintenance performed at various sites, both occupied and unoccupied, require that personnel travel occasionally, sometimes with transportable equipment. To help reduce the amount of travel that is necessary and to reduce the time individuals spend driving to sites, automated telemetry is used to gather data at some remote locations.

Several personnel for LMS are represented by the Western Slope Metal Trades Council. These individuals are members of the International Brotherhood of Electrical Workers Local Union 969 and Teamsters Local Union 455. The Western Slope Metal Trades Council is part of the American Federation of Labor and Congress of Industrial Organizations umbrella organization, at the Grand Junction, Colorado, office. These collective bargaining organizations have provided a written endorsement of LMS' participation in the DOE Voluntary Protection Program (VPP).

The LMS team submitted its application for participation in DOE-VPP to LM in early 2011. LM's comments on the application were addressed and the application was forwarded to the Office of Health, Safety and Security (HSS) in July 2011. The Office of Worker Safety and Health Assistance (HS-12) reviewed the application and conducted an onsite assessment from January 17-30, 2012.

The onsite assessment was performed by the HSS DOE-VPP team (Team). Personnel visited the Grand Junction Office, the Grand Junction Disposal Cell, the Westminster Office (including the Rocky Flats Site), the Weldon Springs Site, the Fernald Site, the Mound Site, and the

Morgantown Records Center. The Team contacted approximately 70 personnel, including managers, supervisors, and employees through work observations and individual and group interviews. This report documents the results of that assessment and provides the Team's recommendation to the Chief Health, Safety and Security Officer regarding LMS' participation in DOE-VPP. This report also provides LMS with several opportunities for improvement that LMS can use to continue its pursuit of safety excellence.

II. INJURY INCIDENCE/LOST WORKDAYS CASE RATE

Injury Incidence/Lost Workdays Case Rate (LMS)					
Calendar Year	Hours Worked	Total Recordable Cases (TRC)	TRC Incidence Rate	DART* Cases	DART Case Rate
2009	621,070	5	1.61	2	0.64
2010	645,999	2	0.62	1	0.31
2011	666,440	1	0.30	0	0.00
3-Year Total	1,933,509	8	0.83	3	0.31
Bureau of Labor Statistics (BLS-2010) average for NAICS** Code 56291 (Remediation Services)			3.6		1.9
Injury Incidence/Lost Workdays Case Rate (LMS Subcontractors)					
Calendar Year	Hours Worked	TRC	TRC Incidence Rate	DART* Cases	DART* Case Rate
2009	60,000	1	3.33	1	3.33
2010	14,563	0	0.00	0	0.00
2011	25,347	0	0.00	0	0.00
3-Year Total	99,910	1	2.00	1	2.00
BLS-2010 average for NAICS** Code 56291 (Remediation Services)			3.6		1.9

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

TRC Incidence Rate: **0.89**
DART Case Rate: **0.39**

LMS has seen a steady reduction in accidents and injuries over the past 3 years. Since beginning its pursuit of participation in DOE-VPP, TRCs have dropped from 5 to 1. This reduction has been achieved by encouraging workers to identify and eliminate hazards, improve work processes, and report even minor concerns. None of the personnel contacted by the Team indicated any hesitancy to report injuries, and LMS did not have any management systems that might be construed as discouraging reporting by workers. LMS active management of subcontractor personnel is helping prevent accidents and injuries to subcontractors as well. The 3-year average for LMS and its subcontractors is 75 percent below the comparison industry average and clearly meets the expectations for participation in DOE-VPP.

III. MANAGEMENT LEADERSHIP

Management leadership is a key element of obtaining and sustaining an effective safety culture. The contractor must demonstrate senior level management commitment to occupational safety and health in general and to meeting the requirements of DOE-VPP. Management systems for comprehensive planning must address health and safety requirements and initiatives. As with any other management system, authority and responsibility for employee health and safety must be integrated with the management system of the organization and must involve employees at all levels of the organization. Elements of that management system must include: (1) clearly communicated policies and goals; (2) clear definition and appropriate assignment of responsibility and authority; (3) adequate resources; (4) accountability for both managers and workers; and (5) finally, managers must be visible, accessible, and credible to employees.

LMS has implemented a policy that all work must be performed safely. That policy begins with a mission statement that "Stoller LMS will support our client's mission to safely manage the U.S. Department of Energy's (DOE) post-closure responsibilities and ensure the future protection of human health and the environment." That mission statement leads to a vision that "The Stoller LMS Team is committed to excellence in protecting human health and the environment…" and the implementation of strategic goals to "protect human health and the environment." These statements are implemented through a comprehensive set of policies and procedures, including a Health and Safety Manual, an Environmental Management System, Radiation Protection Program, a Comprehensive Emergency Management System, and several others. Each of these programs is then implemented through a variety of procedures, both company-wide and site-specific, that details the implementation requirements. Workers are trained on these policies and procedures as part of their initial and ongoing training. All personnel contacted by the Team, at all sites, were clearly aware of LMS' expectations that work is either performed safely, or not at all, and that workers were expected to stop work and seek additional information if they had any concerns. These policies have been in effect for several years throughout the scope of the LMS contract.

Goals for worker safety and health have been established by the LMS Program Manager, the senior manager for the organization. Those goals for 2012 were drafted by the program manager, and then vetted through a series of focus groups and individuals. Those high-level goals are targeted at Motor vehicle safety, Issue resolution, and prevention of Body motion-related injuries. The "MIB" mnemonic was known by most workers and managers and was visible throughout LMS facilities on posters. The goals established reflect the overall focus of the senior management team and are based on the perceived risks to the workers. LMS has not yet translated these higher level goals into action statements or measurable outcomes for the workforce. Further, worker input to these goals did not go beyond participation in the focus groups and individuals that were asked to comment. As such, meaningful worker input to the corporate safety and health goals has been minimal (see Employee Involvement section).

Managers' responsibility for safety and health are delineated in the *LMS Functions, Responsibilities, and Authorities Manual*. This document describes the mission, function, and products of LMS, explains authorities and the delegation of authority policy, defines document control policies, and identifies key assignments. All managers interviewed by the Team clearly understood their personal responsibilities. Workers interviewed by the Team were very positive

about their managers' implementation of safety and health responsibilities as a part of everyday work.

LMS has provided excellent financial resources for improvement of safety and health. LMS is clearly dedicated to achieving continued excellence in safety and health in all aspects of its mission and has willingly provided workers with the resources they need to meet that dedication. Resources include assigned safety and health staff, which has a variety of experience, including certified industrial hygienists, certified safety professionals, and discipline-specific expertise. Those personnel are spread across several locations, but can travel as necessary to work on specific issues or concerns. LMS has invested in new equipment and new processes for material handling at the LM Business Center: installation or maintenance of fume hoods; installation of Automatic External Defibrillators; purchase of new ergonomic furniture and certification of Safety Trained Supervisors (STS) at all occupied locations. In addition, LMS invests heavily in employee reward and recognition programs for continuous improvement and employee involvement. These expenses are split between the DOE LM contract (allowable costs) and S.M. Stoller corporate (unallowable costs).

Accountability for safety and health is established through an annual performance evaluation process. LMS is implementing a new evaluation process for 2012. That process includes an element (1 of 15 elements) for safety and health. The elements are rated as 1 (failure to meet expectations), 2 (meets expectations), or 3 (exceeds expectations). The overall summary of all 15 elements is used to evaluate individual merit increases on an annual basis. More importantly, LMS has an active reward and recognition program to reward employees for excellence. One element of that is the LMS Star recognition program. Any employee can be nominated for recognition (three levels are available) by any other employee, and the justification is reviewed by the appropriate managers. These rewards are given frequently and in a manner to ensure their visibility to the workforce and are managed in a way to encourage workers to improve safety.

LMS managers are very visible to the workforce. Interactions observed by the Team between senior managers and workers clearly demonstrated that workers were very comfortable approaching their managers with any concerns or suggestions. Managers' presence in the work areas and offices was frequent. Although visible in the workplace, LMS managers have not sought more visibility to the Employee Safety Committee through meeting attendance. (See Employee Involvement section).

There are five construction site supervisors (CSS) employed by LMS. The CSS' have many functional responsibilities regarding subcontractor work. CSS responsibilities include oversight of the subcontractors' performance, review of subcontractor safety logs, and daily reports of subcontractors' performance. Based on the subcontract type, the CSS can have different roles, responsibilities, and authorities. If work is being performed under a fixed price construction subcontract, the primary role of the CSS is to monitor construction activities to ensure compliance with the construction specifications and to ensure a safe workplace. If the LMS contractor is completing work under a time-and-materials contract or self directing/performing work, the CSS takes an active role in overseeing and directing the performance of the work.

All subcontractors are required to perform work to the LMS worker safety and health program. In some cases, LMS requires subcontractors to participate in LMS-specific training. For example, subcontractors hired to work at the Grand Junction Disposal Cell are hired on an hourly basis and their work is directed by LMS supervisors. Equipment used at the disposal cell is

rented directly by LMS. Subcontracted workers are required to satisfy LMS specific training, including Radworker II training. Job Safety Analyses (JSA) are required for subcontractor work. Daily prejob safety briefs that cover the elements of JSA are also required. The CSS is responsible for assuring these requirements are met. The CSS' are expected to be present at subcontract worksites whenever work is being performed.

LMS conducts a broad series of self-assessments throughout the year. These assessments cover many topics that include safety and health. Assessments generate corrective actions that are formally tracked through a corrective action tracking system. In 2011, LMS had an external subject matter expert (SME) perform a readiness assessment prior to this VPP assessment. That assessment was a narrative and self-critical evaluation that identified several opportunities for improvement. One of those improvements was that LMS does not have a systematic process to integrate the multiple assessments into a single annual evaluation of the worker safety and health program that addresses the tenets of DOE-VPP. Overall, the 2011 assessment was a thorough evaluation that needs to be captured into a systematic annual process.

Opportunity for Improvement: LMS should develop a systematic process to integrate the multiple assessments into a single annual evaluation of the worker safety and health program that addresses the tenets of DOE-VPP.

Conclusion

LMS managers have demonstrated the leadership and commitment necessary to pursue safety excellence. They have established a work environment that encourages continuous improvement, provided necessary resources to implement new ideas, and implemented comprehensive management systems for worker safety and health. The next improvements for LMS will be to implement a more systematic annual evaluation process and empower employees to take greater ownership of the safety and health system. LMS meets the expectations of Management Leadership for participation in DOE-VPP at the Star level.

IV. EMPLOYEE INVOLVEMENT

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

LMS employees interviewed during this assessment expressed a great deal of pride in their work and firmly believed in the LMS commitment to a safe and healthy workplace. They understood their roles and responsibilities in the safety and health program and their rights under title 10, Code of Federal Regulations, part 851 (10 CFR 851). There were no doubts expressed by any employees about their ability to ask questions, raise safety concerns, and stop work if necessary. They firmly believed that if they identified a safer way to accomplish a task, they would be supported in evaluating the improvement. In some cases, workers were eager to be interviewed by the Team in order to showcase what they had accomplished. For example, the records handlers in the LM Business Center were very energetic in demonstrating and describing the improvements they implemented for storing and retrieving boxes. Similarly, facility operators at the Fernald Site were also very proud of their commitment to conduct operations and ensuring they performed their work safely in compliance with appropriate, approved procedures. All workers contacted by the Team unabashedly expressed their willingness to help coworkers and prevent unsafe, or at-risk, behaviors.

Employees have multiple means of participating in the safety and health program. As a means of encouraging employee suggestions, LMS has a Continuous Improvement Program. Under this program, employees can submit suggestions for improvement and receive a gift card if the idea has merit. The process was recently revamped to provide awards to the employees more rapidly. The program was highly visible at the Grand Junction office, but was not as visible at other offices. LMS credits the program with saving approximately $1.3 million since its inception. LMS also has an Employee Association that predates the LM contract. Although not directly tied to safety, the association promotes a familial atmosphere by hosting regular events where employees and managers can form stronger working relationships. Employees are also involved through conduct of worksite inspections and participating in JSAs. Most employees interviewed by the Team had participated regularly in performing monthly worksite inspections.

LMS has an Employee Safety Committee that includes representatives from each of the populated sites. This committee meets monthly via video conference and discusses current safety issues or concerns. The chairperson of the committee serves as a member of the program manager's Safety Council. Participation on the Employee Safety Committee is primarily voluntary, but some members were strongly encouraged by their supervisors, managers, or peers to volunteer. In some cases, that encouragement was because the person was seen as the only person with the time to participate. Those individuals were positive about their experiences on the committee. Although the committee can be a good mechanism for stimulating employee involvement, the structure and operation of the committee may not be fully effective. The

chairperson of the committee is not selected by the committee or the workers, but is appointed by the safety and health manager and is a member of the safety and health staff. This arrangement can unintentionally reinforce the concept that safety and health is the responsibility of the safety and health staff rather than promoting employee ownership of the safety and health program. Several members of the committee are managers or supervisors, but other senior managers do not regularly attend the meetings. Senior management attendance at meetings can be a powerful means for senior managers to help encourage committee members to take leadership roles in the safety program. Meeting minutes, discussions with committee members, and manager interviews indicated that the Employee Safety Committee is not normally asked to take a leadership role in addressing corrective actions related to safety, the annual safety and health program evaluation, or in recommending changes to the overall safety and health program. Finally, there is not a scheduled rotation of committee membership to allow greater participation by workers. LMS should consider expanding the role of the Employee Safety Committee, encouraging the safety committee to lead in corrective action recommendations, revising the charter to allow the committee to select the chair, and establishing a rotation schedule for committee membership.

Opportunity for Improvement: LMS should consider expanding the role of the Employee Safety Committee, encouraging the safety committee to lead in corrective action recommendations, revising the charter to allow the committee to select the chair, and establishing a rotation schedule for committee membership.

As an extension of the Employee Safety Committee, LMS is beginning to implement site safety committees that can address local issues and report up to the Employee Safety Committee. LMS should continue to implement this model as a means of encouraging greater employee ownership of the safety and health program.

LMS has an Environmental Management System (EMS) that is driven by employee participation. Eleven separate subgroups take primary responsibility for implementing different aspects of EMS. Using this model, LMS has developed a very active EMS that is viewed positively by the workforce. LMS should consider mirroring the EMS approach in the health and safety program as it looks for opportunities to further empower the Employee Safety Committee.

Opportunity for Improvement: LMS should consider mirroring the EMS approach in the health and safety program as it looks for opportunities to further empower the Employee Safety Committee.

All sites visited by the Team had some type of daily or weekly meeting to inform workers of planned and authorized work. Attendance at those meetings was expected for most personnel. The meetings began with a safety message, and provided employees with current information regarding issues or upcoming events.

Finally, LMS has conducted numerous events to stimulate employee participation. Poster contests and drawings, as well as promotional items (such as shirts for various major milestones and projects_ not just safety), have become a strong point of improving the overall workforce morale and contribute strongly to the workers' sense of caring for others.

Conclusion

LMS employees have many means of participating in the safety and health program, are strongly encouraged to take ownership of their own safety, and look out for their coworkers. Efforts to achieve DOE-VPP Star status have been primarily management led, but employees have willingly and actively participated in and supported those efforts. LMS has significant opportunities to expand employee ownership and leadership in the safety and health program. These opportunities notwithstanding, LMS meets the expectations in Employee Involvement for participation in DOE-VPP at the Star level.

V. WORKSITE ANALYSIS

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

LMS uses the *LMS Projects and Programs Manual*, LMS/POL/S05760-1.0, to define the project management process and ensure the diverse range of projects are appropriately planned and analyzed. This planning tool includes review and concurrence from managers, appropriate SMEs, and support personnel and ensures integration throughout the project planning process. The manual includes roles and responsibilities, manager functions, contractor workflow process, hazard analysis, control identification, and any applicable LMS plans and procedures. Appendix B to this manual contains the Project/Activity Evaluation (P/AE) Procedure. This procedure walks a project manager through the Integrated Safety Management System steps for assuring compliance with DOE expectations, developing the correct core team for support and input, developing work instructions, oversight, and project closure.

The P/AE form is completed for each new project, defines the scope of work, and identifies any hazards to be analyzed and controlled. The P/AE is reviewed by SMEs, including project managers and safety, environmental, and operational experts, in order to identify those hazards and any necessary requirements. After review by SMEs, the identified hazards are then evaluated using the JSA process. Procedures may be developed if necessary to implement the appropriate controls for those hazards.

After the project scope has been determined, major tasks defined, and subtasks identified, the project manager develops instructions for the workers to complete those elements within the subtasks. Typical hazards faced by workers include biological, chemical, confined space, drilling, driving, electrical, ergonomic, construction, hoisting and rigging, adverse weather, and radiological concerns. LMS uses the JSA to identify and analyze the hazards, and develop controls to preclude harm to the worker, the public, or the environment. The JSA starts with documenting five initial elements: the task workscope; location of work; time of year; equipment needed to perform the work; and any interfaces or coordination with other agencies that may be required. After these are documented, the workscope is broken down into individual tasks, identification of hazards and analysis associated with that subtask, and development of controls to mitigate the hazard. The JSA process is sound and applied to all LMS activities.

LMS has two Industrial Hygienists that support exposure identification and monitoring. They are assigned to support eastern or western operations and are conducting personnel exposure sampling. Sampling has included air quality monitoring, evaluation of acetic acid vapors from film records, and dust. The LMS Health and Safety Manual describes a systematic process to use exposure assessments to develop an industrial hygiene (IH) plan. All personnel contacted by the Team believed that sufficient IH expertise was available. Although LMS is using Industrial Hygienists to collect information related to potential exposures, that information has not yet been

compiled into a comprehensive Baseline Exposure Assessment or used to develop a systematic and comprehensive IH plan in accordance with the Health and Safety Manual. Without this plan, LMS cannot adequately determine if appropriate IH expertise is available. LMS should collect the existing IH monitoring data, evaluate it to determine if it adequately addresses the range of potential hazards, establish an IH baseline, and then develop and maintain a comprehensive IH monitoring plan, and use that plan to determine IH resource needs.

Opportunity for Improvement: LMS should collect the existing IH monitoring data, evaluate it to determine if it adequately addresses the range of potential hazards, establish an IH baseline, and then develop and maintain a comprehensive IH monitoring plan, and use that plan to determine IH resource needs.

LMS could improve the JSA process by documenting the analysis portion of the JSA to better demonstrate the link between the identified hazard and the selected control. For example, in 2011, LMS performed surveys and monitoring on Amchitka, a remote island in the Aleutian Islands. The JSA for that work indicated under the "Analyze the Safety and Environmental Hazards" column, "cold exposure" as a hazard. Based on that hazard description, with no other supporting information, four controls were documented:

- Watch for signs of cold stress in self and others; this includes uncontrollable shivering. Take breaks as necessary to warm up;
- Wear adequate clothing for weather conditions;
- Stay dry. Dress in layers; if innermost layer becomes wet, change into dry items; and
- Drink sufficient fluids, approximately 8 ounces for every hour of active work.

Information that could have been included under the hazard analysis would be average daily temperatures to expect (highs and lows), seasonal rainfall expectations, winds, availability of shelter, distances that might have to be travelled to obtain assistance, as well as means of transportation. This information could be used by workers to ensure they could be adequately prepared for expected conditions.

In another example, maintenance of an acid system in a groundwater treatment plant at the Tuba City site breaks the task down into several general steps. The hazard analysis column only contains a general statement of the hazards, such as inclement weather, exposure to hazardous energy (electrical), injury from contact with sulfuric acid residue and fumes, fall from ladder, fall from the top of the sulfuric acid tank, chemical spill, and an unexpected chemical reaction of water and acid. Analytical information that could have been included would be electrical voltages, sulfuric acid concentration and volume, height of ladder work, height of the sulfuric acid tank, the existence or absence of nonskid surfaces on the top of the tank, and the presence or absence of handrails.

The generic approach to hazard analysis also contributed to a failure to ensure work process changes in the LM Business Center records warehouse were evaluated against the certified National Archives and Records Administration (NARA) standards for the facility (see Hazard Prevention and Control section). LMS should train personnel on hazard analysis, ensure they document their assumptions and conclusions as part of the analysis portion of the JSA, and ensure all controls and requirements are reviewed during the JSA process.

Opportunity for Improvement: LMS should train personnel on hazard analysis, ensure they document their assumptions and conclusions as part of the analysis portion of the JSA, and ensure all controls and requirements are reviewed during the JSA process.

All JSAs reviewed by the Team included generic descriptions for tasks, hazards, and controls. For example, in many cases the hazard is described as a hand injury resulting from using improper personal protective equipment (PPE), the resulting control is "use work gloves." The specific hazard is not discussed nor is the control specific enough to address the hazard (e.g., does the work require cut-resistant gloves, leather gloves, cotton work gloves, or other specific work gloves?). In another JSA for office workers, the hazard is described as "hazards associated with chemicals used or stored in the building." The control for the worker is to refer to the Material Safety Data Sheet or the chemical management plan. LMS should have information on specific chemicals that will be used for the specified task or stored in a building, and that information should be included in JSA, including typical quantity (e.g., 12-ounce bottles), storage locations (janitors closet or storage room), and specific controls that might be required in the event of a spill. LMS should eliminate the use of generic hazard and control descriptions from JSAs and include as much specific information as necessary to ensure workers clearly understand the hazards, controls, and expectations.

Opportunity for Improvement: LMS should eliminate the use of generic hazard and control descriptions from JSAs and include as much specific information as necessary to ensure workers clearly understand the hazards, controls, and expectations.

Safe Work Permits are an additional tool that can augment JSA by documenting more specific information relating to a hazard. Discussions with managers indicate that it is predominantly used to identify personnel, conditions, and requirements for hot work. It provides a checklist for the preparer to fill in and leans toward checklist-driven controls versus indepth analysis. The form is also capable of addressing use of chemicals, elevated work, excavation, and other specific hazards. This form is to be completed by the job supervisor and also includes specific controls and PPE.

LMS and its predecessors have documented radiological data from its operations for many years. That data has been extensively analyzed to justify and eliminate the need for a dosimetry program for radiological work at Grand Junction. LMS' analysis found that the yearly dose to a radiation worker was less than 25 millirems per year. In addition to the years of data on dose, LMS evaluated the air sampling records and determined that the concentration of airborne radionuclides from Uranium and Uranium daughter products was sufficiently low enough to suspend air sampling based upon the work performed at the disposal cell and the material being disposed. The LMS Radiation Protection Program includes evaluation of radiation hazards and provisions to institute external monitoring if evaluation of the work would require it. LMS has also concluded that any work that would require reinstitution of these two programs would probably be declined due to costs.

LMS is currently performing an extensive analysis of body mechanics and lifting. Since February 2011, some injuries attributed to body mechanics/lifting have occurred. The injuries were not serious and were not directly linked to ergonomics or material handling, but were

associated with "random acts of daily living." Three injuries were associated with lifting: two were associated with hand and grasping and one individual had a preexisting knee injury. The occurrences were not at the same location, not attributed to similar job categories, not a result of over use or repetitive motion, not related to age, and were not covered by a JSA. As a 2012 goal, LMS is studying and analyzing body mechanics and body motion-related injuries, and developing new training for all personnel as a means of increasing awareness and preventing future injuries or aggravating existing conditions.

Most personnel contacted by the Team are involved in regular worksite inspections. In addition to these inspections, at the Westminster location the safety representative randomly selects someone from the office to accompany her on the monthly safety walkdowns. The selections are not necessarily from a science or engineering background; and in an example observed by the Team, the individual was a records specialist. The Team interviewed the administrative records specialist for her perspective on the inspection process. The inspection checklist that is used has 14 pages that cover all the hazards that have been identified at the Westminster office. In addition to the checklist, photographs are taken to illustrate deficiencies and share with the rest of the workforce. The perspective from the records specialist was an increased knowledge of hazards and an increased awareness of unsafe conditions warranting her attention. In addition, the knowledge gained through participation in onsite safety inspections contributed to her awareness of safety conditions at home. LMS managers also perform walkthroughs that reinforce managers' presence in the work areas, keep managers informed of ongoing activities, and provide opportunities for worker/manager interface.

Another tool available for use by LMS employees is the Site Hazard Survey. This is a checklist survey that addresses generic common safety issues. Areas reviewed include radiation control, industrial hygiene, industrial safety, and general site conditions. It is much less comprehensive than the monthly safety walkdowns, but still an effective tool to raise employee awareness of hazards.

The LMS Quality Assurance organization tracks and trends information garnered from safety walkdowns, monthly safety meetings, first-aid cases, near-misses, safety conditions, injuries, lost time, property damage, motor vehicle use, work authorizations, stop work, Notices of Violations, field conditions, and office conditions. This information is entered into the Corrective Action Tracking System (CATS). The CATS reporting thresholds are extremely low, ensuring managers are aware of potential problems before they become more serious issues. For example, CATS entries included a smoldering (cigarette) butt can and a cracking depression on a roadway. Other more significant entries were damaged government vehicles, line breaks, theft of government property, and a leak from a sulfuric acid fitting.

Although most issues identified are at a level below most reporting criteria, they remain lagging indicators, indicating that a problem has already developed and made itself evident. LMS should increase its focus on meaningful leading indicators, such as error precursors, to further its continuous improvements. One approach that LMS might consider is determining specific actions personnel should be taking to identify and reduce potential hazards and unsafe practices, then tracking the frequency and duration of those efforts. Once a baseline is established, that could be used as a leading indicator before problems develop.

Opportunity for Improvement: LMS should increase its focus on meaningful leading indicators, such as error precursors, to further its continuous improvements.

For those incidents reported into CATS that do not rise to the DOE reporting threshold, LMS performs a Cause Analysis and Corrective Action Plan. This is a form that walks the participants through a process that identifies the level of concern; contributing causes; planned corrective actions; and requires manager review, concurrence, and approval. For those incidents that reach DOE reportable criteria and for severe incidents that would require a DOE investigation, four people have been trained and qualified to perform accident/incident investigation for LMS. Discussions with LMS managers indicate that they are developing a training package to train more personnel in accident/incident investigations.

Conclusion

LMS has a comprehensive and systematic process for identifying and evaluating workplace hazards and has conducted extensive hazard reviews. The P/AE process provides an effective framework for the design, review, and approval of projects. The hazard analyses performed across the LMS sites has not yet been collected into a Baseline Exposure Assessment or used to develop a strategic plan for reviewing IH exposures. Documentation of the analyses performed during JSAs or project reviews will 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 have been addressed. The opportunities for improvement in this section should be a near-term priority for LMS. 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. Despite the areas for improvement, LMS meets the expectations of the Worksite Analysis tenet for participation in DOE-VPP at the Star level.

VI. HAZARD PREVENTION AND CONTROL

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

LMS effectively uses all elements of the hierarchical approach to hazard controls. Numerous examples at all sites were observed by the Team. For example, activities at the Fernald Site are very low hazard. The primary hazards faced by workers are animals, insects, or poisonous plants they may be exposed to while conducting field-monitoring activities. Some maintenance activities associated with monitoring well pumps may expose workers to higher hazards, such as the potential for entering an oxygen depleted space, or the use of strong acids when performing in-situ pump cleaning. LMS has evaluated and analyzed these hazards using JSA to identify appropriate controls. Those controls include monitoring for air quality in the well pits and the use of appropriate PPE when using acids. For the insect hazards, workers have been trained on the potential hazards of parasite-borne diseases, such as Lyme Disease or Rocky Mountain Spotted Fever, and the need to thoroughly inspect for ticks and insect bites after working in the field.

Workers at the Fernald Site were clearly aware of the standard controls for field activities (taping pant legs, wearing appropriate clothing) to minimize the risk of exposure to animals, insects, and plants. Operations workers that conduct facility work (operate pumps, draw samples, maintain and operate the water treatment plant) were knowledgeable of the systems and equipment, lockout/tagout requirements and procedures, work authorization requirements, and strongly believed in conduct of operations to ensure the safety of themselves, the public, and the environment. Because of the nature of the facility (closed disposal site and nature preserve) hazard controls were primarily administrative controls and PPE. The primary engineered control at Fernald is the design of the disposal cell and the monitoring wells used to ensure no hazardous or radioactive materials are leaching out of the cell into the surrounding environment.

Hazards at the LM Business Center records warehouse are also very low. The most significant hazards for those workers are associated with records handling (retrieval and storage of boxes weighing up to 50 pounds), electrical charging of equipment (pallet jacks, manlifts), and the potential for molds or vermin infestation. LMS has prepared JSAs for these activities and identified controls. Controls include training workers on proper handling techniques, development of safer handling methods, and the design of the facility. The records center is certified by NARA for the temporary storage of records (75-year retention). The potential for mold in the records is controlled by maintaining the records center temperature and humidity in accordance with NARA standards.

LMS clearly demonstrated the use of the tiered controls at the LM Business Center. Hazards associated with records handling had been eliminated or reduced by substitution of alternative work methods and limitations on hazardous materials in the facility. Engineered controls

included building design in accordance with NARA standards (fire-rated walls, separate area for battery charging, and a refrigerated storage area for film records). A mobile fume hood was installed in the warehouse for work with records that smelled strange. IH evaluation of those records showed no hazardous exposures, but the fume hood was installed for worker comfort. For administrative work in the LM Business Center, there had been extensive modification of workstations for ergonomic considerations, including purchase of chairs suited to the workers' size, and adjustable desks.

In one case described by workers in the Information Technology (IT) group, noise levels in a server room had been monitored at 90 decibels. Per Occupational Safety and Health Administration standards, that level required workers to wear hearing protection if they were in the room for 4 hours or more in an 8-hour shift. Workers did not understand that limitation, thinking that hearing protection was required if they were going to be in the room for 4 continuous hours. LMS should review its hearing conservation program for those workers and ensure those workers understand the time-weighted average method for establishing the limit. Further, if LMS intends to allow workers to enter that space without hearing protection, mechanisms should be implemented to track worker time in the space and ensure the 4-hour time limit is not exceeded.

Opportunity for Improvement: LMS should review its hearing conservation program, ensure workers understand the time-weighted average method for establishing the limit, and establish mechanisms to track worker time in the space when hearing protection is not used.

NARA standards also set other limitations on the LM Business Center, such as the size of motors that can be used in handling equipment, exclusion of hazardous material, fire rating of walls between battery charging stations and the records storage area, and mandate that floor loading be clearly specified and controls established to ensure floor loading limits are not exceeded. The records storage facility has been certified to be in compliance with those standards, but LMS has not established systematic mechanisms to evaluate those standards during the hazard analysis process to ensure controls do not conflict with those standards. One case identified by the Team involved the use of the Work Assist Vehicle (WAVe) for storage and retrieval of records. This machine is a single-person manlift that replaced the use of aluminum step ladders, rolling scaffolding, and at-risk lifting practices. Use of this machine clearly reduces the hazards to workers while handling records boxes, but LMS failed to evaluate whether the machine meets the 250 pounds per square foot dynamic floor loading limit posted in the warehouse. NARA standards require that the dynamic floor loading limit be determined, clearly posted, and not exceeded. LMS should evaluate the WAVe machine to ensure it does not exceed the posted dynamic floor loading limit. Further, LMS should evaluate the construction of the warehouse floor and determine if the 250 pounds per square foot is the correct limit. Finally, LMS should ensure that analysis is documented and captured in procedures or processes to ensure future changes to handling methods do not exceed the limits established for facility certification.

Opportunity for Improvement: LMS should evaluate the WAVe machine to ensure it does not exceed the posted dynamic floor loading limit, evaluate the construction of the warehouse floor and determine if the 250 pounds per square foot is the correct limit, and ensure that analysis is documented and captured in procedures or processes to ensure future changes to handling methods do not exceed the limits established for facility certification.

LMS has committed to implementing a corporate computerized maintenance management system for planning, scheduling, and tracking preventive maintenance requirements. The facility operations group selected AyaNova® for the preventive maintenance software. The software has presented several challenges with its implementation. The facility operations group has been working to resolve operational issues with the software at the Grand Junction facility prior to releasing it for nationwide LMS use. One of the primary issues with implementation of the software has been the lack of vendor support and training for use of the "off-the-shelf" system. The issues currently being addressed include configuring the system to provide "ticklers" to notify users when preventive maintenance actions are due and also providing confirmation by e-mail when actions have been completed. The Grand Junction facility is still working with its IT group to rectify these problems. The software has not yet proven more efficient than the Microsoft Excel spreadsheets currently being used by the LMS sites. However, a functional corporate-wide system is expected to benefit LMS by providing a centralized database of all maintenance work, providing more systematic long-term maintenance planning, and generating trend information for problematic systems that help identify components that may require replacement rather than additional repairs.

The Tuba City Water Treatment Plant has historically had operational issues based on its design and, more recently, on an inadequate preventive maintenance plan. The water treatment plant has been operating for approximately 10 years and has recently been in a run to failure mode. In 2010, several incidents related to the water treatment plant acid tank (i.e., overflow issues, leaks, etc.) eventually resulted in an acid burn to one of the workers. As a result, LMS executed an operational standdown of the water treatment plant. They reevaluated the system components, developed a new design, and are currently engaged in completing a restart plan to restore the plant to operation. The recent actions have been very effective in correcting many of the historical issues associated with the system. Operator training has been improved, several components have been replaced, and systems upgraded. For example, one of the issues identified during the restart discovered several interlock components, including the tank overflow switch, had been physically disconnected, and the software logic for some of those interlocks had been bypassed. The restart plan represents an extensive effort to seek out and identify these issues and correct them. In conjunction with the restart plan, a comprehensive preventive maintenance schedule has been developed for the Tuba City Water Treatment Plant. LMS should perform a corporate extent of condition analysis for the conditions that led to the acid burn at the Tuba City site and implement corrective actions as necessary.

Opportunity for Improvement: LMS should perform a corporate extent of condition analysis for the conditions that led to the acid burn at the Tuba City site and implement corrective actions as necessary.

The LMS Emergency Management program follows the requirements described in the *Comprehensive Emergency Management System Manual*, which was developed to comply with and implement the requirements of DOE Order 151.1-C, *Comprehensive Emergency Management System*. Sites in the LM program comprise thousands of acres of land. A site may contain a disposal cell for radioactive waste, a water treatment facility, buildings, monitoring wells, or only general office space. In most cases, the sites are visited only a few times each year during field activities. Employees are permanently stationed at 11 locations. Each continuously occupied site has employees trained in First Aid and Cardio Pulmonary Resuscitation (CPR). Employees that are expected to perform work at unoccupied sites are required to complete First Aid and CPR training, with at least one trained person present when other personnel are visiting the site. Personnel use a buddy system when working at unoccupied sites. LMS provides training and conducts periodic drills to all employees addressing potential protective actions (i.e., shelter-in-place, evacuation, response to suspicious mail). This training is required when they are initially employed, and additional training may be required when changes to the site emergency plan occur. Drills are conducted at each occupied site at least once a year. The Health and Safety department performs an annual assessment to determine if sites completed their drill and review the adequacy and appropriateness of the drills.

No drills were conducted during the Team review. In 2011, LMS conducted a full participation emergency exercise at the Morgantown Business Center that included participation by the Morgantown and West Virginia University police and fire departments. The exercise simulated a fire in the records center and involved a building evacuation, personnel accountability, and fire department response. The exercise identified several opportunities for improvement in emergency readiness and response that LMS is implementing. Other sites have performed smaller building evacuation drills and accountability exercises that ensure all personnel understand and can execute their responsibilities in the event of an emergency.

LMS developed a procedure that is designed to comply with the DOE radiation protection program requirements found in 10 CFR 835. The company has a Radiation Protection Program document and a Radiation Protection Manual applicable to the activities at its sites. Workers, including subcontractors, are trained to the radiation worker requirements, which include donning and doffing PPE while in contaminated areas. Conversations with the radiation protection manager indicated that typical soil concentrations of Uranium and its daughters are less than 8 picocuries per gram, which is extremely low.

Due to the relatively small number of employees at LMS sites and the nature of the work conducted, LMS does not provide onsite medical services. LMS has ensured that all sites have two forms of medical services available to workers: an emergency medical facility provided by a local entity, and an occupational medical facility provided through LMS' national Occupational Medicine Service Provider network, *AllOne Health Resources*. Employees are informed about the location and availability of offsite services in various ways, primarily through site-specific training. In addition, the site-specific appendices within the *Comprehensive Emergency Management System Manual,* identify the route to the nearest emergency medical facility for every LMS site.

LMS also performs functional capacity evaluations for LM Business Center warehouse personnel. The functional capacity evaluations consist of physical testing under controlled environments performed by physical therapists. This test ensures that employees are physically

suited to work in those environments and is a requirement for employees to perform work in LMS warehouses.

For more routine work, such as that performed regularly in an office setting, the LMS medical program has a full-time ergonomist on staff who provides ergonomic assessments at an employee's request. Interviews with the LMS staff indicated the company fully supports these efforts, including the procurement of ergonomic chairs and height adjustable tables and desks where necessary.

Conclusion

LMS has effective hazard controls in place based on its analysis process. Evidence of a hierarchical approach to controls was identified at all sites visited. In some cases, workers did not have a full understanding of controls in place. Addressing the opportunities for improvement will help LMS further strengthen an already robust system of controls. LMS meets the expectations of the Hazard Prevention and Control tenet for Star status in DOE-VPP.

VII. SAFETY AND HEALTH TRAINING

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

LMS uses a systematic approach to training employees, supervisors, and managers. All employees, supervisors, and managers receive the initial and annual refresher health and safety training that serves as General Employee Training. This training module familiarizes all personnel with the general hazards and basic emergency response.

In addition to initial and annual safety and health training, the employees have individually tailored training plans based on their duties. Examples of such training include Hazardous Waste Operations and Emergency Response (HAZWOPER), Radiological Worker II, confined space entry training, lockout/tagout training, and ladder safety training. The training plan is developed by the employee and supervisor when the employee is initially assigned. That training plan is required by LMS to be reviewed annually by the employee and his or her supervisor. Short-term visitors complete an abbreviated version of the safety and health training that adequately familiarizes them with the general hazards and basic emergency response. Subcontractor personnel receive the full LMS site training prior to working at the sites and complete other LMS training if required by their duties.

Many training courses are provided to employees through computer-based training with some courses being given in a classroom setting when appropriate. Most training is prepared and presented by the LMS Training Department. In some cases, training is provided by outside vendors, particularly when there is a regulatory requirement for certified training, such as the 40-hour HAZWOPER training, arc flash training, and Department of Transportation driver training. In addition to required courses, LMS offers First Aid and CPR classes provided by local Red Cross-certified trainers to all employees on a voluntary basis. First Aid and CPR training is required for personnel that work at remote locations. Employees in the Grand Junction Office were provided Fire Extinguisher Training by the Grand Junction Fire Department. Finally, LMS has encouraged appropriate personnel to pursue the Council on Certification of Health, Environmental and Safety Technologists (CCHEST) STS certification. In addition to the STS program, LMS has a specific Site Safety Supervisor qualification process for personnel conducting oversight of subcontractors.

The training records are maintained in an electronic database that is accessible to the employees to review their training records. Changes to the records must be entered by the Training Office. The employees and their managers are notified of the upcoming training by e-mail. Per the LMS Training Manual, the managers are responsible for ensuring that the employees are current in their training, including the Safety and Health training.

All employees interviewed by the Team were confident that their training adequately prepared them to recognize, avoid, and control the hazards they might face while performing work.

In its 2011 self-assessment, LMS identified that many employees were delinquent in their annual training. Managers are focusing on this for 2012 by focusing on individuals' and supervisors' accountability for training and making significant improvements in the training management process. Changes include implementing new training management software and a complete review of annual training requirements to remove outdated training requirements. The training record management system was recently modified to automatically notify employees and their managers of upcoming training. This action reduced delinquent training from 250 to 100 courses. Another contributor to the problem was that employees with expired general training are allowed to continue working if their job-specific training is current. For 2012, managers are being trained and encouraged to use an escalating disciplinary process to ensure personnel complete all required training in a timely manner.

Conclusion

LMS provides appropriate safety and health training to its employees and subcontractors. Its training prepares the workers to learn how to appropriately control the hazards associated with their jobs. The training records are maintained appropriately in an electronic database, which notifies the employees and their managers of the upcoming training. LMS self-identified problems with ensuring the training plans of some employees reflect their current training needs. Corrective actions in process are expected to correct the identified deficiencies, and LMS meets the expectations of the Safety and Health Training tenet for participation in DOE-VPP at the Star level.

VIII. CONCLUSIONS

LMS has implemented a sound, effective worker safety and health program that meets or exceeds the requirements for the type of work performed. Employees, supervisors, and managers have formed a teaming relationship that provides effective communication up and down the organizational chain. Visible, credible managers actively encourage employees to participate in the program, submit improvement ideas, and be continually vigilant for safety. Resources to support a wide variety of employee involvement opportunities are provided by managers and used by all personnel. Employees are enthusiastic about their participation and in their belief that the company truly cares for their well-being. Hazards at all sites have been analyzed although better documentation of those analyses will help ensure long-term value by minimizing reanalysis of hazards and preventing changes that would conflict with the analysis. The full scope of hazard control was evident throughout all the sites visited. Safety training for all personnel is appropriate and ensures they are prepared to recognize and control the hazards they may face in day-to-day activities. LMS clearly demonstrates its commitment to excellence and continuous improvement, and the Team recommends that LMS be admitted to DOE-VPP as a Star participant.

Appendix A

Onsite VPP Audit Team Roster

Management

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

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

Patricia R. Worthington, PhD
Director
Office of Health and Safety
Office of Health, Safety and Security

Bradley K. Davy
Director
Office of Worker Safety and Health Assistance
Office of Health and Safety

Review Team

Name	Affiliation/Phone	Project/Review Element
Bradley K. Davy	DOE/HSS (301) 903-2473	Team Lead Management Leadership, Employee Involvement, Worksite Analysis, Hazard Prevention and Control, Safety and Health Training
Michael S. Gilroy	DOE/HSS	Worksite Analysis, Hazard Prevention and Control
John A. Locklair	DOE/HSS	Worksite Analysis
Steve K. Singal	DOE/HSS	Employee Involvement and Safety and Health Training