



Mission Support and Test Services, LLC Management and Operations Contract Nevada National Security Site

Report from the Department of Energy
Voluntary Protection Program
Transitional Review
May 23-August 4, 2022



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

PREFACE

The Department of Energy (DOE or Department) 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 excellence through systematic approaches, emphasizing creative solutions through cooperative efforts by managers, employees, and DOE.

DOE bases requirements for DOE-VPP participation on comprehensive management systems, with employees actively involved in assessing, preventing, and controlling the potential safety and health hazards at their sites. DOE-VPP is open to all contractors in the DOE complex, including 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 levels of participation with names and functions similar to those in OSHA's VPP: Star, Merit, and Demonstration. The Star level is the core of DOE-VPP. This level recognizes outstanding protectors of employee safety and health. The Merit level is a steppingstone for participants that have good safety and health programs that need time and DOE guidance to achieve Star status. The Demonstration level allows DOE to recognize achievements in unusual situations that DOE needs to learn more about before determining approval requirements for the Merit or Star level.

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 level in which the site is participating. The participant may also choose to use the DOE-VPP logo on its letterhead or award items for employee incentive programs.

This report summarizes the results from the transitional review of Mission Support and Test Services, LLC (MSTS) at the Nevada National Security Site) in Las Vegas, Nevada, and associated satellite facilities, conducted from May 23 to August 4, 2022, and provides the Acting Director of the Office of Environment, Health, Safety and Security with the necessary information to make the final decision regarding MSTS' continued participation in DOE-VPP at the Star level.

TABLE OF CONTENTS

PREFACE	ii
ABBREVIATIONS AND ACRONYMS	iv
EXECUTIVE SUMMARY	vi
OPPORTUNITIES FOR IMPROVEMENT	viii
I. INTRODUCTION	1
II. INJURY INCIDENCE CASE RATES	4
III. MANAGEMENT LEADERSHIP	6
IV. EMPLOYEE INVOLVEMENT	11
V. WORKSITE ANALYSIS	16
VI. HAZARD PREVENTION AND CONTROL	21
VII. SAFETY AND HEALTH TRAINING	27
VIII. CONCLUSIONS	30
Appendix A	A-1

ABBREVIATIONS AND ACRONYMS

AHA	Activity Hazard Analysis
ALWCD	Activity Level Work Control Documents
ATOM	Accelerated Training and Online Management
BEEF	Big Explosives Experimental Facility
BLS	Bureau of Labor Statistics
BZLT	Beyond Zero Leadership Team
CAIRS	Computerized Accident Injury Reporting System
CAS	Contractor Assurance System
CFR	Code of Federal Regulations
CD	Company Directive
DAF	Device Assembly Facility
DART	Days Away, Restricted, or Transferred
DOE	Department of Energy
DOT	Department of Transportation
DSA	Documented Safety Analysis
DSC	Downtown Safety Committee
EA	Office of Enterprise Assessments
ECP	Employee Concerns Program
EHSS	Office of Environment, Health, Safety and Security
EHSS-12	Office of Worker Safety and Health Assistance
EPHS	Emergency Planning Hazard Survey
ES&H	Environment, Safety and Health
FHHE	Facility Health Hazard Evaluations
FRM	Form
FWIP	Facility Workplace Inspection Program
HMMM	Hazardous Material Management Manager
IH	Industrial Hygiene/Hygienist
ION	Integrated Operations Nevada
ISM	Integrated Safety Management
JASPER	Joint Actinide Shock Physics Experimental Research
JHA	Job Hazard Analysis
JSI	Joint Safety Initiative
LANL	Los Alamos National Laboratory
LASC	Labor Alliance Safety Committee
LLNL	Lawrence Livermore National Laboratory
LMS	Learning Management System
M&O	Management and Operations
MAIST	Mission Assurance Integrated Safety Team
MFM	Mobile for Maximo
MSTS	Mission Support and Test Services, LLC
NAICS	North American Industry Classification System
NFO	Nevada Field Office
NLV	North Las Vegas
NNSA	National Nuclear Security Administration
NNSA/NFO	National Nuclear Security Administration Nevada Field Office
NNSS	Nevada National Security Site

NVE	Nevada Enterprise
OMO	Occupational Medical Organization
OP	Operational Procedure
ORPS	Occurrence Reporting and Processing System
OSHA	Occupational Safety and Health Administration
PD	Program Description
PDM	Predictive Maintenance
PJB	Pre-Job Briefing
PJD	Post Job Debriefing
PM	Preventive Maintenance
PPE	Personal Protective Equipment
RWMC	Radioactive Waste Management Complex
SD	Supplemental Directive
SEO	Stockpile Experimentation and Operations
SME	Subject Matter Expert
SORD	Special Operations and Research Division
SPP	Strategic Partnership Projects
Team	Office of Environment, Health, Safety and Security DOE-VPP Team
TRC	Total Recordable Case
VPP	Voluntary Protection Program
WO	Work Order
WR	Work Request

EXECUTIVE SUMMARY

The Department of Energy's (DOE) Voluntary Protection Program (VPP) Assessment Team (Team) from the Office of Environment, Health, Safety and Security recommends that Mission Support and Test Services, LLC (MSTS) at the Nevada National Security Site (NNSS) in Nevada, and its satellite locations, continue to participate in DOE-VPP as a Star participant based on the transitional onsite review conducted May 23 to August 4, 2022.

MSTS was awarded the contract for the NNSS in May 2017. MSTS applied for and was granted "transition" status by the Office of Worker Safety and Health Assistance (EHSS-12), within the Office of Environment, Health, Safety and Security (EHSS) and was due for its transitional review in the 2019/2020 timeframe. That review was postponed due to the COVID-19 travel restrictions.

MSTS has approximately 2,500 employees, including approximately 600 bargaining employees represented by 23 trade unions. The majority of MSTS employees are located at NNSS and throughout the Las Vegas Valley.

EHSS conducted this onsite review to verify that MSTS continues to meet DOE-VPP expectations for continued participation as a Star site. Personnel from EHSS-12, conducted the review in two phases. The Team conducted an initial virtual review from May 23 to June 17, 2022, to interview workers and managers, attend meetings, and review documents. The Team then performed onsite work observations, validations, and interviews from July 25 to August 4, 2022.

The results of the review indicated that MSTS is:

- Committed to maintaining the health and safety of the workforce. It fully supports the integration of safety into all aspects of the mission, and the rights of workers to pause, stop, or refuse unsafe or at-risk work;
- Providing employees at all levels the opportunity to be involved in the structure and operation of the safety and health program and in decisions that affect their health and safety. MSTS safety committees function effectively, adopting virtual meeting technology to improve committee member attendance. MSTS provides recognition and incentive programs that reinforce safe work practices and encourage workers to raise any safety concerns;
- Using proven methods, processes, and procedures to identify and analyze workplace hazards. It augments high and extremely hazardous processes and procedures with facility-specific directions to address unique facility hazards. MSTS maintains an adequate workforce of certified safety, health, industrial hygiene, occupational health, and radiological professionals to analyze facilities, procedures, and projects, identify hazards and assess employee risk. MSTS conducts in-depth baseline assessments and a variety of surveys, exposure evaluations, assessments, and inspections to ensure employees work in a safe environment;
- Eliminating or controlling hazards and exposures using the hierarchy of controls. Personal protective equipment is available and worn to prevent mishaps or control their frequency and/or severity. MSTS plans, schedules, and completes maintenance safely employing certified professionals commensurate with the potential risks on the site;
- Appropriately training and maintaining worker qualifications based on a comprehensive training matrix; and
- Maintains accident and injury rates that are substantially lower than the comparison industry.

MSTS has successfully transitioned its workforce from the previous contractor. Over the past 5 years, MSTS has refocused work at the site to expand the NNSS missions and capabilities as directed by the National Nuclear Security Administration. Site capital improvements at several facilities and improvements in site infrastructure are helping site users conduct hazardous work vital to the Nation's security, nuclear stockpile stewardship, and global security. Much of this work requires special safety considerations and cannot be accomplished anywhere else. MSTS effectively manages the resources provided and provides workers with the necessary training, tools, and procedures. MSTS has opportunities to increase engagement with workers, supervisors, and middle managers, and gain their support for, and participation in, those programs and processes MSTS considers vital for continued safety improvement and excellence. The Team did not identify any systemic noncompliance with requirements, nor did it identify any suppression of concerns or reporting. MSTS fully demonstrates continuous improvement and pursuit of excellence expected for continued participation in DOE-VPP. The Team recommends that MSTS continue participating in DOE-VPP at the Star level.

**TABLE 1
OPPORTUNITIES FOR IMPROVEMENT**

Opportunity for Improvement	Page
MSTS should communicate the different funding sources for RWMC (Office of Environmental Management) to the workforce, emphasize to workers that it has the resources to replace unsafe or worn-out rigging equipment, and reinforce that workers have the right and responsibility to stop work rather than continue work with unsafe or worn-out equipment.	9
MSTS should incorporate more background/theory in its safety and health training for middle managers to help them understand why the additional safety initiatives, such as BeyondZero and VPP are worth their time, and gain more support from middle managers and supervisors that will help reduce acceptance of noncompliant conditions in all spaces.	9
MSTS should ensure that a management champion is consistently present or readily available for the LASC committee to help it address issues.	12
The safety committees should evaluate more effective ways to communicate closed safety concerns to the workforce.	13
MSTS should consider identifying visible and enduring incentives for performing observations, with clearly identified earned rewards for a specific level of participation, such as a number of BeyondZero observations.	15
MSTS should revise its FWIP to ensure it performs and documents inspections at least monthly that cover the whole worksite at least quarterly.	19
MSTS should review notice tags hung on electrical equipment on the second-floor mechanical room of the DAF and ensure tags reflect the required information, the information is readable, and an individual with knowledge of the reasons for hanging the tag is still available.	19

I. INTRODUCTION

This report provides the Department of Energy's (DOE) Acting Director, Office of Environment, Health, Safety and Security (EHSS), with the results of the transitional review of Mission Support and Test Services, LLC (MSTS) at the Nevada National Security Site (NNSS) in Las Vegas, Nevada conducted from May 23 to August 4, 2022. Based on the results of this review, the DOE Voluntary Protection Program (VPP) Assessment Team (Team) recommends that MSTS continue to participate in DOE-VPP as a Star participant

The DOE-VPP encourages excellence in occupational safety and health protection by recognizing DOE contractors and subcontractors who maintain safety programs that surpass compliance with DOE; Occupational Safety and Health Administration (OSHA); and local, State, and Federal safety standards.

The Star level is the core of DOE-VPP. This level recognizes outstanding protectors of employee safety and health. A participant at the Star level should be a model for other members of its industry and other DOE contractors and subcontractors. Because this is a dynamic and continuous improvement program, participants cannot allow their efforts to stagnate. DOE does not limit approvals to set durations but uses triennial reevaluations to ensure that the participant still warrants Star level participation.

MSTS was awarded the contract for the NNSS in May 2017. MSTS applied for and was granted "transition" status by the Office of Worker Safety and Health Assistance (EHSS-12), within the Office of Environment, Health, Safety and Security (EHSS). MSTS was due for its transitional review in the 2019/2020 timeframe, but it was postponed due to the COVID-19 travel restrictions. The previous contractor at NNSS, National Security Technologies, LLC (NSTec), became a DOE-VPP Star participant in 2009, and was recertified as a Star participant in February 2012, and again in February 2015.

MSTS manages operations at NNSS and its related facilities and laboratories for the National Nuclear Security Administration's (NNSA) Nevada Field Office (NFO). The company has satellite offices in Los Alamos and Albuquerque, New Mexico; Santa Barbara and Livermore, California; and Washington, D.C., along with a small number of employees located in nine other states. MSTS has included the NNSS, Los Alamos/ New Mexico Operations, the Special Technologies Laboratory (Santa Barbara), North Las Vegas Operation, Livermore Operations, and the Remote Sensing Laboratories (Andrews and Nellis Air Force Bases) sites in the MSTS VPP application. In connection with that mission, MSTS also works on projects for other Federal Agencies, such as the Defense Threat Reduction Agency, National Aeronautics and Space Administration, U.S. Nuclear Regulatory Commission, U.S. Department of Homeland Security, U.S. Air Force, U.S. Army, and U.S. Navy. Collectively, all the contractors, strategic partners, site users, and the Federal offices of NNSA are known as the Nevada Enterprise (NVE).

The management and operations (M&O) contract is valued at approximately \$5,000,000,000 with an initial period of performance from December 1, 2017, through November 30, 2022. In August 2022, NNSA exercised the five additional performance-based award term years taking the contract through 2027.

Established as the Atomic Energy Commission's on-continent proving ground, NNSS has seen more than four decades of nuclear weapons testing. The NNSS and its related facilities help ensure the security of the United States and its allies by supporting the stewardship of the nation's nuclear deterrent, providing nuclear and radiological emergency response capabilities and training, and contributing to key nonproliferation and arms control initiatives. NNSS facilities execute national-level experiments in support of the National Laboratories and work with national security customers and other Federal agencies on important national security activities, as well as providing long-term environmental stewardship of the NNSS's Cold War legacy.

MSTS has approximately 2,500 employees, including approximately 600 bargaining employees represented by 23 trade unions. The majority of MSTS employees are located at the NNSS and throughout the Las Vegas Valley. MSTS is responsible for traditional construction, maintenance, and operational activities, as well as providing support for unique experiments for DOE National Laboratories conducting research at the NNSS and Strategic Partnership Projects (SPP). The NNSS is approximately 1,375 square miles surrounded by the U.S. Air Force Nellis Test and Training Range and unpopulated land controlled by the Bureau of Land Management. The NNSS is one of the largest test areas in the United States. MSTS provides M&O support for the NNSS, the NNSA/NFO, administrative offices located in Clark County, Nevada, and the previously identified satellite locations. Since the nuclear weapons testing moratorium in 1992, and under the direction of DOE, the site use has diversified into many other programs, such as hazardous chemical spill testing, emergency response training, conventional weapons testing, and waste management and environmental technology studies.

MSTS is organized with a President and Vice President/Chief Operating Officer supported by seven Senior Directors, who are, in turn supported by over twenty Directors and their respective staffs. The Business Operations Directorate manages all business operations/services across the MSTS enterprise, including Prime Contract Management, Finance, Accounting, Human Resources, Information Technology, Cyber Security, Supply Chain Management, Public Affairs, and Enterprise Performance Excellence. The Global Security Directorate Serves as direct customer interface for NNSA and National Security Enterprise customers. The Stockpile Experimentation and Operations Directorate's main responsibilities are the safe, secure, efficient, and effective execution of tests and experimentation, including the appropriate level of formality of operations/conduct of operations. The Directorate also maintains underground nuclear testing capabilities and provides nuclear facility safety management at the Device Assembly Facility (DAF), the U1a Complex, the Joint Actinide Shock Physics Experimental Research facility, and the Area 3/5 waste management. The Stockpile Operations & Environmental Management Programs Directorate serves as the direct customer interface for Environmental Management Program customers, which coordinates with: NNSA/NFO Environmental Management/Radioactive Waste Acceptance program, the NNSS Environmental Program Services prime contractor, provides support to regulators and generators as required, and is responsible for the Environmental Compliance program and Environment Management System. The Mission Assurance Directorate develops and deploys NNSS-wide programs (including safety and health) that establish safe envelopes for nuclear operation, formality of operations, quality, and security/cyber security, and serves as Nuclear Safety Officer. The Infrastructure Directorate provides infrastructure services needed to support and sustain NNSS mission requirements, coordinates cross-company support services needs with MSTS leadership, delivers services to meet identified mission needs, manages facilities infrastructure, operations and

maintenance, engineering/design, construction, warehousing and property, fleet services, food and housing, custodial, machine shop, the Real Estate Operations Permit process, work planning functions and services for the NNSS, and provides site space, and site modernization planning and project management.

The NNSS ensures that the United States is the leader of various fields of study that compliments its primary mission. Nuclear weapons science activities include breakthrough nuclear experiments, the use of world-class diagnostic measurement systems, high-tech computer simulations, and detailed engineering analysis. Global and Homeland Security programs include chemical, biological, radiological, nuclear, and explosives activities; nuclear nonproliferation and counter-proliferation; weapons of mass destruction threat reduction; nuclear and radiological emergency response; treaty verification and monitoring; sensor development; and cybersecurity. Environmental Management activities include environmental protection; compliance; and monitoring of the air, land, water, plants, animals, and cultural resources; as well as the disposal of low level, and mixed low-level radioactive waste.

The types of hazards MSTS employees can encounter are varied and include explosives, hazardous chemicals, radiation, lasers, toxic metals, wildlife, biological, industrial hazards, wildland fires, pressure vessels, and heat/cold stress.

EHSS conducted this onsite review to verify that MSTS continues to meet DOE-VPP expectations for continued participation as a Star site. Personnel from EHSS-12, within EHSS, conducted the review in two phases. The Team conducted an initial virtual review from May 23 to June 17, 2022, to interview workers and managers, attend meetings, and review documents. The Team then performed onsite work observations, validations, and interviews from July 25 to August 4, 2022.

This report contains a review and discussion of MSTS' injury and illness rates and an assessment of safety management system elements compared to the DOE-VPP tenets of Management Leadership, Employee Involvement, Worksite Analysis, Hazard Prevention and Control, and Safety and Health Training. The Team's conclusion provides an overall assessment of MSTS' safety program and its continued participation in DOE-VPP.

II. INJURY INCIDENCE CASE RATES

The contractor's average for both Days Away, Restricted, or Transferred (DART) case rates and Total Recordable Case (TRC) rates for the most recent 3-year period shall be at or below the most recent specific industry national average North American Industry Classification System (NAICS) code published by the Bureau of Labor Statistics (BLS). The following table presents the most recent 3-year period data validated by the Team using the site's OSHA 300 logs, the DOE Computerized Accident Incident Reporting System (CAIRS), the Team's calculation of the TRC and DART rates, and the specific industry national averages for the comparison industry.

Injury Incidence Case Rates - Contractor Employees (MSTS – CAIRS* Org. Code 0521405)					
Calendar Year	Hours Worked	TRC	TRC Incidence Rate per 200,000 hours	DART Cases	DART Case Rate per 200,000 hours
2019	2,307,066	13	1.13	6	0.52
2020	4,568,499	9	0.39	5	0.22
2021	4,769,295	19	0.80	9	0.38
3-Year Totals	11,644,860	41	0.70	20	0.34
Bureau of Labor Statistics (BLS-2020) average for NAICS** 5612 Facility Support Services			4.5		3.2
Injury Incidence Case Rates - Subcontractors (MSTS – CAIRS* Org. Code 0521416)					
Calendar Year	Hours Worked	TRC	TRC Incidence Rate per 200,000 hours	DART Cases	DART Case Rate per 200,000 hours
2019	273,082	1	0.7	1	0.7
2020	132,495	0	0.0	0	0.0
2021	148,860	0	0.0	0	0.0
3-Year Totals	554,437	1	0.4	1	0.4
Bureau of Labor Statistics (BLS-2020) average for NAICS** 5612 Facility Support Services			4.5		3.2

*Computerized Accident and Incident Reporting System

**Bureau of Labor Statistics, North American Industry Classification System

TRC Incidence Rates, including subcontractors: 0.69

DART Case Rates, including subcontractors: 0.34

Discussion

MSTS employs approximately 2,500 workers and approximately 162 service subcontractors. For the 3 years prior to this assessment, 2019 to 2021, MSTS experienced 41 recordable cases, resulting in a 3-year TRC rate of 0.70. During the same period, MSTS had 20 DART cases, resulting in a DART case rate of 0.34. MSTS has had four TRC and two DART cases for the current year to date. The 2022 recordable cases include two sprains, one contusion, and one strain. During the COVID-19 pandemic period, between March 2020 and December 2021, MSTS experienced no work-related COVID cases. No work-related reportable COVID-19 cases have been reported for the current calendar year. The Team did not identify any incentives that would discourage workers from reporting injuries. Interviews with workers indicate they do not fear reprisal for reporting and acknowledge managers encourage the reporting of an injury, incidence, or first aid case.

The Team conducted a random sampling of MSTS' DOE CAIRS database cases, and the results indicate the site is maintaining complete and accurate recordkeeping logs, including the OSHA 300 Log and 300A Summary. The 300A summary meets the requirements of the recordkeeping standard, is posted as required, and remains accessible to all personnel throughout the calendar year.

The MSTS' recordkeeper is relatively new to the position, has completed CAIRS training and on-the-job training from her predecessor, and is knowledgeable of the recordkeeping requirements. The recordkeeper is reviewing 2020 and 2021 records to ensure they were properly classified. MSTS' TRC and DART rates are significantly lower than the BLS comparison industry average for its NAICS code and meet the expectations for continued DOE-VPP participation.

III. MANAGEMENT LEADERSHIP

Management Leadership is a key element in obtaining and sustaining an effective safety culture and implementing the guiding principles of Integrated Safety Management (ISM). The contractor shall demonstrate senior level management commitment to ISM, occupational safety and health, and meeting the requirements of DOE-VPP. Management systems for comprehensive planning shall address safety and health requirements and initiatives. Elements of that management system shall 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) managers shall be visible, accessible, and credible to employees. As with any other management system, the organization shall integrate authority and responsibility for employee safety and health with its management system and shall involve employees at all levels of the organization.

MSTS has a complete set of policies and procedures that establish its safety and health program. These documents cover all the requirements associated with managing and operating the NNSS, and the satellite locations associated with the MSTS contract.

The system of policies begins with Program Description (PD) document PD-0001.001, *Integrated Safety Management System Description*. This document details the system MSTS uses to integrate safety into the work performed for NNSA/NFO. It also identifies the multitude of safety requirements and standards required by the contract and provides a compliance matrix that identifies which company procedures implement those requirements.

PD-1000.100, *Management Description*, outlines how MSTS safely and compliantly manages NNSS to support users of the site to maintain and improve the working environment and site capabilities, and to achieve the site's mission objectives through integrated, efficient, and effective management. This document also describes how MSTS governs the site in collaboration with the NNSA/NFO, other Federal agencies with oversight responsibilities, and NNSS users in accordance with NNSA Supplemental Directive 226.1B, *NNSA Site Governance*.

The MSTS management strategy embraces the NVE values. Those values, established in cooperation with NFO include safely and securely achieving common goals, effectively solving problems, building trusting relationships, and being a learning organization. The management strategy establishes a continuous improvement approach overseen by the MSTS Contractor Assurance System (CAS). These integrated systems implement CAS by clearly communicating roles and responsibilities; defining scope, schedule, and budget; identifying, mitigating, and managing hazards and risks; planning work; identifying requirements to achieve the desired results; executing work to plan; and continually pursuing opportunities to improve.

Policy 0400.001, *Environment, Safety and Health Policy* states the following:

The Management and Operating (M&O) Contractor is committed to effective integration of Environment, Safety, and Health (ES&H) requirements into all facets of work planning and execution. This policy establishes the M&O Contractor's overriding commitment to conduct all work safely in a manner that is protective of our employees and environmental resources and is in full compliance with all applicable ES&H regulations.

The M&O Contractor will execute technical and management services for our customers in a responsible, safe, and compliant manner. It is the M&O Contractor's policy to prevent occupational injuries and unplanned exposures to chemical, radiological, or biological hazards.

PD-P200.001, *Worker Safety and Health Program Description*, defines how MSTS complies with Title 10, Code of Federal Regulations (CFR) part 851, *DOE Worker Safety and Health Program*. NNSA/NFO approves this document as a contract deliverable. MSTS reviews this document at least annually, with any updates or changes approved by NNSA/NFO.

Attachment A to the PD, contains an implementation crosswalk, with each requirement of 10 CFR 851 evaluated for applicability, and the implementing mechanisms for each applicable requirement identified.

PD-P200.002, *Underground Worker Safety and Health Plan*, supplements PD-P200.001 and documents decisions and agreements between MSTS and NNSA/NFO regarding applicable underground safety standards and requirements. MSTS created PD-P200.002 because neither the Mine Safety and Health Administration standards for mining, nor the Occupational Safety and Health Administration (OSHA) standards for underground facilities, met the mission requirements for the type of operations MSTS conducts. This document was negotiated with and approved by NFO, as a means of establishing the appropriate standards for underground work. MSTS is continuing to upgrade underground facilities where they are not fully compliant with PD-P200.002. NNSA/NFO is providing funding, but MSTS and NNSA/NFO are balancing urgent global and national security mission needs against that funding, and both MSTS senior managers and NNSA understand and accept those residual risks. Compensatory measures minimize those residual risks where appropriate. Examples include stricter combustible loading restrictions where fire detection and protection systems are not fully compliant, personnel loading limits, and restricted access to poorly ventilated areas. In some cases, PD-P200.002 applies in tunnels that were not originally designed to this Standard, so MSTS is analyzing and prioritizing work to upgrade those areas. For example, MSTS is installing new mine phones in the P-tunnel complex to provide reliable communications in an emergency, and new refuge stations for emergencies when workers cannot evacuate the tunnel.

MSTS originally established some very challenging goals related to contract performance and alignment with NNSA/NFO objectives. Those goals, originally part of MSTS' contract bid, included decreasing operational upsets by 50 percent, increasing direct mission workload by 30 percent, reducing unit cost of performing work by 25 percent, and increasing strategic partnership project (SPP) work by 50 percent. MSTS regularly monitors performance against these goals using the "Balanced Score Card" during the monthly Enterprise Management Operations Review meeting attended by MSTS senior leaders and NNSA/NFO.

MSTS established the Integrated Operations Nevada (ION) as its management operating system. ION is the local implementation of the Honeywell Operating System, based on the Toyota Production System, Lean production, and quality management philosophies, such as Six Sigma. It is an integrated set of management operating practices used by leaders to connect each employee's activities to mission objectives and company themes and strategies. ION facilitates rapid problem solving at the lowest level and provides a method to communicate and escalate cross-functional and mission issues to drive continuous improvement behaviors and actions. ION is a key component of Company Directive (CD)-2022.002, *Continuous Improvement*

Program. In practice, ION is a collection of management processes, tools, systems, and methods that are overlaid across five levels of the organization. These processes, tools, systems, and methods include regular Tier meetings, 5S (Sort, Store, Shine, Standardize, and Sustain), Gemba walks (going to where the work happens to observe behaviors and make improvements through coaching and accountability), and Standard Work (actions required of leaders to ensure alignment and execution of business goals). ION provides managers a consistent set of expectations from top to bottom of the organization.

MSTS works with its customer to ensure adequate resources for safety and health are available. NNSA/NFO and MSTS plan and schedule project work to meet strategic goals and support stockpile stewardship and global security missions. A significant change in the MSTS contract from previous NNS management and operating contracts has been a new focus on expanding missions and upgrading site infrastructure. Previous contracts focused on maintaining the test capabilities but allowed infrastructure to lag. MSTS has projects to replace high-voltage transmission lines across the site, improve roads, demolish old and unused facilities, build new workspaces at Mercury and the forward areas, and significantly expand the capabilities at U1a. This expansion of work has created some strain in the organization as it deals with significant personnel turnover and shortages exacerbated by COVID-19. MSTS has had difficulty identifying people with the right knowledge and motivation to make the long daily trek to remote locations at NNS when many of them can make equivalent or better salaries working remotely outside the DOE/NNSA enterprise.

MSTS did an excellent job providing for its workforce during the COVID-19 pandemic. MSTS was an early provider of vaccines and test kits. Although much of the workforce had to continue working through the pandemic onsite, particularly at NNS, MSTS allowed many workers to telework. MSTS kept safety committees active by holding virtual meetings and ensuring committee members had access to the necessary software and hardware.

MSTS recognized approximately 2 years ago that it had issues in its hoisting and rigging program, primarily due to a couple of incidents involving dropped loads. MSTS also recognized that it had significant hoisting and rigging expertise at the Radioactive Waste Management Complex (RWMC) because those workers dealt successfully with large, heavy loads on almost a daily basis. MSTS tapped into that expertise to revise the company hoisting and rigging procedures and standards, train workers, inspect the equipment, remove old worn-out rigging equipment, and procure new equipment. RWMC has an advantage over other facilities at NNS in that disposal fees from waste generators cover all its operating costs. This allows RWMC to maintain its current equipment and purchase new equipment when necessary. Workers at other locations sometimes perceive this capability as RWMC taking resources from other mission needs, which is not the case. MSTS may be able to help quell some of those feelings by better communicating the different funding sources for RWMC (Office of Environmental Management) to the workforce, but also by emphasizing to workers that it has the resources to replace unsafe or worn-out rigging equipment, and reinforcing that workers have the right and responsibility to stop work rather than continue work with unsafe or worn-out equipment.

Opportunity for Improvement: MSTS should communicate the different funding sources for RWMC (Office of Environmental Management) to the workforce, emphasize to workers that it has the resources to replace unsafe or worn-out rigging equipment, and reinforce that workers have the right and responsibility to stop work rather than continue work with unsafe or worn-out equipment.

MSTS operations and conditions observed at all sites visited by the Team demonstrate a high level of managers' commitment to safety and health, particularly at high-hazard and nuclear facilities that have clear safety requirements established in accordance with DOE Rules, Orders, and Standards. In most locations employees perceived that commitment to employee safety and health. In some locations, particularly remote locations at the NNS, some employees had lesser perceptions of senior manager commitment but believed their immediate managers' and supervisors' commitment to safety and health.

MSTS is a wide coalition of smaller organizations, all of which have their own culture. People tend to remain at their facility making each facility highly independent, and difficult to influence without strong support from facility and operations managers. VPP, Beyond Zero (BeyondZero) and other safety improvement initiatives may not resonate with some middle managers faced with other pressures to achieve the previously mentioned challenging goals and mission requirements. All middle managers support ISM, and generally believe ISM is sufficient to achieve the desired safety and health results. They may not understand how BeyondZero and VPP fit within the safety culture framework, but none of these middle managers denied the benefits of safe mission completion. ION, BeyondZero, VPP, and other initiatives have been driven down by senior managers, but some middle managers have not fully adopted them because they do not understand how these initiatives complement each other and integrate to accomplish mission goals. In some locations, MSTs' shift to BeyondZero, replacing VPP as the emphasis for improving safety, has not garnered the desired employee participation and support. In a few areas, this limited support may be leading to acceptance of conditions that should not exist, such as electrical hazards in offices and break rooms where sufficient electrical outlets may not be available, and facility modifications to add outlets are difficult (see Hazard Prevention and Control). MSTs could improve acceptance and implementation of these initiatives by incorporating more background/theory in its safety and health training for middle managers to help them understand why the additional safety initiatives are worth their time. Gaining more support from middle managers and supervisors will also help reduce acceptance of noncompliant conditions in all spaces.

Opportunity for Improvement: MSTs should incorporate more background/theory in its safety and health training for middle managers to help them understand why the additional safety initiatives, such as BeyondZero and VPP are worth their time, and gain more support from middle managers and supervisors that will help reduce acceptance of noncompliant conditions in all spaces.

Other DOE-VPP participants have developed specific training programs for first line supervisors and middle managers that focus on operational safety, and day-to-day techniques to improve safety in the workplace. For example, the Battelle-operated laboratories use the Laboratory Operations Supervisory Academy and Laboratory Operations Leadership Academy. Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL) are both

Battelle-operated laboratories and have a significant presence at NNSS. As a means of driving additional improvement, MSTS should consider working with LANL and LLNL to implement a similar process for first line supervisors and managers at NNSS.

Conclusion

Managers at MSTS are committed to maintaining the health and safety of the workforce. They fully support the integration of safety into all aspects of the mission, and the rights of workers to pause, stop, or refuse unsafe or at-risk work. MSTS may have lost some of the identity of DOE-VPP in its safety program by the shift of its focus to BeyondZero. Although BeyondZero is not incompatible with DOE-VPP, MSTS might find more support for its BeyondZero approach by branding it along with DOE-VPP. MSTS also has opportunities to better educate its first line supervisors and managers on the linkages between ISM, BeyondZero, and DOE-VPP, rather than leaving managers and supervisors with the impression that these programs are distinct and separate from each other. Although senior managers are periodically present at the worksites, middle- and first-line managers may have more difficulty meeting senior leadership expectations for BeyondZero observations and Gemba walks as they try to manage and meet MSTS' challenging commitments and goals. These challenges are more pronounced at remote or "forward" areas of the NNSS. MSTS meets the expectations for Management Leadership and continued participation in DOE-VPP.

IV. EMPLOYEE INVOLVEMENT

Employees at all levels shall continue to be involved in the structure and operation of the safety and health program and in decisions that affect employee safety and health. 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 shall work together to establish an environment of trust where employees understand that their participation adds value and is welcomed. Managers shall be proactive in recognizing, encouraging, facilitating, and rewarding workers for their participation and contributions. Both employees and managers shall communicate and collaborate in open forums to discuss continuing improvements, recognize, and resolve issues, and learn from their experiences.

MSTS maintains several safety committees and councils to encourage worker involvement. The safety committees vary from worker/craft led organizations, such as the Downtown Safety Committee (DSC), and the Labor Alliance Safety Committee (LASC) up to and including the Beyond Zero Leadership Team (BZLT).

The DSC represents the employees at the North Las Vegas site (NLV). The DSC is well organized with strong leadership from the craft and excellent support from its management champion. The DSC charter describes the DSC mission and the roles and responsibilities of its members. Interviews with the DSC chair demonstrated his belief that his manager supports the initiatives he and his committee members develop. The DSC engages the Facility Managers and employees at the NLV site to identify and correct safety issues. The DSC chair provided several examples of safety issues identified and how most of those issues were corrected in a timely manner. During a walkaround with the DSC chair, the Team observed several of those corrected safety issues. For example, the committee identified several issues associated with portable ladders while performing inspections at the NLV site. The DSC chair requested the replacement of most of the portable ladders on the NLV site. The management champion immediately supported the chair's recommendation and helped identify funding for the purchase of new portable ladders. DSC committee members believe the new ladders are stronger, more stable, and ergonomically better. The DSC committee chair also discussed restarting the "Safety Cents" newsletter to help communicate the committees' efforts and successes. The DSC chair is seeking potential candidates to support the newsletter and hopes to use the newly onboarding employees to spearhead it.

The LASC represents approximately 600 craft employees across the NNSS, primarily those union members not located at the NLV site. The LASC experienced some operational continuity issues during the COVID-19 pandemic. While the crafts were reporting to the site approximately 2 months after the initial standdown in March 2020, social distancing and reduced availability of a management champion limited the effectiveness of the LASC. The LASC continues meeting and gathering observations and potential safety concerns, but without an active management champion, the committee has not been as effective as the DSC and other safety committees at resolving those issues. The committee members disseminate safety issues identified after each monthly meeting through personal interactions with the crafts they represent. MSTS believes the crafts recognize the identified safety concerns and are cognizant of those potential hazards as a result of these interactions.

Lack of a management champion regularly attending the LASC meetings has limited the LASC's success in addressing safety issues. For example, the committee identified that with the longer days and warmer weather in the spring, more road crews would be out working and repairing roads. Committee members had also observed more drivers speeding in the vicinity of the road crews, creating additional risk for the crews, but were unable to address drivers operating their vehicles at unsafe speeds in the vicinity of LASC road crews. They did warn LASC representatives to be wary of drivers operating vehicles unsafely in their work area and take precautions but did not feel empowered to raise the issue to a management champion, or the Environmental Safety and Health (ES&H) Director. The facility managers involved with the LASC did attempt to penalize the observed speeding vehicles through MSTs vehicle tracking software. However, the Nye County sheriff's office would not issue citations because they could not identify a specific driver from vehicle tracking data. A more effective approach might have the management champion identify the specific driver from the vehicle log system, notify that driver's supervisor, who would then discuss safe driving expectations with the driver. The LASC committee did not realize additional support was available to resolve this issue.

In another example, the LASC received a digital message sign to install near the entrance to their shop facilities at the NNSS. The LASC received the electronic sign in June but believed there was no funding/plan to install the sign. The committee expressed frustration with this development and felt a commitment to them was not fulfilled. During the onsite review, the management champion attended the LASC meeting and explained that the engineering department was analyzing the sign's footing installation and identifying a route for the power to the sign. The LASC was unaware of this activity. Communication between the LASC and a management champion is essential to ensure the committee's success in addressing future safety and health concerns. The DSC established effective communication with its champion early on, and as a result of that communication, their ability to address issues is outstanding.

The Team attended LASC meetings virtually before the onsite review, and in-person during the onsite review. There was a distinct difference in management presence during those meetings. During the onsite meeting, the manager spoke up and provided committee members with important information regarding progress on safety issues. The committee members were energized about what they could potentially do with the support and experience of a knowledgeable management champion. In the past 2 years, the LASC members were told that some of their ideas could not be performed under the new contract terms with no further explanation given. During the onsite meeting observed, the management champion was present and able to explain to the committee why a certain process could not be used and provided alternative avenues to achieve the desired results. Having a knowledgeable management champion that seeks methods to support the committees' efforts has an overwhelmingly positive effect on the committee and its members. MSTs should ensure that a management champion is consistently present or readily available for the LASC committee to help it address issues.

<p>Opportunity for Improvement: MSTs should ensure that a management champion is consistently present or readily available for the LASC committee to help it address issues.</p>

The LASC does not have a current charter defining its purpose nor the roles and responsibilities of its members. MSTs is developing a new charter defining the roles and responsibilities of the LASC committee and its members.

The Stockpile Experimentation and Operations (SEO) Safety Council includes both craft and professional staff devoted to the continuous improvement of the safety culture within SEO-managed facilities. Both the chair and cochair are nonbargaining employees. Interviews with the chair demonstrated his enthusiasm for the committee. In one example, the chair described many SEO workers identifying a section of road that was in significant disrepair. More work is occurring in areas served by the road, and many members wanted the road repaired. The chair elevated the SEO Safety Council members' concerns to senior managers who were able to get funding assigned to improve the road. The chair believed this would not have been possible without the access to senior managers provided by the safety committee. The chair also believed he had excellent backing from "support team members" including facility managers from the SEO organization. Facility managers routinely perform inspections under the Facility Workplace Inspection Program (FWIP), and they encourage safety team members to participate. The SEO committee began meeting virtually during the COVID-19 pandemic. Because of the distance between SEO facilities, the committee has continued meeting virtually, improving participation in monthly committee meetings.

The SEO Safety Council chair did state that there may still be craft individuals wary of raising safety concerns, but he and the council are working to reverse that opinion. He believes those doubts may be the result of poor first impressions early in the new contract. The workers hesitancy to raise safety issues may result from experiences under previous managers or even previous contractors, but the SEO chair believes he can convince workers to trust that the system will work for them if they give it a chance. To help build that trust, the safety council routinely informs the individual who raised the issue when it is closed. Using this approach, other workers in the SEO may not be aware of the safety issue, or how it was resolved. The SEO council should evaluate more effective ways to communicate its successes in closing safety concerns to the population they represent. By increasing the number of members aware of the council's successes, the council will encourage buy-in by the remaining members who harbor doubts about raising concerns themselves.

Opportunity for Improvement: The safety council should evaluate more effective ways to communicate closed safety concerns to the workforce.

The Mission Assurance Integrated Safety Team's (MAIST) purpose is to amplify the message of the BeyondZero program. The MAIST has a completed charter that describes its purpose and the members responsibilities. The objectives of the MAIST are to:

- Promote BeyondZero's Culture of Caring to MSTs employees;
- Engage with employees to identify and provide effective solutions to address safety concerns; and
- Establish a link between working-level employees and M&O contractor management that cooperatively promotes safety, integrates employee involvement, and empowers personnel at all levels to be actively involved in maintaining a safe and healthful workplace.

During the Team's review, the MAIST was in the process of developing ideas for the MSTs Annual Health and Safety Fair scheduled for October 2022 and developing a pamphlet describing the MSTs safety programs.

The Joint Safety Initiative (JSI) is a forum for the safety professionals from the MSTs satellite locations. They use this forum to exchange ideas and support each other as new challenges arise at each satellite organization. For example, if the Los Alamos site is scheduled to undergo an assessment, safety professionals from the other satellites will send a member to provide support to the Los Alamos satellite site. In addition, all the Safety Representatives meet monthly to discuss new initiatives at each site.

The Beyond Zero Leadership Team (BZLT) acts as the senior managers level safety committee (similar to the President's Safety Council used in the previous contract). The BZLT is focused on safe performance of work, safety culture improvement, communication, and engagement of MSTs employees. The objectives of the BZLT are to promote BeyondZero's "Culture of Caring", establish a trusted communication link with all employees to raise safety issues, collect and compile information that is an honest reflection of the safety culture of MSTs, and recommend actions that will improve the safety culture. The BZLT also seeks to engage with employees to identify and provide effective solutions to address safety concerns. To that end, the BZLT encourages all MSTs safety committees to provide input to the BZLT at its monthly meetings. This level of involvement ensures that the worker-level committees can raise their identified issues to a higher-level manager, if necessary, to get the direct attention of the senior staff. Due to workload issues and the lack of management champion support to encourage their attendance, the LASC members did not feel they could attend the BZLT meetings and have not routinely attended or provided input to the BZLT meetings as the other safety committee chairs do.

Overall, the success of each safety committee depends heavily on the involvement of the management champions, which accounts for the difference between the success of the DSC, MAIST, SEO, JSI, and the LASC. The committees with regular and frequent attendance by a management champion have more success identifying and implementing solutions for safety concerns. MSTs should look for ways to ensure all safety committees receive adequate support from management champions on a frequent basis, and that the management champions have the time and access to resources to provide this support.

The BZLT governs the BeyondZero Hero recognition program for MSTs. The BeyondZero Heroes are individuals who are recognized by their peers or supervisors for exceptional acts of safety. Teams or individuals are recognized through a "Hot Shot" award. Monthly, the BZLT reviews the nominations and selects a nominee(s) using the BeyondZero criteria. The selected team or individual recognized by the BZLT can receive a \$25 or \$50 Hot Shot and a BeyondZero Hero Coin.

At the end of the year, the BZLT reviews the BeyondZero Hero's nominees and then selects one to be nominated for a Senior Director's Award. The Senior Director's Award is typically \$1,000. A review of the program winners since November 2020 identified a \$50-dollar Hot Shot and BeyondZero coin for 14 individuals/teams and two individuals who received a \$1,000 Senior Directors Award.

Past winners of the BeyondZero Heroes included workers that were commuting back to the NLV site when they observed a car on fire on the side of the road. The workers stopped, helped extricate the driver from the car, and rendered aid. The BZLT recognized them publicly for their act and awarded them a cash bonus.

MSTS also recognizes workers' achievements through the "High Five" recognition program. The "High Five" program is a peer-to-peer recognition program. The recognized employee is entered into a drawing for a cash reward. However, MSTS should consider that recognition programs based on lotteries minimize workers' respect for the recognition. MSTS should consider reevaluating how this program recognizes workers' efforts based on their efforts and the effectiveness of their input, not on a lottery.

While the safety committees described above are active, the Team only observed limited engagement by personnel not on the committees in safety initiatives, such as BeyondZero. Workers, supervisors, and managers were adamant about procedure compliance, work planning, and ISM, but were less enthusiastic about "softer" safety improvement initiatives. This difference may be due in part to the lack of broader awards or incentives to participate in those initiatives. To stimulate participation in observation programs designed to address at-risk or unsafe behaviors and conditions, MSTS should consider identifying incentives for performing observations, not just rewarding specifically identified safe behaviors. Incentives need not be large, but should be visible and enduring, not cash- or lottery-based, with a clearly identified earned reward for a specific level of participation.

Opportunity for Improvement: MSTS should consider identifying visible and enduring incentives for performing observations, with clearly identified earned rewards for a specific level of participation, such as a number of BeyondZero observations.

Conclusion

MSTS employees at all levels have the opportunity to be involved in the structure and operation of the safety and health program and in decisions that affect their health and safety. Employee participation is in addition to the individual right to notify appropriate managers of hazardous conditions and practices. MSTS safety committees function effectively. The use of video meeting technology helped to improve committee member attendance. The LASC safety committee needs additional management assistance to achieve its full potential. MSTS provides recognition and incentive programs that reinforce safe work practices and encourages workers to raise any safety concerns. MSTS meets the expectations of the Employee Involvement tenet for continued participation in DOE-VPP.

V. WORKSITE ANALYSIS

Management of safety and health programs begins with a thorough understanding of all hazards that workers might encounter during work, and the ability to recognize and correct new hazards. The first two core functions of ISM, *Defining the Scope of Work* and *Identifying and Analyzing Hazards*, form the basis for a systematic approach to identifying and analyzing all hazards encountered during work. Work planners use the results of the analysis in subsequent work planning efforts. Effective safety programs also integrate feedback from workers regarding additional hazards that they encounter and include a system to address new or newly recognized hazards. Successful worksite analysis also involves implementing preventive and/or mitigating measures during work planning to anticipate and minimize the impact of hazards.

MSTS conducts indepth baseline assessments to ascertain safety, health, and radiological concerns. MSTS maintains an adequate workforce of certified safety, health, and radiological professionals to analyze facilities, procedures, projects, identify hazards, and assess employee risk. When questions arise about conducting assessments or about unknown exposures, industrial hygienists (IH) and safety specialists collaborate with facility-specific subject matter experts (SME) on MSTS-specific procedures and sampling protocols. Within a defined geographic area, safety professionals review program-specific information to assist in addressing controls and preventative actions based on past sampling results.

Interviews with employees at various facilities at the Nevada and satellite sites verified employees were familiar with procedures for reporting hazards as discussed in CD-0280-001, *General Safety Rules*; PD-P200-001; 10 CFR 851, *Worker Safety and Health Program Description*; Consolidated Annual Training; General Employee Training; posters on bulletin boards throughout the site; and New Onboarding presentations. Workers report hazards to their supervisors by word of mouth, open door policies, email, or in person to the ES&H office, work request through Maximo, facility manager, safety committees or to the Employee Concern Program (ECP) as detailed in CD-2021.001, *Employee Concern Program*. Workers know they can report their safety concerns or hazards without fear of repercussion or report anonymously. MSTS documents, investigates, and tracks through resolution (including reports to senior managers) any hazards reported through the ECP using the Employee Concerns Tracking System. The ECP manager provides feedback to the concerned employee.

MSTS will be piloting two innovative programs called Mobile for Maximo (MFM) and Assisted Hazard Analysis (AHA). MFM will be a paperless platform using iPads® that will provide a consistent, standard, efficient and effective work package management process. MFM will include all forms, documents, engineering drawings, and permits. Planners and other workers involved in the work package will have access to the system. There are still some security requirements to resolve at a few facilities, but the system should provide significant cost and time savings. AHA will provide the latest hazards analysis and controls for a wide range of activities in a consistent format. Safety professionals will review the program to keep documents current. Both programs will interface with the training database enabling planners, supervisors, and managers to input and verify the skills, training, and qualifications of those involved in the work package.

MSTS' Exposure Assessment Program establishes a systematic approach for analyzing and evaluating worker exposure to potentially hazardous physical, chemical, or biological

substances. Operational procedure (OP)-0450.018, *Industrial Hygiene Health Hazards Evaluation, Assessment and Reports*, describes MSTS' site-specific exposure assessment criteria and procedures. The Exposure Assessment Program enables MSTS to control exposure limits specified by the OSHA, and the American Conference of Governmental Industrial Hygienists (ACGIH®), *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, and follows whichever requirement is more conservative. There are two categories for workplace surveillances: facility or operations. For facilities, IHs conduct Facility Health Hazard Evaluations (FHHE) of the approximately 600 MSTS facilities. IHs categorize FHHE surveys in three types: operational, standby, and deactivated. Risk categories assigned to facilities define the frequency of follow-up surveys. Facilities designated high-risk are reevaluated annually, medium-risk every 3 years, and low-risk facilities every 5 years. IHs conduct periodic revisits based on changes to facility status or operations. FHHEs focus on the facility being safe for occupation, ensuring chemical storage, asbestos, molds, rodent infestations, battery storage, or other hazards do not prevent workers from using the facility. IHs document surveys in Open Range, the IH exposure database, and provide results of those surveys to the facility managers. Operations surveys are based on activity level work and include building maintenance, machine shops, laser laboratories, repairs, and other potential exposures identified during work planning.

MSTS' documented industrial hygiene program consists of numerous individual specific program CDs, e.g., CD-0450.014, *Chronic Beryllium Disease Prevention*; CD-0450.011, *Heat and Cold Stress*; and CD-0450.005, *Silica Protection Program*. Program CDs describe methods, procedures and use of direct reading or personal monitoring as required.

CD-1200.003, *Activity Level Hazard Analysis*, defines the Job Hazard Analysis (JHA) process for MSTS. The JHA defines the hazard analysis process by linking the initiator, worker, and SMEs together to determine the risk. The JHA starts defining work by breaking down the task into subtasks, hazards associated with the work, and methods to mitigate the hazard. Work planners use a hazard analysis determination guide to identify risks related to the scope of work and determine the level of hazard analysis required. In addition to the Hazard Tree JHA process contained in the work planning and control database, MSTS uses the results of worksite analysis to identify, analyze, eliminate, and control hazards. The workers are knowledgeable of the hazards they face and are confident they can perform their work safely.

In December 2020, DOE's Office of Enterprise Assessments (EA) released the results of its July-September 2020, virtual Assessment of MSTS' Issues Management at the Nevada National Security Site. The EA assessment found MSTS proactively uses its issues management tools (e.g., causal analyses) to resolve safety issues, while other processes and controls prevent significant consequences. The EA assessment also found MSTS is actively closing issues and reducing the overall number of open issues, yet protracted resolution leads to the average age of open issues remaining almost twice the MSTS goal. The EA assessment identified two findings: one for inadequate trending of issues to identify systemic weaknesses, and one for untimely (delayed) resolution of safety issues. MSTS currently uses its issues management tools to resolve safety issues, while other processes and controls prevent significant consequences. MSTS entered the EA issues into the contractor Issue Management system and assigned corrective actions to responsible parties. Managers closed corrective actions in the Issue Management system once completed. The contractor completed apparent cause analyses and developed corrective action plans for many of the issues.

MSTS' injury and illness trend analysis program identifies, analyzes, and eventually prevents or mitigates injuries and illnesses. The ES&H organization developed a portfolio of slides to analyze injuries, including frequency, locations, job positions, body parts, types of injuries and accidents, causes, and nature of the injury, among other factors. Managers review the trend analysis and implement programs, processes, or procedures to prevent reoccurrence. Statistical process analysis tools identify issues management trends to get the big picture and demonstrate MSTS' commitment to continuous improvement.

MSTS has a robust accident and injury investigation procedure in place to track all events, occurrences, and near-misses as described by CD-0280.007, *Work Related Injury and Illness Notification and Investigation*; and form (FRM)-1498, *Event Investigation Statement*; and FRM-0018, *Injury and Illness Incident Report*. The inquiry determines what actions or procedures resulted in a dangerous situation. The investigation process uses a graded approach based on the severity of the incident and the potential for lessons learned. Factfinding meetings, issue reviews, or no action, are all options for reviewing incidents, with closure actions noted in caWeb, MSTS' online corrective action tracking system. MSTS complies with the DOE CAIRS and Occurrence Reporting and Processing System (ORPS) reporting requirements.

Onsite safety and health surveys play a significant role in identifying, analyzing, and controlling hazards at MSTS. Field observations, documents, and interviews confirmed that MSTS conducts workplace inspections to identify and mitigate hazards. MSTS conducts a variety of surveys, assessments, and inspections to ensure employees work in a safe environment. ES&H personnel, managers, safety committees, and facility managers perform routine weekly workplace walkdowns per CD-0280.006, *Formal Workplace Inspection Program (FWIP)*. The Team observed a workplace safety walkdown by a group that included the local safety professional, an IH, a facility system engineer, a DOE facility representative, and a craft person. Personnel conducting FWIPs enter completed inspections in caWeb, or in Maximo if the inspection was a monthly preventive maintenance requirement.

The Team identified some conditions during worksite walkthroughs that indicate MSTS should improve its worksite inspection program. MSTS is documenting monthly FWIPs, but only covering the entire site annually. Safety personnel and facility managers identified MSTS is performing other inspections and walkdowns, but not formally documenting them. The Team observed the use of surge protectors/power strips for appliances or other equipment for which the surge protectors and power strips are not rated. The Team also observed several piggybacked extension cords. While conducting a walkthrough of the second-floor mechanical room of the DAF, the Team identified several faded, bleached out, and difficult to read notice tags attached to various pieces of deenergized electrical equipment. Although the notice tags are attached in accordance with CD-0280.036, *Warning/Notice Tags and Administrative Locks*, some of the tags were dated 15 or more years ago and, in most cases, the facility safety team member and the SEO escort could not identify the individual who had generated the original notice tag or knew if the individual was still with the company. The presence of these conditions may indicate personnel conducting routine inspections might be indifferent to these types of discrepancies. The DOE-Standard (STD)-1232-2019/ U.S. Department of Energy Voluntary Protection Program - *Program Structure, Volume 1 of 4, section II.E.3.c.(1)*; and *Onsite Review, Volume 4 of 4, section Appendix A, section IV.D.1.*, requires participants "to have a system for conducting routine, general hazard control/compliance verifications that follow written procedures or guidance and result in written reports of findings and tracking of hazard correction. For

continuous activities, these routine, general hazard control/compliance verifications shall be conducted at least monthly and cover the whole worksite at least quarterly.” MSTS should revise its FWIP to ensure it performs and documents inspections at least monthly that cover the whole worksite at least quarterly. It should also review notice tags hung on electrical equipment on the second-floor mechanical room of the DAF and ensure tags reflect the required information, the information is readable, and an individual with knowledge of the reasons for hanging the tag is still available

Opportunity for Improvement: MSTS should revise its FWIP to ensure it performs and documents inspections at least monthly that cover the whole worksite at least quarterly.

Opportunity for Improvement: MSTS should review notice tags hung on electrical equipment on the second-floor mechanical room of the DAF and ensure tags reflect the required information, the information is readable, and an individual with knowledge of the reasons for hanging the tag is still available.

Workers at MSTS conduct prejob-briefings (PJB) and post-job debriefings (PJD) which serve as a vital element of the MSTS safety program. CD-1200.009, *Pre & Post Job Briefing/Debriefing* states briefings can be formal or informal, depending on the task frequency or size. A PJB occurs every day, every shift, for all work. MSTS uses PJBs to have everyone performing activity level work pause and challenge themselves whether they can perform the work in a safe, secure, and compliant manner, regardless of team size, workscope, or work complexity. Before beginning work, workers preview the task by reading procedures, work packages, scope, task description, precautions, limitations, worker protection controls, responsibilities, critical steps apart from the task, and confirming the validity and completeness of the work document.

Planners conduct PJBs and PJDs using FRM-1063, *Pre-Job Briefing & Post-Job Debriefing*; or FRM-1063A, *Pre-Job Briefing & Post-Job Debriefing Supplemental Sheet*. The following topics are the minimum required in all PJBs: scope of work, roles and responsibilities, hazards and controls, worksite conditions and emergency actions, Activity-Level Work Control Documents (ALWCD), and materials, tools, and equipment. The work supervisor may add other applicable topics. The Team observed a PJB for a material movement at DAF. The briefer used the task procedure to ask individuals about their personal assignments and responsibilities, verify conditions for the work, and ensure that everyone involved understood potential hazards, hold points, and requirements to proceed. The briefer used reverse briefing techniques to verify workers’ knowledge, qualifications, and readiness to proceed.

MSTSS Process Safety Management program follows CD-0250.003, *Process Safety Management Program*; CD-0250.001, *Chemical Safety and Life Cycle Management Program*; CD-0250.002, *Chemical Handling and Storage*; and 29 CFR 1910.119, *Process Safety Management*. The Hazardous Material Management Manager (HMMM) tracks material from arrival to disposal, maintaining inventory in Maximo. The HMMM conducts quarterly reviews to verify quantities, prevent unwanted exposures to environmental elements and any other adverse conditions, and ensure the integrity of materials utilized at site projects. The HMMM works closely with the Environmental Compliance Department to ensure compliance with the Chemical Accident Prevention Program. The HMMM generates required reports for State and local authorities.

Conclusion

MSTS uses proven methods, processes, and procedures to identify and analyze workplace hazards. It augments high and extremely hazardous processes and procedures with facility-specific directions to address unique facility hazards. MSTS maintains an adequate workforce of certified safety, health, industrial hygiene, occupational health, and radiological professionals to analyze facilities, procedures, and projects, identify hazards, and assess employee risk. Workers at MSTS conduct pre and post job briefings which serve as a vital element of the MSTS safety program. Planners continue to describe hazards that workers might encounter during work in the work planning and control system. Work planning and package development leverage workers' understanding of hazards and their experience, to assist in the control of hazards and exposures. Managers and supervisors seek and respect workers' opinions and ideas before finalizing work packages or implementing controls. MSTS is piloting a paperless work planning process that it expects to be more effective and efficient. MSTS conducts indepth baseline assessments and a variety of surveys, exposure evaluations, assessments, and inspections to ensure employees work in a safe environment. Field observations, documents, and interviews confirmed that MSTS conducts workplace inspections to identify and mitigate hazards. MSTS should improve the frequency and rigor of those inspections and surveys. MSTS continues to meet the expectation in Worksite Analysis for continued participation as a DOE-VPP participant.

VI. HAZARD PREVENTION AND CONTROL

The third and fourth core functions of ISM, *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 addressed by implementing effective controls (engineered controls, administrative controls, or personal protective equipment (PPE)). The equipment maintenance processes, and emergency preparedness plans shall ensure compliance with requirements. The organization shall develop and communicate safety rules and work procedures that all employees understand and follow to prevent, control the frequency of, and reduce the severity of mishaps.

MSTS has carried over the VPP Star participant hazard prevention and control practices from the previous M&O contractor in its VPP transition application. Since its application submission, MSTS has worked diligently to identify hazards and implement controls. MSTS managers and workers constantly look for ways to eliminate hazards; substitute less hazardous processes; implement engineered or administrative controls; and provide PPE to minimize workers' exposure to hazards.

Prior to conducting the MSTS VPP onsite review, the Team reviewed an existing EA Office of Enforcement investigation into an event entered by MSTS in the DOE's Noncompliance Tracking System, NTS-NA-NFO-MSTSNLV-2021-0010194, dated April 12, 2021. That event occurred when employees entered a potentially explosive, toxic and/or oxygen-deficient atmosphere caused by the failure of uninterrupted power source batteries. In response to this event, MSTS conducted a root cause analysis that ultimately identified 209 action items to mitigate or prevent recurrence. MSTS conducted Rapid Knowledge Shares during Daily Ops Call, and to individual facilities, performed immediate walkdowns of facilities to identify battery rooms, conducted industrial hygiene evaluations of battery rooms, conducted emergency response drills for response to odor, ensured general service facilities evacuation drills are performed once a year, developed and implemented training on Battery Room Hazards (Course 1E00W283) and obtained a third party consultant to conduct an external evaluation. MSTS completed 203 of the identified actions and has not identified any additional issues.

CD-0280-001, *General Safety Rules*; PD-P200-001, *10 CFR 851, Worker Safety and Health Program Description*; and PD-0001.001, *Integrated Safety Management System Description*; establish the policies and procedures MSTS uses to provide a safe work environment. Safety and security are key elements of MSTS' standards of excellence for completing work in a safe manner and protecting the security of NNSS' mission and facilities. All workers encountered by the Team knew it is the individual right of every employee, including subcontractors, to call a "time out" if they observe a compromise to safety as outlined in CD-0400.006, *Stop Work Authority*. Interviews with employees verified they can correct any unsafe act or condition and/or notify their supervisor as soon as possible. Employees accept responsibility for their personal safety, and the safety of others.

The safety program encompasses environment, safety and health for visitors and subcontractor/supplier, and subtier subcontractor/supplier employees required by 10 CFR 851, *Worker Safety and Health Program*; and PD-P200-001, *10 CFR 851, Worker Safety and Health Program Description*. Health and safety specialists regularly review subcontractors' Worker Protection Plans. Depending on hazards or complexity of work accomplished by the

subcontractor, MSTS subcontractor technical representatives either visit the work location and conduct daily inspections or remain at the location for the duration of the subcontractor work. Visitors receive safety briefing handouts and orientations by their site point-of contact or escort.

The ES&H organization has adequate experienced and certified professional staff to control and correct hazards to ensure a safe work environment exists in all areas for workers, visitors, and subcontractors. Certified professionals are available based on potential risks on the site. The MSTS ES&H staff includes the Occupational Safety and Industrial Hygiene Manager, Industrial Hygiene Manager, Safety Manager, seven principal safety specialists, seven senior safety specialists, three safety specialists, two senior principal scientists, two principal scientists, six senior scientists, one scientist, one master technologist, two senior technologists, two technologists, one principal technician, and three technicians. Their collective qualifications and certifications include one Associate Safety Professional, 12 Certified Safety Professionals, one Certified Electrical Professional, one Construction Health and Safety Technician, one Occupational Safety and Health Technician, one Certified Hazardous Material Manager, one Certified Laser Safety Officer, two Certified Health Physicists, six Certified IHs, seven National Registry of Radiation Protection Technologists, one Qualitative Industrial Hygienist, One Certified Safety and Health Manager, one Global Safety Management Certificate, and five Masters in Safety degrees. MSTS provides funding, procurement of equipment, training, and other professional services necessary to ensure mission readiness.

MSTS performs hazardous work and implements controls to mitigate these hazards. The Team observed a sampling of facility-specific safety and industrial hygiene hazard control programs, handling plans, processes, procedures, and briefings at various MSTS sites and facilities. The Team did not observe any deviations or improper acts during the onsite assessment with CD-3600.002, *Automated External Defibrillator*; CD-0450.014, *Chronic Beryllium Disease Prevention*; CD-0450.011, *Heat and Cold Stress*; CD-0450.010, *Confined Space Program*; CD-0450.005, *Silica Program*; CD-0450.003, *Hearing Conservation Program*; CD-0280, *Lock Out Tag Out*; CD-0280.035, *Fall Protection Program*; CD-0280.046, *Explosive Safety*; and CD-0280.034, *Personal Protective Equipment*. Program managers are well informed, and workers were very familiar with and comply with the requirements of the programs.

MSTS effectively uses the hierarchy of controls to mitigate and reduce hazards. Examples include.

- Industrial hygiene air sampling conducted during mining for the U1a Complex Enhancement Project revealed the engineering controls (ventilation and water application) were not effective in keeping the airborne concentrations of respirable crystalline silica below the occupational exposure limits. As a result, MSTS implemented the following controls:
 - Improved air flow and increased water requirements to keep dust wet during equipment/personnel movement along the work areas. (Engineer)
 - Identified a silica competent person in ALWCD, including hold points within the ALWCD to be signed by IH, the job supervisor, and the ventilation system engineer, Toxic Hazard Work Permit detailing engineering controls, posting of hazard specific signage. (Administrative)

- Confirmed personnel were wearing the required PPE per FRM-1598, *Toxic Hazard Work Permit*. (PPE)
- Developed and implemented CD-1000.200, *Issue Resolution and Improvement System*, a key implementing document for the Quality Assurance Program as described in PD-0001.002, *Quality Assurance Program*. This CD establishes the process and associated roles; responsibilities; accountabilities; and authorities to identify, evaluate, and correct issues related to quality, safety, health, security, the environment, and operations. It implements the authorized graded approach as described in the Quality Assurance Program by using priority levels. (Administrative)
- To ensure unauthorized personnel did not enter the Big Explosives Experimental Facility (BEEF) areas, MSTS maintains limited access gates and BEEF personnel check these areas daily and prior to explosive experiments. (Engineer and Administrative)
- To prevent unauthorized access to materials at the DAF during movement of the material inside or outside the DAF, MSTS places all personnel not involved in the event in a lockdown mode, preventing personnel movement inside the DAF or associated buildings. Additionally, when shipping or receiving material at the DAF, SOC LLC (the site security contractor) halts all vehicular access to and from the DAF. (Administrative)
- To provide advance warning of potential hazardous weather at the site, and give workers time to seek adequate shelter, supervisors, managers, and Emergency Operations Center personnel constantly monitor <https://www.sord.nv.doe.gov/index.php>, National Oceanic and Atmospheric Administration Air Resources' Laboratory/Special Operations and Research Division (SORD), which provides current lightning strike data. SORD provides forecasts for these weather events with sufficient advance notice for site preparations and decisions about M&O contractor operations. Less predictable weather events, such as lightning and tornadoes, usually occur under specific favorable conditions, and these precursor conditions are typically forecasted in advance. (Administrative)
- Because of the hazardous conditions and type of hazards present at the site, with specific regard to the NNSS area, MSTS implements CD-2120.021, *Accountability for Employees Working Alone or After Hours*. This company directive provides guidance, requirements, and actions for managing accountability of individuals working alone or working outside their established work hours in buildings/facilities or on the NNSS. Accurate accountability ensures personnel are notified and response efforts are not delayed in the event of an emergency. (Administrative)

The MSTS Occupational Medical Organization (OMO) supports the NLV and NNSS sites and includes a staff comprised of the Occupational Health Medical Director, Deputy Medical Director for Emergency Medical Services, Clinic Services Manager, two Certified Nurse Practitioners, two Occupational Health Nurses, two laboratory technicians, four medical assistants, a medical records specialist, an ergonomist, two medical record clerks, an administrative specialist, a health and fitness specialist, and a surveillance program administrator. MSTS consults and provides subcontracts for occupational health services to the Nevada Enterprise satellite sites. The OMO complies with MSTS Plan-1025, *Occupational Medicine Program*, and provides occupational health services to meet the requirements of

10 CFR 1046, *Physical Protection Medical Program*; and 10 CFR 712, *Human Reliability Program*; for all facilities required. The occupational health clinics provide a variety of care, including job and program related physicals, fitness-for-duty reviews, employee job task analysis, audiograms, ocular and vision testing, minor injury and first-aid care, emergency evaluation, treatment and stability care, drug and alcohol screening and testing, coordination of peripheral offsite referrals for specialty care, referral to occupational medical services, and referrals to employee assistance programs if required.

The OMO conducts hazard analysis and random clinical walkdowns of key programmatic areas (e.g., underground, aviation, counterterrorism, anti-proliferation, etc.). In addition, OMO staff assist in AHA and JHA development and review by invitation as required by work packages or job tasks. Medical organization personnel initiate the injury/illness report using the new Electronic Medical Record system which links the medical organization directly with MSTs management to form a closed loop system.

During the COVID-19 pandemic, MSTs conducted limited COVID-19 testing of site personnel while achieving greater than 70 percent fully vaccinated, greater than 60 percent bargaining unit vaccinated, greater than 80 percent exempt, and greater than 60 percent nonexempt employee rates. During this period, while under limited resources, MSTs managed to achieve all contractual milestones required by NFO, experienced no programmatic upsets, and did not suspend any programs.

MSTs' wellness programs help workers remain healthy even during the challenging circumstances related to COVID-19. MSTs wellness programs, include occupational medical programs focusing on health promotion, fitness, nutrition, social and mental wellness, cardiac health, virtual wellness fairs, weight-loss challenges, diabetes, blood pressure and weight self-screenings, including installing InBody® Test Scales at the Mercury and NLV sites. The wellness program coordinated onsite teams to participate in offsite events, challenges, and local events. During the pandemic, the wellness programs presented educational outreach and virtual wellness programs on applicable topics, such as Home Fire Protection, Ergonomics at Home, Suicide Awareness and Prevention, Importance of Sleep, Home Pet Toxins, and Disposal of Old or Expired Medicines.

MSTs has a comprehensive continuously improving PPE program complying with CD-0280.034, *PPE and CD-0450.018 Chemical Protective Program*. PPE is widely available to all personnel when necessary to protect them from associated hazards. Workers wear PPE and are knowledgeable of the care, maintenance, and storage of their PPE. MSTs also provides stipends for purchase of safety shoes and prescription safety glasses. In addition, MSTs provides uniforms, running shoes and athletic clothes to fire fighters. Routine and general PPE is available at the PPE warehouse. Personnel receive initial General Employee Training to familiarize them with standard PPE use and care. Safety professionals review AHAs, JHA and work packages to identify the proper PPE for each activity. Field hazard assessments check for use and validate the correct PPE worn for the task performed.

MSTs implements DOE Order 151.1D, *Comprehensive Emergency Management System*, using CD-2120.019 *Emergency Management*; CD-2120.020, *Readiness Assurance*; and the MSTs' *Consolidated Emergency Management Plan*, NFO-EOC-PLN-101. MSTs coordinates and communicates with all contractors and provides fire and emergency medical and paramedic

services at the site. MSTS completed a baseline needs assessment that addresses the distances between facilities and implemented NNS-Site-EQV-001, *Equivalency for the Fire Protection and Rescue Department Response Times to Remote Areas of the NNS*. MSTS conducts hazard analysis using DOE O 151, *Emergency Planning Hazard Surveys (EPHS) and Assessments (EPHA)*. In addition, MSTS develops disaster processes and procedures using DOE O 151 *Threat and Hazard Identification and Risk Assessments*. The Emergency Planning Preparedness department conducts emergency preparedness training for new hires and subcontractors. CD-0280.024, *Incllement Weather Protection (Severe Weather)*; provides guidance to employees, supervisors, and facility managers on implementing outside and hazardous operations restrictions and stop work as a result of lightning strikes in the local area.

MSTS conducts emergency drills at all facilities annually as required by the EPHS. Elevated risk facilities conduct drills twice a year. High-hazard facilities and operations conduct drills four times a year. Every 3 years, all facilities participate in a Full Participation Exercise which also includes the following offsite participants: Flight for Life, University Medical Center, Clark County Hazmat, and Argonne National Laboratory (acting as local media). The Emergency Preparedness Program Manager enters the results and action items in the Site Tracking, Analysis, and Reporting issues management database.

Facility conditions observed by the Team did not call into question any preventive/predictive maintenance issues. MSTS conducts preventive and predictive maintenance (PM/PDM) in accordance with CD-1200.005, *Work Package Process*; CD-1200.004, *Administrative controls*; and CD-1200.001, *Integrated Work Control Process*; and documented in the Maximo system and archived in the Integrated Content (iCon) document management system. MSTS assigns an asset number to all equipment, then tracks maintenance by that asset number on the Equipment Maintenance List and establishes baseline PM/PDMs for new equipment. Crafts, facility managers, leads and supervisors meet weekly to discuss upcoming PMs generated by Maximo. The preventive maintenance team ensures structures, systems and components remain in good working order in accordance with the facility safety bases to protect site employees and surrounding areas.

MSTS developed and implemented a site-specific Integrated Work Control Process which integrates environment, health and safety into work planning and execution. The Work Planning and Control process follows CD-1200.001, *Integrated Work Control Process*; CD-1200.005, *Work Package Process*; and CD-1500.006, *Technical Procedure Use*. CD-1200.005 flowcharts the entire process from identification of requested activity through work completion and work package closure. Appendix A of CD-1200.001, *Process-ISMS Interrelationship*; assigns an ISM element to each work package section. These processes help ensure planners, mechanics, and engineers develop work packages to safely conduct work.

MSTS planners generate corrective maintenance and work requests (WR) using Maximo Work Request. Planners categorized work packages from Type 1, highest level of complexity to Type 4, familiar or skill of the worker program. Work Management center managers screen and process WRs for appropriate information and priority. WRs change to work orders (WO) after approval by the planning supervisor. All individuals involved with the WO receive an electronic copy to ensure hazard and control identification, then return the WO to the planner for approval. SMEs walk down work areas with WOs to ensure correct workscope development and inclusion of permits, engineering drawings, associated plans, technical documents, JHAs and AHAs as

outlined in DOE-HDBK-1211.2014, *Activity Level Work Planning Handbook*. Planners use Quality Checklist Form FRM-3125, *Work Package Quality Checklist*; and FRM-2163, *Activity Level Work Document Cover Sheet*; ensure work packages are properly reviewed and approved.

Planners collect feedback and all documentation by conducting a post maintenance test after WO completion. Facility managers sign work packages to acknowledge work, completion, and acceptance, then return the completed work packages to the planners. Planners scan the package into the Electronic Document Workflow System. The same process applies to all types of work.

MSTS has both disciplinary and positive reinforcement safety programs described in CD-3100.024, *Actions to Improve Individual Results*. The disciplinary program is progressive (i.e., verbal warning, written warning, time off, up to dismissal), but can be immediate, based on the type and severity of the offense. The program applies to union and nonunion employees, leaders, and managers. All interviewees believed the program applies to everyone equitably. MSTS has numerous monetary and administrative positive reinforcement and recognition programs available (e.g., Executive level Kudo, Senior Director and Presidents Awards, Hot Shot Awards and media articles recognizing individuals and events) awarded regularly throughout the site.

In addition to management field observations conducted at least weekly, the Team observed many positive safe behaviors. Examples include spotter use when backing large or visibility obscured vehicles and equipment, drivers honking while backing, full stops at stop signs, widespread use of PPE, wearing of seat belts while operating forklifts, and simple safe acts, such as handrail use on stairs, and ensuring the driver and all passengers were wearing seat belt in government vehicles.

Conclusion

MSTS effectively eliminates or controls hazards and exposures using the hierarchy of controls. It takes the health and welfare of its staff, workers, and subcontractor workforce seriously. MSTS has completed and implemented a Fire and Response Equivalency for its remote areas. PPE is available and worn to prevent mishaps or control their frequency and/or severity. MSTS conducts a variety of surveys, inspections, and assessments to eliminate, reduce, and control workplace hazards but needs to improve the frequency and thoroughness of surveys and inspections to identify and mitigate more common types of discrepancies observed by the Team. It provides a full range of medical services, emergency response and planning, and wellness program support to its workers. MSTS plans, schedules, and completes maintenance safely using certified professionals commensurate with the potential risks. The Team did not identify any programmatic noncompliance with DOE, OSHA, State, or local safety requirements. MSTS' injury and illness rates are well below the comparative industry average and reflect effective hazard prevention and control methods. MSTS meets the Hazard Prevention and Control expectations for continued participation in DOE-VPP.

VII. SAFETY AND HEALTH TRAINING

Managers, supervisors, and employees shall know and understand the policies, rules, and procedures established to prevent exposure to hazards. Training for safety and health shall ensure that personnel understand their responsibilities, recognize hazards they may encounter, and can act in accordance with management expectations and approved procedures.

MSTS operates and maintains a safety and health training program that includes both initial and ongoing training through an integrated training matrix system. The program is a centralized controlled operation with qualified trainers and approved lesson plans. The training organization is a functional element within the Business Operations Directorate and is responsible for delivering training programs that enable employees to perform quality work in support of NNSA/NFO and company objectives.

MSTS has seven qualified instructors and three and a half full time content creators at NNSA. MSTS also has qualified safety trainers at its satellite sites. The training personnel work with SMEs in the ES&H organization to develop course material. Courses include OSHA and other compliance training, HAZWOPER, safety initiatives, workplace skills, and supervisor/project management classes. MSTS conducts training at the NLV Facility, the NNSA, and at satellite locations. Web-based training is also available with a web-based to in-class training ratio of approximately three to one.

MSTS uses the *Just in Time* training for special circumstances where employees require new or recertification training immediately. The process proved helpful during the COVID-19 pandemic as workers requiring specific training returned to the site. The *Just in Time* training can be performed virtually, or the training group can send instructors to the perform the training near the employee's work location. The training group will also use the new information technology building recently added to the Mercury site for impromptu training classroom at the NNSA.

The MSTS training group is responsible for all training except for the new hire training performed by Human Resources, and some specific Department of Transportation (DOT) training subcontracted through the DOT specialist subcontractor, Atkins. The training organization ensures that the DOT training provided by Atkins meets the necessary requirements.

The Team virtually attended the new hire training and found it informative as an introduction providing key information to new employees. The class explained how to complete their timecards, explained their benefits, identified some of site-specific hazards associated with work at MSTS and gave a history of the work performed at the NNSA site over the decades. The history of the NNSA included the mission of MSTS, a timeline of the site, and maps and locations of facilities. The MSTS president was available for one-on-one discussions with each participant during the new hire training. The class also included videos covering ES&H (VPP mentioned), Stop Work expectations, Lock Out/Tag Out, Hanta Virus concerns, Security, and Operational Security. The class helped orient new hires to the overall and specific hazards, operations, and goals of MSTS at the NNSA.

The training organization manual describes a graded approach to using common resources, requirements, and procedures. Work involving higher-hazard facilities or activities may require more rigorous training and qualification requirements. The training organization maintains standard training and qualification requirements for each position that it provides to managers and supervisors. Managers and supervisors use those standards and can identify additional training requirements depending on the specific job. Managers and supervisors ensure that the employee's individual development plan is accurate and complete.

The training organization uses a cloud-based recordkeeping system designated as Accelerated Training and Online Management (ATOM) to ensure that all required training is documented for all employees in a timely manner. ATOM generates messages to employees reminding them of their training requirements on a 30/60/90-day period; the system also notifies managers and supervisors when employee training is delinquent. MSTS procured the new Learning Management System (LMS) (off the shelf) from Success Factor and renamed it ATOM based on results from a company-wide request for employee recommendations. For high-hazard nuclear facilities covered by a documented safety analysis (DSA), such as the DAF, the facility training manager obtains a weekly List of Qualified Operators from the ATOM database that supervisors use to verify worker qualifications for assignments.

The training group recently began two new initiatives to improve instructors' understanding of the content they teach. The first initiative, the *Informal Field Experience* began in 2021. The *Informal Field Experience* provides instructors the opportunity to observe activities onsite, related to the instructors' training, to improve the instructor's familiarity of the activity. For example, an instructor recently observed excavation activities at the U1a facility. The experience increased the instructor's understanding of the issues workers must address to perform this activity, beyond the classroom setting. Initial feedback demonstrated that the instructors appreciate this new perspective, and the workers appreciate the effort to understand their perspective.

The second initiative is the *Position of the Month* evaluation. In one example, the training group invited a qualified electrical worker (wireman) to meet with the instructors for lunch at the Mercury Cafeteria to discuss the various activities that the qualified electricians perform on a day-to-day basis. The Training Director arranged for the wireman to attend, with permission granted from the wireman's supervisor, and bought him lunch. Five training staff attended the meeting, and the group spent the lunch hour discussing the details of the wireman's activities. Again, this knowledge sharing between the instructors and the worker serves to expand each other's understanding to improve the applicable training courses. The *Position of the Month* participants interviewed the qualified electrical (wireman) in June and had scheduled to meet with a Nuclear Operations Technician in July. The instructors were very impressed with the opportunity to interview the wireman and learned a great deal from the exchange.

Conclusion:

MSTS appropriately trains and maintains worker qualifications based on a comprehensive training matrix. MSTS adopted a new LMS that supports its continuous training expectations. MSTS initiated several initiatives to improve the knowledge transfer among training instructors, content creators, and the workers they train, to better understand challenges the workers face in

their daily activities. MSTS meets the expectations of the Safety and Health Training tenet for continued participation in DOE-VPP.

VIII. CONCLUSIONS

MSTS has successfully transitioned its workforce from the previous contractor. Over the past 5 years, MSTS has refocused work at the site to expand the NNSS missions and capabilities as directed by NNSA. Site capital improvements at several facilities, and improvements in site infrastructure are helping site users conduct hazardous work vital to the Nation's security, nuclear stockpile stewardship, and global security. Much of this work requires special safety considerations and cannot be accomplished anywhere else. MSTS effectively manages the resources provided, and provides workers with the necessary training, tools, and procedures. MSTS has opportunities to increase engagement with workers, supervisors, and middle managers, and gain their support for, and participation in, those programs and processes MSTS considers vital for continued safety improvement and excellence. The Team did not identify any systemic noncompliance with requirements, nor did it identify any suppression of concerns or reporting. MSTS fully demonstrates continuous improvement and pursuit of excellence expected for continued participation in DOE-VPP. The Team recommends that MSTS continue participating in DOE-VPP as a Star participant.

Appendix A: Onsite VPP Assessment Team Roster

Management

Todd N. Lapointe
Acting Director
Office of Environment, Health, Safety and Security

Garrett A. Smith
Acting Deputy Director
Office of Environment, Health and Safety

Kevin L. Dressman
Director
Office of Health and Safety
Office of Environment, 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/EHSS (301) 903-2473	Team Lead, Management Leadership
Michael S. Gilroy	DOE/EHSS	Employee Involvement, Safety and Health Training
Wallace E. Czaplá	DOE/EHSS	Worksite Analysis, Hazard Prevention and Control, Recordkeeping
Moises Atilés	DOE/EHSS	Worksite Analysis, Hazard Prevention and Control