U.S. DEPARTMENT OF ENERGY | Legacy Management

FY 2021-FY 2025

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High Performing Organization Plan

Office of Legacy Management Submission to the Office of Management and Budget

CONTENTS

LETTER TO THE READER

The U.S. Department of Energy (DOE or Department) Office of Legacy Management (LM) is responsible for managing a broad and diverse portfolio of land and assets. We are currently protecting human health and the environment at 100 sites in 29 states and the territory of Puerto Rico. We manage commitments to more than 9,000 retired contractor workers, approximately 120,000 cubic feet of records, 196 terabytes of electronic material, and 60,000 acres of land. We recognize and understand the need to implement sustainable management practices for the successful maintenance of environmental remedies in place and for the future management of land in a manner that protects human health and the environment. We also support the beneficial reuse of land and assets, so that former sites can become community assets.

Shortly after LM was established in December 2003, we conducted a comprehensive review of our mission and structure using techniques in the Office of Management and Budget (OMB) Circular A-76 and high performing organization (HPO) principles. The review resulted in a more streamlined LM organization in terms of staff and office locations, new expertise to accomplish a well-defined mission, and stronger internal controls. Accordingly, OMB designated LM an HPO in 2007. LM subsequently developed and submitted HPO Plans in 2012 and 2017. While OMB no longer has a formal HPO designation, LM has continued to see significant advantages in continuing to use the HPO tools. Continuing to perform as an HPO is a valuable means for LM to identify ways of being more productive and efficient and being accountable for meeting our strategic goals.

Since LM was designated an HPO, we have continued to meet and exceed the requirements to sustain that designation and operate within the set of parameters that were negotiated by LM, DOE's Office of Management, and OMB. The parameters include federal staffing levels, budget allocations, acquisition strategies, program outcomes, and performance measures. We place a high priority on the use of program and project management principles and tools to manage activities. An emphasis on sound project management is consistent with the Department's policies and directives for project management. LM uses a graded approach for project management that is appropriate for large environmental projects, complex information technology (IT) system development, and collaboration with other parts of the Department and other federal agencies.

Representatives from throughout the LM organization contributed to the development of this HPO Plan, including the identification of measurable performance goals for the next five years, consistent with LM's *2020–2025 Strategic Plan*. The HPO Plan provides a framework to support the development and alignment of budget requests with the prioritization and allocation of resources and the measurement and reporting of our performance. In addition, the HPO Plan allows us to communicate with internal and external stakeholders on the status of LM program performance measures. We will continue to assess progress and take corrective measures, as necessary, to meet and exceed our goals in the most cost-effective manner.

While our current responsibilities are significant, we expect our mission to substantially increase with an additional 19 sites to be transferred to LM during the next five years. Accordingly, we must strategically acquire and allocate our resources to cost-effectively achieve our mission and meet our goals and objectives. As our mission continues to grow with sites cleaned up, closed, and transferred, we will continue to work hard to maintain our goal of management excellence as our workload increases and evolves. The enclosed LM HPO Plan covering FY 2021–FY 2025 provides specific examples of the challenges the organization faces and how we are prioritizing and implementing the goals, objectives, and strategies of our Strategic Plan to meet performance expectations and realize continuous performance improvement. This has been, and will continue to be, accomplished through a flexible, efficient organization ready to take on the new challenges of the Department's legacy sites. We look forward to the hard work and collaboration that will shape our future success.

U.S. DEPARTMENT OF ENERGY | Legacy Management

EXECUTIVE SUMMARY

LM Intends to Maintain Its Status as a High Performing Organization in the Federal Government

This document is a plan for LM to continue to be an HPO in the federal government. The Office of Management and Budget first designated LM an HPO in 2007 and LM developed follow-on HPO plans in 2012 and 2017. This report summarizes LM's performance alongside its HPO goals and milestones between fiscal year (FY) 2017 and FY 2020, as well as goals and milestones that LM will pursue as an HPO for the next five years, FY 2021 through FY 2025.

DOE created LM in December 2003 to manage post environmental remediation activities at former defense-related sites that were part of the Department's nuclear weapons complex. The sites have been remediated under a variety of authorities and programs, including the: Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Uranium Mill Tailings Radiation Control Act (UMTRCA); Formerly Utilized Sites Remedial Action Program (FUSRAP); Defense Decontamination and Decommissioning (D&D) Program; the Nevada Offsites (NVOs), continental underground nuclear tests or proposed test sites in the United States off of the Nevada National Security Site (including tests conducted under the Plowshare and Vela Uniform Programs); and the Nuclear Waste Policy Act (NWPA, 1984) Section 151.

Today, LM is responsible for 100 sites in the United States and the territory of Puerto Rico. LM conducts long-term surveillance and maintenance (LTS&M) at sites where nuclear waste has been disposed, where residual contamination remains, or where passive or active treatment of groundwater contaminated by radionuclides or other contaminants of concern is being conducted. The major LTS&M objective is to make certain that legacy sites remain protective of human health and the environment.

LM is also responsible for collecting, maintaining, and making site records available to interested parties; ensuring contractor pensions and medical benefits of workers at former DOE sites continue to be honored; sustainably managing LM assets, including real and personal property; implementing beneficial reuse of sites or disposing of real property for use by others; and engaging the public and partnering with tribal nations, other federal, state, and local governments, as well as international organizations.

LM Exceeded the Majority of Its Goals Established in Its June 2017 HPO Plan and Achieved Other Significant Accomplishments

LM Management Excellence goals accomplished between FY 2017 and FY 2020 include:

- Maintained a worker safety record better than the DOE average.
- Continued to be a leader in DOE and the federal government in sustainability.
- Maintained one of the most diverse organizations in DOE.
- Achieved a balanced organization with respect to grade levels and structure.
- Augmented federal staffing through the use of intra-agency and interagency agreements.
- Procured a new performance-based incentive support services contract.

LM Program Performance goals accomplished between FY 2017 and FY 2020 include:

- Reduced the cost of LTS&M by more than 2 percent per year.
- Currently executing the first of three campaigns by completing verification and validation of mines on public land by the end of FY 2022.
- Annuitized LM-funded contractor workforce pension plans.
- Executed 20 new leases with three of the four previous lessees who had leases during the Uranium Leasing Program (ULP) eight-year injunction.
- Increased the area of best management practices by 222.2 acres.
- Increased outreach to the public and other interested parties by opening the Mound Cold War Discovery Center in 2018 and the Atomic Legacy Cabin in 2019.

LM Has Other Planning Efforts that Contribute to this HPO Plan

The strategies, goals, and metrics presented in the LM FY 2021–FY 2025 HPO Plan were developed from internal and external evaluations. They will be used to improve the efficiency and effectiveness of LM's programs, program- or project-specific strategic planning efforts, and higher-level planning efforts. In FY 2020 LM issued its *2020–2025 Strategic Plan*. The LM Strategic Plan describes the types of activities and strategies for achieving and measuring successes for each of its six goals. For both this plan and LM's Strategic Plan, employees representing each of LM's teams led the efforts to develop the plans, and all employees have had the opportunity to contribute to identifying goals and metrics.

While the number of sites for which LM is responsible is important, focusing on only the number ignores the significant work that LM does at sites prior to being transferred. LM conducts activities as part of what has been referred to as the site transition phase. Transition includes developing LTS&M plans, which, depending on the authorities under which the site has undergone remediation, may require approval by regulators such as the U.S. Nuclear Regulatory Commission (NRC) or the U.S. Environmental Protection Agency (EPA); identifying and preserving records; and ensuring appropriate real property instruments, including administrative institutional controls, are in place. These activities begin three to five years prior to site transition. The designation of when transition activities begin at specific sites helps LM better align its budget formulation, life-cycle planning, and staffing decisions to when LM work actually begins at sites being transitioned.

LM Has Established New Metrics and Goals as Part of this HPO Plan

The LM goals and metrics proposed in the FY 2021–FY 2025 HPO Plan reflect the growth in the depth and breadth of our mission. Some of LM's Management Excellence goals for this plan were also part of previous HPO Plans because of their continued importance, such as maintaining a safety record better than the DOE average and continuing to strive to be a diverse and inclusive organization. Some of the FY 2021–FY 2025 HPO Plan Program Performance goals include:

- Reduce baseline costs to operate, monitor, and maintain environmental remedies.
- Validate the scientific and engineering soundness of site remedies and identify opportunities for risk and cost reduction by performing five-year and other periodic independent program reviews (conducted by parties not performing the work).
- Complete the inventory of defense-related uranium mines (DRUM) on public land.
- Evaluate and track potential opportunities for beneficial reuse to increase the number of DOE-owned sites that incorporate beneficial reuse.
- Transfer excess real and personal federal property to other agencies, organizations, and individuals for their use.
- Manage the ULP so that there are no environmental compliance violations on the lease tracts.
- Increase levels of satisfaction regarding LM communication based on overall stakeholder survey results.
- Produce more effective solutions at reduced costs through partnerships with other governments.

In addition, a few of our FY 2021–FY 2025 HPO Plan Management Excellence goals include:

- Complete the milestones identified in the LM Human Capital Management Plan (HCMP).
- Validate that LM is one of the best organizations to work for in DOE and the federal government based on Office of Personnel Management (OPM) Federal Employee Viewpoint Survey (FEVS) results.
- Prioritize site management funding, resource allocation, and science and technology investments based on the implementation of well-defined risk management practices.
- Confirm LM programs are achieving their intended results in a safe, compliant, and efficient manner based on oversight results.

LM Has Transformed Its Organization to Optimize Effectiveness

The LM organization is structured to conduct our mission in a safe, cost-effective, and responsive manner. While the LM mission continues to grow with expanding programs and responsibilities at an increasing number of sites, the composition of LM employees continues to change, adapting to the needs of the organization. We are cost-effectively managing these responsibilities with a fewer number of employees. We are able to do this by attracting and retaining high-caliber and multidisciplinary staff, focusing on inherently governmental functions, and maintaining flexibility and supporting job rotations to achieve defined and measurable performance outcomes. Significant organization changes since the June 2017 HPO Plan include:

- The Communications, Education, and Outreach Team was so-named and expanded to develop a fully integrated outreach and communication program with the public, federal, state, and local governments, and tribal nations to allow LM to be more efficient, proactive, effective, and responsive to planned and unplanned events.
- The History Program mission was recently assigned to LM and resides within the Communications, Education, and Outreach Team. The program plays a key role in maintaining Departmental history and it will support the Department's Federal Preservation Officer (FPO).
- The Asset Management Team moved from the Office of Site Operations to the Office of Business Operations to increase emphasis on execution of a key program priority — the disposition of excess assets to non-DOE ownership, including reuse or transfer of the real and personal property to other agencies or private interests.
- The Environmental Compliance, Safety and Health, and Quality Assurance group was created in the Office of Site Operations to improve integration of environmental compliance and sustainability, safety and health, emergency management, and quality assurance into day-to-day activities to enhance the effectiveness and efficiency of LM operations.
- The Human Resources Management Team and the Coordination, Operation, and Guidance Team were combined and renamed Executive Operations to enhance employee recruitment and retention programs and provide increased focus on crosscutting organizational initiatives such as continuity of operations, emergency planning, and personnel security.

Bill Frazier, LM site manager, and Mary Picel, Argonne National Laboratory, discuss the Riverton, Wyoming, site with students at the 3rd Annual Northern Arapaho Environmental Public Meeting held at the Natural Resource Office in Riverton.

Over the next five-year HPO period, we intend to manage our increasing responsibilities with 80 personnel averaging a grade of GS-13. LM's ability to accept increasing mission responsibilities without significantly increasing staff is based on our leveraging an operating model that includes partnerships with U.S. Army Corps of Engineers (USACE), national laboratories, an Engineering Services Support Contractor, and a General Service Support Contractor.

INTRODUCTION TO LM AND THE HPO DESIGNATION

LM Continues to be a High Performing Organization (HPO) in the Federal Government

The Department created LM in December 2003 to manage a host of post-remediation activities at former defense-related sites that were part of the Department's nuclear weapons complex. The sites have been remediated under a variety of authorities and programs, including DOE's Office of Environmental Management (EM) (primarily through CERCLA and RCRA), under various titles of UMTRCA, as part of FUSRAP, and through DOE's Defense D&D Program. In addition, nine of the sites are referred to as the "Nevada Offsites Test Areas," with eight locations in the continental United States where underground nuclear tests were conducted off the Nevada National Security Site (formerly called the Nevada Test Site) and one site where a test was planned.

LM sites have no continuing mission for DOE, and although active remediation at them is complete, there may be residual contamination in the subsurface and waste disposal cells or landfills that remains. In addition, some sites already transferred to LM still have operating groundwater treatment systems. When LM was established, it assumed post-closure responsibility for 33 sites being managed by various DOE programs and field offices, including the long-term stewardship program of the Grand Junction, Colorado, Office. Today, LM is responsible for LTS&M at 100 sites in the United States and the territory of Puerto Rico. The responsibility to manage post-closure activities at sites will continue to grow as active remediation is completed at other sites.

LM's responsibilities extend beyond environmental activities at its sites. They include ensuring that the pensions and health care benefits of former closure-site workers are honored; that records of site operations and remediation, as well as site records created by LM are collected, preserved, and made available to stakeholders; and that its sites and facilities are sustainably managed, which includes identifying opportunities for their reuse. Integral to LM's mission is its commitment to engage with the public and governments at all levels and consult and collaborate with tribal nation governments.

In 2007, LM prepared its first HPO proposal as part of an effort to carry out its mission more effectively and efficiently and was designated by OMB as an HPO. LM subsequently developed and submitted HPO Plans in 2012 and 2017. While OMB no longer has a formal HPO designation, LM has continued to see significant advantages in continuing to use the HPO tools. Continuing to perform as an HPO is a valuable means for LM to identify ways of being more productive and efficient and being accountable for meeting our strategic goals. The performance measures identified herein are an important part of LM implementing its *2020–2025 Strategic Plan* issued in January 2020.

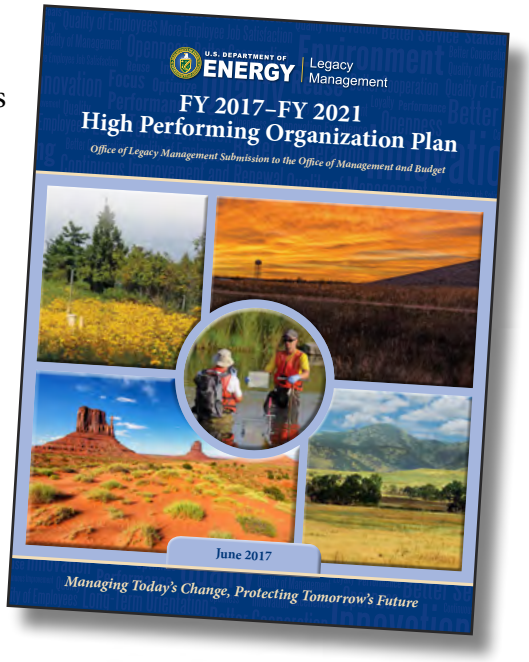


Table 1 provides an overview of key metrics that have been tracked since the creation of LM in December 2003 and details LM's responsibilities at the time of its standup, when it was designated an HPO in FY 2007, at the end of FY 2011 (the end of the first HPO performance period), and the close of FY 2016 (the end of the second HPO performance period), and the close of FY 2020 (the LM fourth HPO submittal).

In addition to providing a summary of key metrics since the inception of LM in December 2003, a projection of these metrics has also been established for the end of the next HPO period. While these metrics are estimates, they clearly demonstrate that the LM organization is prepared to carry out a significant increase in mission responsibilities with a relatively modest increase in budget and personnel resources.

Table 1. LM Key Metrics Over Time

Description	Origination of LM	Initial HPO Designation	End of 1st HPO Period	End of 2nd HPO Period	LM 4th HPO Submittal	End of 4th HPO Period
	December 2003	February 2007	September 2011	September 2016	September 2020	September 2025
Number of Sites	33	71	87	91	101	119
Number of Acres Managed	41,973	44,407	58,754	66,222	60,900[1]	79,200[2]
Number of Acres/ Percentage of Sites in Reuse	219	1,534	21 percent of sites	42 percent of sites	96 percent of sites	96 percent of sites
Number of Properties Disposed	0	1	5	12	15	18
Total Program Budget	$62.1 M	$52.9 M	$159.1 M	$154.1 M	$162.0 M	$174.0 M[3]
Program Direction Budget	$11.7 M	$11.2 M	$12.5 M	$13.1 M	$19.3 M	$19.5 M
Authorized Number of Full-Time Equivalent Employees	85	58	55	64	75	80
Volume of Records (cubic feet)	2,000	10,000	86,000	114,000	130,000	155,000
Volume of Data (terabytes)	0.5	6.0	26.0	210.0	196.0	920,0[4]
Number of Former Workers	600	2,000	10,000	10,000	9,300	8,800
Annual Cost of Post-Retirement Benefits	$17.0 M	$20.0 M	$90.0 M	$65.0 M	$50.3 M	$40.7 M

1 *Based upon acreage data currently managed by the Asset Management Group (12,221 Owned/33,184 Withdrawn/9,666 Managed [leases, easements, permits]/5,829 Other Institutional Controls).*

2 *Includes projected acreage provided by LM Site Managers based upon future site transitions.*

3 *Internal LM projection and does not represent actual budget request. Excludes costs in LM government program efficiency proposal to support the administration of the Formerly Utilized Sites Remedial Action Program.*

4 *Increase in volume of data includes the addition of history function within LM and the incorporation of classified data in Morgantown, West Virginia, facility.*

LM Exceeded Its 2017 HPO Plan Commitments

Between FY 2017 and FY 2020, the period covered by its last HPO Plan, LM met or exceeded many of the previously established Program Performance Goals (Table 2) and Management Excellence Goals (Table 3). Program performance accomplishments included:

- Continued to reduce LTS&M costs by 2 percent or more per year and conducting LTS&M with no environmental compliance violations.
- Continued to complete verification and validation of mines on public land (scheduled for completion by the end of FY 2022) with plans to initiate verification and validation of mines on tribal land in FY 2023 and private property in FY 2024.
- Increased the area of best management practices to 222.2 acres.
- Executed 20 new leases with three of the four previous lessees who had leases during the ULP eight-year injunction.
- Implemented "Content Manager" to increase efficiencies in managing information across LM by reducing redundancy and costs of maintaining IT systems (Documentum and Omnirim).
- Moved all Rocky Flats records stored at the Denver Federal Records Center to the LM Business Center (LMBC) in Morgantown, West Virginia, achieving an annual cost avoidance of $70,000 per year through 2038.
- Increased outreach to the public and other interested parties by opening the Mound Cold War Discovery Center in 2018 and the Atomic Legacy Cabin in 2019.

LM's most significant management excellence achievements between FY 2017 and FY 2020:

- Continued to be a leader in sustainability by meeting or exceeding performance expectations in nine of 12 goal areas.
- Maintained a worker safety record better than the DOE average.
- Maintained one of the most diverse organizations in DOE.
- Achieved a balanced organization with respect to grade levels and structure.
- Augmented federal staffing through the use of intra-agency and interagency agreements.
- Procured a new performance-based incentive support services contract.

However, there was one area LM accomplished less than it anticipated in the last HPO submission. The number of sites for which LM is responsible grew from 91 to 100, which was less than the 107 that had been projected. Nevertheless, LM is completing transition activities required before taking full responsibility for additional sites and is currently planning that the number of sites for which the Office will take full responsibility will increase to over 120 during the period of time covered in this FY 2021–FY 2025 HPO Plan.

Table 2. Status of Program Performance Goals in LM's June 2017 HPO Submission

Program Performance Goals	Goal	Target	Status
Reduce the cost of long-term surveillance and maintenance by 2 percent per year against an approved baseline.	1	Annually	Achieved[5]
Conduct transition activities at 16 sites, with the goal of increasing LM site responsibility from 91 to 107.	1	FY 2021	Mostly Achieved and Ongoing[6]

5 *Realized a 3.7 percent reduction in FY 2019.*

6 *As of October 2019, LM had completed transition activities for nine additional sites bringing total site responsibility to 100. LM is expecting additional sites to transition in FY 2020 and FY 2021 but may not total 107 sites by FY 2021.*

Program Performance Goals	Goal	Target	Status
Contingent on Office of Management and Budget approval and congressional appropriations, accept transfer of Title X Program responsibility and make its first reimbursements to eligible licensees.	1	FY 2018	Mostly Achieved[7]
Complete verification and validation of 50 percent of the defense-related uranium mines in the DRUM database.	1	FY 2021	Mostly Achieved and Ongoing[8]
Host LM's third national workshop on long-term surveillance and maintenance.	1	FY 2018	Achieved[9]
Migrate historical data for former EM closure sites to EQuISTM.	2	FY 2017	Achieved[10]
Respond to stakeholder requests; establish a tracking system to record fulfillment of requests and the length of time required to respond.	2	FY 2017	Achieved[11]
Upload all records for FUSRAP completed sites into the FUSRAP Document Information System.	2	FY 2018	Achieved[12]
Assess and complete necessary hardware upgrades to maintain priority data systems and the Licensing Support Network as part of preserving Yucca Mountain Project records.	2	FY 2021	On Schedule to Achieve[13]
Reduce Information Technology operations and maintenance cost per user in FY 2021 by 10 percent, based on the FY 2017 baseline.	2	FY 2021	On Schedule to Achieve[14]
Reduce the records management cost per site/collection managed in FY 2021 by 10 percent, based on the FY 2017 baseline.	2	FY 2021	Achieved[15]
Conduct a cost-benefit analysis on the efficiencies and effectiveness of LM operating and maintaining its own National Archives and Records Administration-certified records storage facility by FY 2021.	2	FY 2021	Achieved[16]

7 *EM still manages Title X appropriations and makes reimbursements to program licensees.*

8 *As of May 2020, LM achieved 37 percent (918 of 2,500) verification and validation of defense-related uranium mines.*

9 *LM hosted a Long-Term Stewardship Conference in August 2018.*

10 *LM has integrated EQuISTM into all environmental data management workflows.*

11 *LM is tracking all EEOICPA, FOIA, PA, and other requests; metrics on average length of time to fulfill requests are maintained and reported.*

12 *FUSRAP completed site information was uploaded in May 2018.*

13 *Priority data systems (P-1 Systems) received a hardware refresh in FY 2019.*

14 *LM has already reduced operational costs by 3 percent per supported user.*

15 *LM implemented Content Manager, which increased efficiency and reduced redundancy and costs.*

16 *LM completed "Future Options for Records Management and Information Technology Operations" in September 2017, USACE completed a follow-on cost analysis in May 2020.*

Program Performance Goals	Goal	Target	Status
Annuitize LM-funded contractor workforce pension plans.	3	FY 2020	Achieved[17]
Audit medical reimbursements for improper payments on a rotating basis.	3	FY 2021	Achieved and Ongoing[18]
Ascertain that licenses are in full compliance with Colorado Division of Reclamation, Mining and Safety regulations for Uranium Leasing Program tracts.	4	FY 2020	Achieved
Assess the resilience of site remedies to extreme weather and other natural events.	4	FY 2021	On Schedule to Achieve
Use best management practices to increase the acreage at LM sites identified as having potential to support the objectives of the "National Strategy to Promote the Health of Honey Bees and Other Pollinators."	4	FY 2021	Achieved and Ongoing[19]
Implement renewable- or alternative-energy generation as types of reuse at one or more LM sites.	4	FY 2021	Achieved[20]
Complete full or partial disposal of three LM sites.	4	FY 2021	Achieved
Increase outreach to the public and other interested parties by opening updated visitors centers, historic buildings, and other new user facilities at four sites.	6	FY 2019	Mostly Achieved and Ongoing[21]
Complete 75 percent of the capital asset work necessary to enhance public access to the priority facilities for the Manhattan Project National Historical Park.	6	FY 2021	On Schedule to Achieve
Provide access to the LM Program Update via social media.	6	FY 2017	Achieved[22]
Implement near-real-time feedback on stakeholder outreach activities.	6	FY 2018	Achieved
Develop a Knowledge Management Plan for LM.	6	FY 2018	Partially Achieved[23]
Survey stakeholder satisfaction with LM performance and report results to stakeholders.	6	FY 2020	Achieved[24]

17 *Pension plans have been annuitized and costs have been reduced.*

18 *LM continues to audit medical reimbursement for improper payments.*

19 *LM increased the area of best management practices by 222.2 acres in FY 2019.*

20 *LM installed solar gates at Monticello, Utah, and Grand Junction, Colorado, disposal sites.*

21 *Mound Cold War Discovery Center opened in April 2018, Atomic Legacy Cabin Interpretive Center opened in June 2019, new interpretive signage and panels installed at Gasbuggy, New Mexico, site in August 2019, and new Weldon Spring Interpretive Center and Office Complex anticipated to open in 2021.*

22 *LM posted announcements of the Program Updates on LinkedIn and Facebook.*

23 *LM conducted an organizational assessment of knowledge management in FY 2017.*

24 *LM conducted a Stakeholder Satisfaction Survey and published a report in FY 2019.*

Table 3. Status of Management Excellence Goals in LM's June 2017 HPO Submission

Management Excellence Goals (Goal 5)	Target	Status
Achieve EMS responsibilities and related EOS (normalized to the number of legacy sites).	Annually	Achieved
Be a leader in sustainability among DOE offices.	Annually	Mostly Achieved[25]
Continue to publish the PCAR on the LM internet.	Quarterly	Achieved
Conduct independent evaluations of key programs, projects, or technical issues.	At Least Annually	Achieved
Augment LM federal staff through the use of intra-agency and interagency agreements.	Annually	Achieved
Maintain a safety record better than the DOE average.	Annually	Achieved
Procure a new performance-based incentive support services contract to support the LM mission.	FY 2021	Achieved[26]
Achieve a balanced organization, with respect to grade levels and structure, by having an average GS-13 grade. Increase the number of entry-level, career-ladder positions. Increase the number of GS-13 positions, providing experience and eligibility for GS-14/15 Team Lead positions.	Annually	Mostly Achieved[27]
Score 5 percent or more than the DOE average on the annual FEVS.	Annually	Achieved[28]
Maintain the organization as one of the most diverse and inclusive in DOE.	Annually	Achieved and Ongoing
Complete implementation of over 90 percent of the actions identified in the LM 2017–2021 HCMP.	Annually	Achieved

25 *LM met or exceeded performance expectations in nine of the 12 goal areas.*

26 *LM procured a new support services contract in 2019 and awarded the contract in FY 2020.*

27 *The LM average grade is 13.05.*

28 *LM achieved 20 percent more than the DOE average on the annual FEVS.*

LM Achieved Additional Significant Accomplishments

Some of the most significant LM accomplishments between FY 2017 and FY 2020 received little attention or were not identified in the June 2017 plan. Some of these now have led to new LM initiatives for which metrics are identified, including:

- In 2020, EM, the National Nuclear Security Administration, and LM formally signed a Memorandum of Agreement, assigning LM responsibility for 175 Plowshare/Vela Uniform Program sites. The program consists of sites that were investigated as locations for underground nuclear tests. At some of the sites, test boreholes were drilled and conventional explosive tests were conducted to test the properties of rock. However, the nuclear tests at these sites were never conducted. A total of 171 sites will be managed as a single "Records Only" site called the Plowshare/Vela Uniform Records, Nevada, Site. At the remaining four sites — Bronco, Colorado, Site; Pre-Gondola, Montana, Site; Pre-Schooner, Idaho, Site; and Utah, Utah, Site — LM will conduct minor maintenance activities and some additional investigations to determine whether there are outstanding liabilities from operations by the U.S. Atomic Energy Commission (AEC).
- In 2019, LM transferred all but one property parcel at the Mound, Ohio, Site to the Mound Development Corporation, a nonprofit community development arm of the city of Miamisburg, for beneficial reuse. DOE transferred ownership of remediated parcels on the approximately 305-acre former weapons and research facility from 1999 to 2019. The site is now the Mound Business Park, home to more than 16 businesses that employ approximately 400 people.
- In 2018, LM — in conjunction with Washington River Protection Solutions (WRPS), a contractor with the Hanford, Washington, Office of River Protection — successfully eliminated approximately $200 million from DOE's long-term financial liabilities by annuitizing the Mound Employees' Pension Plan. Due to the funded status of the plan at the time of annuitization, LM and WRPS returned $4.25 million to the Department; this was the first time the Department received funds back after a pension plan was annuitized.

Internal Controls and External Reporting on LM's HPO Goals

The goals and metrics in LM's HPO Plan form the basis for many of the organization's annual high-level goals. Meeting them or making measurable progress toward achieving ones that take multiple years to achieve, are incorporated in performance plans for the LM Director and Deputy Director. In turn, specific activities toward meeting HPO metrics are also incorporated into performance plans of LM Management Team supervisors and their staff. All LM employees have one interim performance evaluation plus a year-end performance evaluation. Results of these evaluations inform the organization on progress being made, and corrective actions that need to be taken to meet HPO goals. In addition, at least twice each year the LM Management Team discusses the status of HPO milestones in the LM Director's Performance Plan. These actions, in addition to the annual Post Competition Accountability Report (PCAR) are some of LM's primary internal controls on its HPO Plan.

Although OMB did not formally approve LM's June 2017 HPO Plan, it did recommend that LM continue external reporting on new commitments and performance measures. LM followed OMB's recommendation by monitoring and reporting on the previous HPO goals by submitting three quarterly and one annual PCAR each FY. The quarterly PCARs included a subset of goals and actions that warranted more frequent monitoring and reporting during the year. The annual PCAR included a comprehensive status of all goals and actions contained in the June 2017 HPO Plan.

LM will continue external reporting on the status of its goals and actions in the same manner, and at the same frequency for the FY 2021–FY 2025 HPO Plan. The annual PCAR serves as important documentation of the status of major LM program and project milestones and is a planning tool to identify areas where performance improvement is needed and changes in approaches may be necessary to meet HPO goals.

LM'S MISSION

LM's Mission Continues to Grow with the Addition of New Sites and Programs

LM Is Responsible for 100 Sites in FY 2020

LM's site management responsibilities are broad and diverse — we are currently protecting human health and the environment at 100 sites in 29 states and the territory of Puerto Rico. We manage commitments to more than 9,000 retired contractor workers, approximately 120,000 cubic feet of records, 196 terabytes of electronic material, and tens of thousands of acres of land. We also expect additional sites to be transferred to LM during the next five years[29]. Accordingly, we must strategically acquire and allocate our resources to achieve our mission and meet our goals and objectives.

One of the most visible ways in which LM's responsibilities are growing is the increase in the number of sites for which it has some type of post-closure responsibility. Annually, LM publishes its Site Management Guide (SMG) in which it forecasts the FY that it will take responsibility for a site. At the end of FY 2019, LM was responsible for 100 sites. Based on the March 2020 SMG, LM is projecting it will be responsible for approximately 19 additional sites through FY 2025 (see Appendix B). Among the new sites will be ones that have been remediated by USACE as part of FUSRAP and uranium-mill-tailing sites remediated by private licensees under Title II of UMTRCA. LM groups its sites into three categories: "records only" sites (Category 1), sites that require LTS&M but have no operating treatment systems (Category 2), and sites at which LM performs LTS&M and operates groundwater treatment systems (Category 3).

Transition activities, which can begin as many as five years prior to formal site transfer to LM, include important due diligence activities such as:

- Preparing regulatory documents on how site LTS&M will be conducted.
- Evaluating site conditions so LM site managers are assured of the actual and interpreted conditions.
- Conducting real estate actions to make certain that LM has title to sites and that administrative institutional controls (ICs) are in place.
- Collecting records, both paper and electronic, including site monitoring data collected before LM starts conducting similar activities under LTS&M.
- Documenting the operating and remedial history of sites.

We are implementing long-term care plans that are designed to protect public health and the environment at legacy sites. The plans are site-specific and comply with environmental laws and regulations. Sites that present no future risk from radiological and chemical contaminants to the public are considered suitable for unrestricted use. We also maintain records and respond to public inquiries for these sites. For sites that require long-term care, we conduct environmental monitoring and regular inspections, implement land-use restrictions, and maintain environmental protection features, such as disposal cells and groundwater treatment systems.

Three examples of current LM sites that demonstrate the complexity of our mission include: Rocky Flats Site, Colorado; the Colonie, New York, Site; and the Shiprock, New Mexico, Disposal Site.

29 *The actual number of sites transferred is contingent upon the site owner completing remedial actions and associated regulatory authority approval.*

Rocky Flats Site, Colorado

Site Description and History. The Rocky Flats Plant was part of the U.S. nuclear weapons complex that manufactured nuclear weapons components under the jurisdiction and control of DOE and its predecessor agencies. To accommodate construction of the plant, a parcel of land — located 16 miles northwest of Denver, Colorado, in northern Jefferson County — was acquired in 1951. Additional parcels acquired in 1974 and 1975 increased the size of the site to approximately 6,500 acres. The Rocky Flats Site is situated on a plateau at the eastern edge of the Front Range of the Rocky Mountains, at an elevation close to 6,000 feet. Most of the property was used as a security buffer surrounding the site's 385-acre industrial area.

From 1952 to 1994, the plant's primary mission was producing nuclear and nonnuclear weapons components for America's nuclear arsenal. The key component produced at Rocky Flats was the plutonium pit, or "trigger," for nuclear weapons. Most of the triggers in our nuclear weapons stockpile were manufactured at Rocky Flats. Information on specific weapons containing Rocky Flats–built nuclear triggers remains classified. However, it is known that triggers built at this plant had components that were formed from beryllium, plutonium, stainless steel, uranium, and other materials, and were used in many different types of weapons. The Rocky Flats Plant also processed plutonium for reuse such as for the space program and manufactured depleted uranium defense-related components.

Operational problems during the plant's history, its abrupt shutdown in 1989 for environmental and safety concerns, and standard practices used at the time caused substantial contamination consisting of plutonium, beryllium, and other hazardous substances.

Unknown quantities and chemical configurations of plutonium liquids remained in process piping and tanks and classified materials were left where they were being used or processed when the plant shut down.

Site Cleanup. In October 2005, DOE and its contractor completed an accelerated 10-year, $7 billion cleanup of chemical and radiological contamination in production buildings and limited areas across the site after nearly 50 years of production activities. Cleanup required decommissioning, decontaminating, demolishing, and removing more than 800 structures, including six plutonium-processing and fabrication building complexes. DOE removed more than 500,000 cubic meters of low-level radioactive waste, primarily generated by decontaminating and demolishing contaminated buildings, and evaluated 421 potentially contaminated environmental sites; 88 required remediation.

Rocky Flats Site, Colorado

After cleanup, two operable units (OUs) defined the Rocky Flats Site within the boundaries of the property: a Central OU composed of 1,309 acres where all site areas required additional remedial/response actions (with consideration to future land management); and a Peripheral OU composed of 4,883 acres, which included generally unaffected portions of Rocky Flats surrounding the Central OU.

Contamination remaining in the Central OU prohibits unlimited use and unrestricted exposure. Under CERCLA, reviews are conducted at least every five years, which show that the Central OU remedial actions continue to protect human health and the environment. ICs prohibit uncontrolled soil-disturbances, activities that could damage landfill covers or other remedy components, and non-remedy-related surface water or groundwater use. Physical controls include signs at Central OU access-points that list the ICs, and Central OU perimeter signs prohibiting access. Monitoring requirements include routinely inspecting and maintaining landfill covers, treatment systems, and ICs; and obtaining scheduled groundwater and surface water samples from specific locations for analysis.

The Peripheral OU, which served as the security buffer zone, was transferred to the U.S. Department of the Interior in July 2007, to be managed by the U.S. Fish and Wildlife Service as the Rocky Flats National Wildlife Refuge. An additional 745 acres of DOE-administered lands associated with private mineral rights on the site's west side was transferred to the refuge in 2014.

LM Responsibilities. LM assumed site operation and maintenance responsibility in 2005. In 2007, DOE, EPA, and Colorado Department of Public Health and Environment entered into the Rocky Flats Legacy Management Agreement (RFLMA). The agreement establishes the regulatory framework for implementing the final remedy for the Rocky Flats Site and ensuring that it protects human health and the environment. LM received final jurisdiction for the site in 2008 and is responsible for LTS&M of approximately 1,300 acres (Central OU) of the 6,500-acre Rocky Flats Site. LM is also responsible for approximately 200 acres of former buffer zone land, which is now associated with an active gravel mine and will be transferred to the refuge as mining permits expire and reclamation required by Colorado law is completed.

LM is responsible for managing land retained by DOE and for compliance with the long-term requirements outlined in RFLMA. Monitoring and maintenance responsibilities at Rocky Flats include two closed landfills, four groundwater collection systems, three groundwater treatment systems, and more than 100 water monitoring locations and stations. In addition to complying with RFLMA requirements, LM manages and maintains three surface water retention ponds, erosion controls, and revegetation.

Colonie, New York, Site

Site Description and History. The Colonie site is an 11.2-acre, government-owned site located in the town of Colonie, Albany County, New York. Colonie is a suburb of the city of Albany. The industrial site was previously owned and operated by National Lead Industries (NL) from 1937 to 1984 and is currently owned by the federal government. In 1958, NL began producing items manufactured from uranium and thorium, under licenses issued by the AEC and the state of New York. The plant handled enriched uranium from 1960 to 1972. These activities resulted in residual radiological contamination co-located with metals in soil on portions of the site, as well as impacts to site groundwater and to neighboring privately owned properties (known as vicinity properties). All buildings, structures, and contaminated soils were removed. The site is currently a vacant property.

Industrial operations at the site began in 1923, when a facility was built for manufacturing wood products and toys. In 1927, the facility was converted to a brass foundry for manufacturing railroad components. In 1937, NL purchased the facility for conducting electroplating operations. NL also bought an adjacent

Colonie, New York, Site

lot that contained a portion of Patroon Lake. In 1958, NL began producing items manufactured from uranium and thorium, under licenses issued by AEC and the state of New York. The plant handled enriched uranium from 1960 to 1972. The AEC contract was terminated in 1968, and work at the plant afterwards was devoted to fabricating shielding components, aircraft counterweights, and artillery projectiles from depleted uranium.

Depleted uranium released from the plant exhaust stacks spread to site buildings, portions of the grounds, and 56 commercial and residential vicinity properties. NL also disposed of contaminated casting sand in the former Patroon Lake. The historical industrial operations at the Colonie site resulted in contaminated soil, groundwater, dust, and structures at the site and its vicinity.

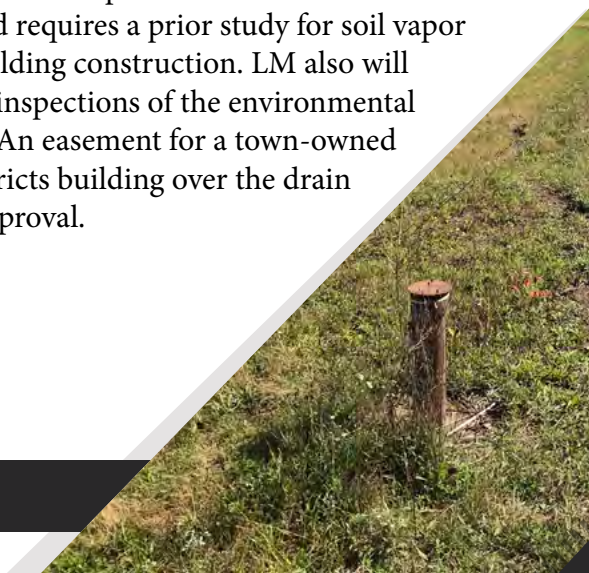
Site Cleanup. The New York State Supreme Court shut down the NL plant in 1984 due to environmental concerns (airborne uranium releases). The U.S. Congress assigned the authority to clean up the site to DOE, which acquired the site for the purpose of cleanup.

DOE managed the site and cleanup under FUSRAP from 1984 to 1997. During this period, DOE investigated the vicinity properties, on-site structures, groundwater, and surface and subsurface soils; developed a plan to remove radiologically impacted soils; successfully cleaned up 53 of 56 vicinity properties; removed the on-site buildings; and stored the waste materials generated during these actions. In 1997, Congress transferred cleanup actions under FUSRAP to USACE. In 2007, USACE completed the large-scale soil removal action at the main site and the remaining vicinity properties by excavating and disposing of 135,000 cubic yards of soil contaminated with radionuclides, metals, and volatile organic compounds (VOCs) off-site and then backfilling with clean soil. In 2010, USACE initiated a groundwater monitoring program to measure the progress of monitored natural attenuation for VOCs with concentrations above protective levels. Between 2011 and 2014, USACE investigated depleted uranium dust contamination in vicinity properties, including homes and commercial entities.

The cleanup at the Colonie site and vicinity properties was completed in accordance with records of decision (RODs) for the three site OUs. The Groundwater OU (April 2010), Main Site Soils OU (March 2015), and the Vicinity Property OU (September 2017) are in compliance with CERCLA, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan. The Colonie Site Closeout Report documenting the completion of the remedial actions was finalized in February 2018.

All radioactive materials that were at levels above the cleanup requirements, as defined by the RODs, have been cleaned up on federal property, on vicinity properties, and in the groundwater. No further action is required to address soil contamination. However, metals contamination remains in subsurface soils in three specific inaccessible areas near utility infrastructure. These areas are managed by ICs administered by a New York state-issued environmental easement that imposes appropriate restrictions to prohibit excavating these soils without supervision. The response action for groundwater at the Colonie site is also complete with monitored natural attenuation, in place since 2010. Long-term groundwater monitoring will continue until target cleanup goals are achieved for the single remaining VOC (perchloroethene), which was found in two wells on-site.

LM Responsibilities. USACE transferred the site to LM in September 2019 for long-term stewardship responsibility. The USACE cleanup resulted in a site that is suitable for either commercial or restricted residential use. There are three discrete soil areas subject to environmental easement restrictions. Excavation in these areas will require prior notifications and compliance with the environmental easement. The easement prohibits the use of groundwater and requires a prior study for soil vapor intrusion for building construction. LM also will conduct annual inspections of the environmental easement areas. An easement for a town-owned storm drain restricts building over the drain without town approval.



Sampling well, at the Colonie, New York, Site.

LM long-term stewardship responsibilities consist of monitoring groundwater until natural attenuation brings contaminant levels to cleanup standards, managing site records, conducting long-term periodic reviews, and responding to stakeholder inquiries. DOE has determined that the site be made available for future redevelopment to benefit the community. Accordingly, LM intends to pursue transferring or selling the property to another government agency, local authority, community organization, or private party at the earliest opportunity.

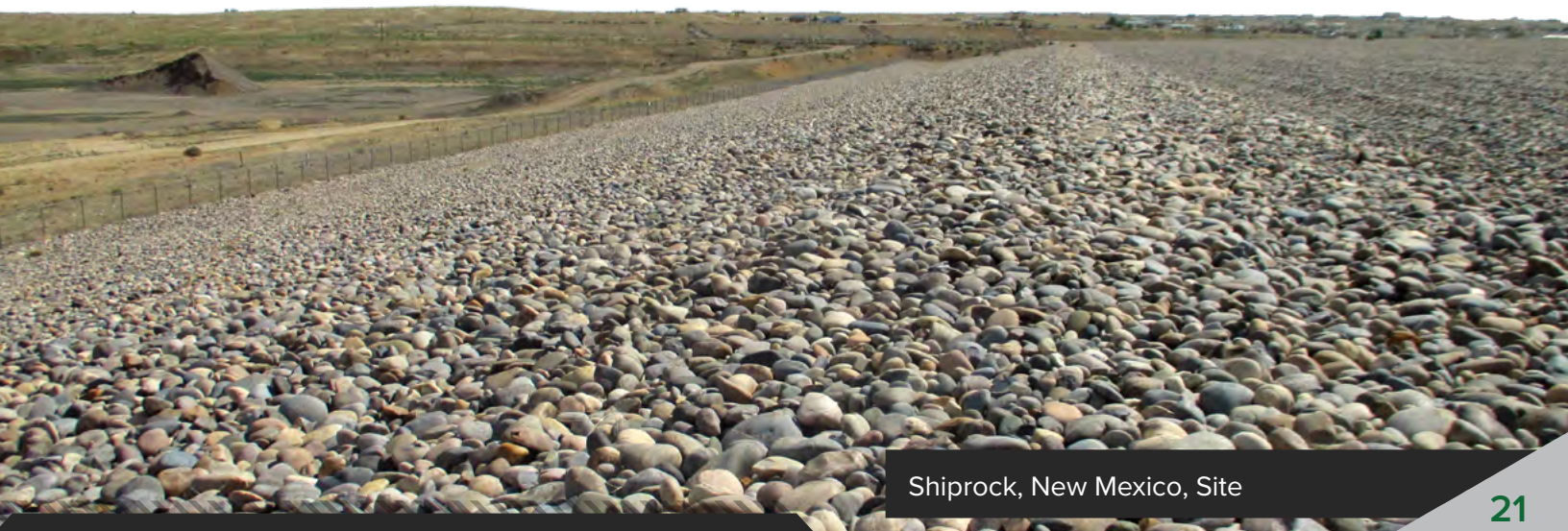
Shiprock, New Mexico, Site

Site Description and History. The Shiprock site is the location of a former uranium and vanadium ore-processing facility within the Navajo Nation in the northwest corner of New Mexico near the town of Shiprock, approximately 28 miles west of Farmington. Kerr-McGee built the mill and operated the facility from 1954 until 1963. Vanadium Corporation of America purchased the mill and operated it until it closed in 1968. The milling operations created process-related wastes and radioactive tailings, a predominantly sandy material. The mill, ore storage area, raffinate ponds (ponds that contain spent liquids from the milling process), and tailings piles occupied approximately 230 acres leased from the Navajo Nation.

Past milling operations left contaminants in the terrace groundwater system and in the floodplain alluvial aquifer. Contaminated groundwater from the terrace infiltrated the upper few feet of the underlying weathered Mancos Shale bedrock and migrated into the alluvial aquifer on the floodplain. Terrace groundwater also surfaced in several places as seeps at the edge of the escarpment and in a minor drainage area, Bob Lee Wash. The contaminants of concern are ammonia, manganese, nitrate, selenium, strontium, sulfate, and uranium.

Site Cleanup. In 1983, DOE and the Navajo Nation entered into an agreement for site cleanup. By September 1986, all tailings and associated materials (including contaminated materials from offsite vicinity properties) were encapsulated in the disposal cell built on top of the existing tailings piles. The disposal cell is an asymmetrical pentagon with a maximum side length of 1,800 feet and a minimum side length of 800 feet. The cell occupies approximately 77 acres of the 105-acre site. A posted wire fence surrounds the cell. The cover of the Shiprock disposal cell is a multicomponent system designed to encapsulate and protect the contaminated materials. The disposal cell cover comprises (1) a low-permeability radon barrier (first layer placed over compacted tailings) consisting of compacted sandy silty soils, (2) a layer of granular bedding material placed as a capillary break, and (3) a rock (riprap) erosion-protection layer. The use of these cover materials promotes rapid runoff of precipitation to minimize leachate. Rock-lined drainage ditches divert surface water runoff around and away from the disposal cell to a rock-lined energy dissipation area.

Three different compliance strategies have been selected at the Shiprock site: (1) active remediation in the eastern portion of the terrace; (2) supplemental standards in the western portion of the terrace; and (3) natural flushing in conjunction with active remediation for the floodplain. These divisions reflect the different amounts of contamination in each area and a different balance of groundwater recharge. Compliance strategies for all three areas include monitoring of groundwater and surface water. Monitoring frequency varies from semiannually to once every two years, depending on the location.



Shiprock, New Mexico, Site

- **Terrace, Eastern Portion:** The compliance strategy is active remediation and monitoring. Milling-related water from the groundwater system is pumped from extraction wells and collected in an interceptor drain at Bob Lee Wash. Collectively, the removal of water by the wells and interceptor drains will dry the seeps and curtail surface expression of groundwater in Bob Lee Wash. The extracted water is piped to an 11-acre evaporation pond on the terrace. Initial groundwater modeling predicted that about 7.5 years of extraction would be needed to reduce groundwater levels sufficiently to isolate contaminated groundwater from seeps in the washes and to create a separation between the eastern and western terrace groundwater systems, assuming an extraction rate of 7.5 gallons per minute from the terrace extraction wells. However, the extraction rate is averaging 3.0 to 3.5 gallons per minute.
- **Terrace, Western Portion:** The compliance strategy is application of supplemental standards with monitoring. Supplemental standards may be applied at locations where groundwater is classified as limited use (not a current or potential source of drinking water) because it meets several criteria. In the western portion of the terrace, groundwater is classified as limited use because of widespread ambient contamination not related to milling activities that cannot be cleaned up using treatment methods reasonably employed in public water systems (40 *Code of Federal Regulations* [CFR] 192.11[e][2]). It is highly probable that some constituents in the system — notably, selenium, sulfate, and uranium — are naturally occurring and are derived in part from leaching of Mancos Shale, and standards may never be achieved for this region.
- **Floodplain:** The compliance strategy is active remediation involving extraction of contaminated groundwater in conjunction with natural flushing, alternate concentration limits for selenium and sulfate, and monitoring. Alternate concentration limits may be adopted within specified areas if established maximum concentration limits are unattainable. Groundwater that infiltrates the floodplain from the eastern terrace system is collected in interceptor trenches and wells installed along the base of the escarpment. Approximately 1 million gallons of water is extracted from the floodplain contaminant plume each month and is piped to the evaporation pond on the terrace.

The basis for selecting the compliance strategies for the Shiprock site were presented in a draft Groundwater Compliance Action Plan (GCAP) in 2002. In 2005, DOE revised the conceptual model of the site in an effort to assess the remediation design of the groundwater treatment system and to provide recommendations for improvement of the system. The recommendations were based on an observational approach that formed the technical approach used by the Uranium Mill Tailings Remedial Action Ground Water Project for groundwater remediation. Included in the recommendations was a continued effort to evaluate the near term (three year) and longer term (seven year) progress toward the intended objectives of the selected compliance strategies. Based on the evaluation efforts, DOE will decide whether additional contingency methods are more likely to achieve extraction objectives or whether an alternative compliance strategy that is less dependent on active remediation or would require less rigorous cleanup goals (e.g., establishment of alternate concentration limits) should be selected.

ICs on the floodplain to minimize the potential for risk to human health and the environment include (1) grazing restrictions, (2) control of access to the floodplain area, (3) a DOE-Navajo Nation agreement prohibiting use of groundwater in the floodplain, and (4) assurance from the Navajo Nation Water Code Administration that flowing artesian Well 0648 will be allowed to continue flowing into Bob Lee Wash and onto the floodplain.

LM Responsibilities. LM is responsible for ensuring that the selected groundwater compliance strategy at the Shiprock disposal site continues to be protective of human health and the environment. LM also monitors the effectiveness of ICs. LM manages the disposal site according to a site-specific Long-Term Surveillance Plan to ensure that the disposal cell systems continue to prevent release of contaminants to the environment. Under provisions of this plan, LM conducts annual inspections of the site to evaluate the condition of surface features, performs site maintenance as necessary, and monitors groundwater to verify the continued integrity of the disposal cell. In accordance with 40 CFR 192.02(a), the disposal cell is designed to be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. However, the general license has no expiration date, and LM's responsibility for the safety and integrity of the Shiprock disposal cell will last indefinitely.

LM Anticipates Additional Sites by the End of FY 2025

In addition to the sites already under LM management, we anticipate approximately 19 additional sites to be transferred to LM over the next five years. Our work on these sites begins well before the formal transfer date. We begin site transition activities three to five years ahead of when LM takes full responsibility, depending on the complexity of the site.

Defining and communicating LM's work at sites prior to their formal transfer is important to align life-cycle baseline planning, budget formulation, and staffing projections with site resource allocations. LM begins expending resources for sites well ahead of the official transfer date identified in the annual SMG. Identifying when transition activities for sites are expected to begin helps LM properly align its staff levels with when site transition work begins.

Three of the sites expected to transition to LM over the next five years include: the East Tennessee Technology Park, Tennessee, Site; the Hazelwood, Missouri, Site; and the Panna Maria, Texas, Disposal Site.

East Tennessee Technology Park, Tennessee, Site

Site Description and History. The 2,200-acre East Tennessee Technology Park (ETTP) is one of three facilities at the Oak Ridge Reservation, approximately 13 miles west of downtown Oak Ridge. The ETTP, formerly known as the Oak Ridge Gaseous Diffusion Plant, began operations during World War II as part of the Manhattan Project. Its original mission was to enrich uranium for use in atomic weapons. The plant also produced enriched uranium for the commercial nuclear power industry. The Gaseous Diffusion Plant operated from 1945 to 1985 and was shut down in 1987.

DOE EM is performing legacy cleanup at the site as part of the Department's "Vision 2020" for the ETTP. Work at ETTP now focuses on restoration of the environment, D&D of site facilities, and management of legacy wastes.

In addition to cleanup, reindustrialization of the site began in 1996, and the site was renamed ETTP in 1997. The program works to transfer buildings, land, and infrastructure to the private sector for use as a privately owned industrial park. A historic preservation agreement honors the 12,000 workers whose talents supported the nation's efforts during World War II and the Cold War. Under the agreement, EM constructed and opened the K-25 History Center in 2020 with more than 250 original artifacts, interactive exhibits, and access to nearly 1,000 oral histories from the site's early workers. EM will also construct a three-story equipment building that will include a scale representation of the gaseous diffusion technology, a viewing tower, and wayside exhibits throughout the preservation footprint.

As of March 2020, more than 500 facilities have been demolished, 1,200 acres have been transferred to the private sector and 3,000 acres placed in conservation easement.

Site Cleanup. Environmental cleanup activities began in 1998. Completed remediation projects include Blair Quarry buried waste that was contaminated with PAHs and PCBs; and the K-770 Scrap Metal Yard on the east bank of Clinch River, which received scrap material from ETTP, Oak Ridge National Laboratory (ORNL), and Y-12 facilities. EM has also remediated several ponds via ecological enhancement. Ongoing remediation projects include operation of the Chromium Water Treatment System, which provides a long-term solution for hexavalent chromium being released into Mitchell Branch, potentially affecting water quality in Poplar Creek. A contamination source has yet to be identified.

A comprehensive groundwater strategy for ETTP is still under development. While a final decision for protection of groundwater has not been determined,

EM has implemented measures to isolate remaining contaminant sources and identified multiple complex sources/plumes. The current exit strategy for groundwater includes accelerating the approach for three large cleanup parcels to enable transfer of land for redevelopment, obtaining a groundwater ROD for specified plumes in Zone 1 (1,400-acres bordering ETTP industrial area), and developing an approach for remaining plumes in Zone 2 (800-acre central ETTP site).

Completed D&D projects include Building K-27 (removing this building marked the first ever complete demolition of a gaseous diffusion complex and allowed DOE to achieve "Vision 2016" — the demolition of all ETTP gaseous diffusion facilities); Building K-25, a 44-acre U-shaped structure that originally contained 1.64 million square feet of floor space. Basement slabs will be part of the Manhattan Project National Historical Park. The Zone 2 ROD addresses the slab, underground soil, and utilities. The technetium-99-contaminated portion of the east wing was completed in 2013, completing building demolition activities.

Ongoing D&D projects include remaining Poplar Creek Facilities, which are ETTP's most contaminated remaining facilities. Approximately 500 above-ground facilities have been or are scheduled to be demolished, and include administrative buildings, laboratories, process facilities, pump houses, utilities, and other structures.

The Reindustrialization Program has made substantial progress as EM moves toward the final phases of environmental cleanup. A Closure Plan was developed in FY 2017 and updated in FY 2019 to address necessary transfer and disposition paths for all site assets, including all remaining facilities, land, and utility infrastructure. Additionally, the Heritage Center Revitalization Plan (May 2017) was developed by the Community Reuse Organization of East Tennessee (CROET) that reevaluated and modernized the master planning for the Heritage Center (industrial park). This approach accounted for recent cleanup accomplishments and new developments, such as the proposed regional general aviation airport. The Reindustrialization Program transferred 185 acres in the former K-33/K-31 Area to the CROET and is making other large parcels of land available for major manufacturing developments, including the 400-acre Powerhouse Area and the 200-acre Duct Island parcel.

LM Responsibilities. The ETTP site transition to LM is planned to occur in three phases, as EM completes legacy cleanup and regulators confirm CERCLA remedies are operational and functional. LM and EM staff are developing a memorandum of agreement (MOA) for LM's acceptance of operational responsibility in FY 2021 for ETTP properties that have been transferred to third parties. The MOA defines the phased approach to site transition and general EM and LM roles and responsibilities. Phase I transition includes operation of the K-25 History Center, ownership of two clean parcels targeted for a future airport, and oversight of CERCLA land use controls for properties that have been transferred to the private sector. A separate transfer memorandum is required for EM transfer of jurisdictional (Facilities Information Management System [FIMS]) responsibility to LM for the two clean parcels. LM is also preparing a draft ETTP Site Transition Plan (STP), in accordance with the requirements in the EM-1 and LM-1 Terms & Conditions for Site Transition. The MOA, transfer memorandum for two parcels and STP, are scheduled to be signed by EM-1 and LM-1 before the end of FY 2020.

Site transition planning includes defining requirements for EM's transfer of LTS&M funding to LM in three five-year increments. LM is preparing a draft EM-1 and LM-1 Transfer Memorandum to the DOE Chief Financial Officer (CFO) for the first five-year increment that will transfer to LM for Phase I transition in FY 2021. EM-1 and LM-1 will issue Transfer Memoranda for additional funding that will transfer to LM in FY 2023 and FY 2025. The Phase II transition is expected to include operation of the K-25 Equipment Building, Viewing Tower and "virtual museum," and potentially performance of LTS&M for some CERCLA remedies. Assuming EM legacy cleanup proceeds as planned, the Phase III, final transition to LM in FY 2025 will include the K-25 slab/remaining portion of historical footprint as well as responsibility for LTS&M of all remaining CERCLA remedies and continuation of ongoing reindustrialization efforts.

Hazelwood, Missouri, Site

Site Description and History. The Hazelwood site (in northern St. Louis County within the city limits of Hazelwood and Berkeley, Missouri) is located at 9170 Latty Avenue, approximately 3.2 miles northeast of the control tower of the Lambert-St. Louis International Airport. Land use near the properties is primarily industrial; other uses are transportation-related, commercial, and residential.

In early 1966, ore residues and uranium- and radium-bearing process wastes were purchased by the Continental Mining and Milling Company and moved to a storage site on Latty Avenue. These wastes were generated at the Mallinckrodt plant in St. Louis from 1942 through the late 1950s. The Commercial Discount Corporation of Chicago, Illinois, purchased the residues in January 1967. Much of the material was then dried and shipped to Cañon City, Colorado. The material remaining at the Latty Avenue storage site was sold to Cotter Corporation in December 1969. From August through November 1970, Cotter Corporation dried some of the remaining residues and shipped them to a mill in Cañon City. In December 1970, an estimated 10,000 tons of Colorado raffinate and 8,700 tons of leached barium sulfate remained at the Latty Avenue properties.

In April 1974, the NRC was informed by Cotter Corporation that the remaining Colorado raffinate had been shipped in mid-1973 to Cañon City without drying and that the leached barium sulfate had been diluted with 12 to 18 inches of soil and transported to a landfill in St. Louis County.

Before the present owner occupied the property, ORNL performed a radiological characterization. Thorium and radium contamination in excess of federal guidelines was found in and around the buildings and in the soil to depths of 18 inches. Subsequently, in preparing the property for use, the owner demolished one building, excavated portions of the western half of the property, paved certain areas, and erected several new buildings. Material excavated during these activities (approximately 13,000 cubic yards) was piled on the eastern portion of the property. This excavated material was placed at the eastern end of the site in what was referred to as the Main Pile.

In 1981, Oak Ridge Associated Universities conducted a radiological characterization of the pile and surveyed portions of the northern and eastern vicinity properties for radioactivity. Levels of contamination (principally thorium-230) similar to those on the pile were found in both areas. As a follow-up to this survey, ORNL conducted a detailed radiological survey of the northern and southern shoulders of Latty Avenue in January and February 1984; results indicated that contamination in excess of federal guidelines was present along the road beyond Hazelwood Avenue.

Site Cleanup. A decontamination research and development project was conducted, under the authority of the 1984 Energy and Water Appropriations Act (Public Law 98-360), at various sites throughout the nation, including the Hazelwood site. Subsequently, Congress added the Hazelwood site to FUSRAP in order to expedite decontamination.

An additional 14,000 cubic yards of contaminated soil, from cleanup along Latty Avenue in 1984 and 1985 and from an area used for office trailers and a

decontamination pad, which were added to the Main Pile. In 1986, the DOE provided radiological support to the cities of Hazelwood and Berkeley, Missouri, for a drainage and road improvement project along Latty Avenue in support of a municipal storm sewer project. Approximately 4,600 cubic yards of contaminated soil was placed in a new storage pile, referred to as the Supplemental Pile.

In 1996, the owner of 9150 Latty Avenue, located to the east, expanded the facility and stockpiled about 8,000 cubic yards of contaminated soil. This stockpile, known as the Eastern Pile, was located on the southwestern corner of the property. In 1999, USACE completed construction of the Latty Avenue rail spur. To protect human health and the environment, USACE started removal of the piles in the spring 2000. Removal of the piles was completed in the fall 2001. Over 52,000 cubic yards of contaminated material was removed and transported by gondola cars for disposal at an out-of-state licensed and permitted facility.

In 2007, the remedial activities were initiated at the Latty Avenue sites under the 2005 North County ROD. USACE removed the in situ contamination remaining at the sites. In 2011, the rail spur was removed and the contaminated soil underneath and adjacent to the rail spur was excavated. Remedial activities at the Latty Avenue properties were completed in 2013. USACE removed 224,838 cubic yards of contaminated material, decontaminated the buildings on the property, and released 10 properties for beneficial use.

The accessible soil has been remediated to meet the North County ROD remediation goals. However, inaccessible soil remains under the buildings that are currently used as industrial buildings. An Institutional Controls and Implementation Plan was issued in 2015. ICs will be placed on the contaminated soils beneath the Futura Buildings using the Missouri Uniformed Environmental Covenant. Currently, indoor airborne radon monitoring is being conducted at the Futura Buildings and a groundwater monitoring well network is being used to sample and evaluate the groundwater to ensure protection of the groundwater.

LM Responsibilities. The Hazelwood site is expected to be transferred to LM in FY 2023. The site requires a CERCLA five-year review because inaccessible soils remain or groundwater monitoring is required. The fourth five-year review is expected to be issued in 2020. This requirement is expected to continue into LTS&M because of the inaccessible soil above ROD remediation goals being left in place. Accordingly, five-year reviews have been included in LM's life-cycle baseline estimate.

Panna Maria, Texas, Disposal Site

Site Description and History. The site is the location of a former conventional uranium mill that operated from 1979 to 1992. It is 4 miles east of Hobson and 60 miles southeast of San Antonio, Texas. The site includes an engineered disposal cell containing 824,000 cubic yards of radioactive material, mill tailings and residual soil, and occupies 150 acres of the 360-acre site.

The mill and nearby open pit mines were developed by Chevron Resources Company and Rio Grande Resources Corporation (RGR). RGR acquired sole ownership of the mill and mines on August 1, 1991, and operated the mill and excavated open-pit uranium mine under state of Texas Radioactive Materials Licenses R02402 and L02402. Byproducts of the milling process included radioactive mill tailings, and other solutions. The tailings were stored in a tailings impoundment that was designed to control seepage. However, shortly after operations began, monitoring revealed that contaminated fluids leached downward,

causing contamination in the groundwater beneath the site. Other wastes were stored in three unlined reservoirs. By 1992, the Panna Maria mill closed, following lower prices and demand for uranium.

The tailings impoundment was designed as a ring dike structure and covered approximately 150 acres. Tailings from mill operations were deposited in the tailings impoundment as a slurry. The total quantity of tailings generated was approximately equal to the quantity of ore processed: 6.8 million tons. A total of 140,000 cubic yards of tailings were disposed of in the tailings impoundment. Mill decommissioning began in October 1992 and was completed in 1993. This included dismantling and removing aboveground structures and equipment, excavating or burying of subsurface features, and removing contaminated soils. In total, approximately 44,000 cubic yards of mill debris and 250,000 cubic yards of contaminated ore pad soil were removed and placed in the tailings impoundment.

Site Cleanup. In 1992, RGR began the Panna Maria site's cleanup process. This involved dismantling, crushing, and burying contaminated materials into an underground disposal cell. An engineered disposal cell was installed to encapsulate the tailings. The cell has four layers, each with a specific purpose toward protecting human health and the environment from the radioactive tailings. To achieve regulatory standards, the Panna Maria disposal cell design must be effective for 1,000 years, to the extent possible, or for at least 200 years. The cell contains 6.8 million tons of tailings. The cover has a combination of rock armoring, contouring, and revegetation features that drain water away from the tailings and prevent erosion from damaging the disposal cell.

The licensee received approval from the Texas Water Commission to dispose of byproduct material from uranium in situ recovery operations within designated areas of the tailings impoundment. Approximately 40,000 cubic yards of in situ uranium operation byproduct materials were mixed with 80,000 cubic yards of random fill for a total of 120,000 cubic yards of material disposed of in the tailings impoundment. RGR began decommissioning of the three unlined reservoirs in late 1993. Water was pumped from reservoirs to evaporation ponds constructed on top of the tailings impoundment. A total of 270,000 cubic yards of reservoir sediments were placed on the tailings impoundment as random fill.

The licensee reclaimed the tailings impoundment by flattening embankment slopes and placing an engineered cover over the former tailings impoundment. The cover controls radon emanation and infiltration. After the disposal cell cover was installed, most of the site surface was contoured and covered with self-sustaining grass to resist erosion. The grass also reduces infiltration by removing moisture through evapotranspiration. The disposal cell cover is designed to convey incident precipitation to the north and discharge the water through the riprap-armored outlet channel. The vegetation, flat slopes, and riprap provide erosional stability to satisfy the longevity design requirements.

LM Responsibilities. The Panna Maria site is planned to be transferred to LM in FY 2022 and is anticipated to be managed by LM under the UMTRCA Title II general license (10 CFR 40.28). The site is anticipated to come under the general license in 2022, at which time the NRC will become the DOE regulator. Prior to site transition, LM is establishing lines of communication with the agreement state, who has the regulatory authority for overseeing that the licensee completes site reclamation, and the site licensee. This allows LM to evaluate the site surface reclamation actions and groundwater remedies and provides LM an opportunity to identify issues that might present challenges for LM's LTS&M of the site.

LM's role post transition will be to manage the site to ensure that it is protective of human health, safety, and the environment by: controlling public access to the site through property ownership and use of fences and warning signs; ensuring that engineered structures, such as the disposal cell and drainage structures, are maintained and will function as designed; conducting annual site inspections; and reevaluating site conditions as necessary to ensure the site remains protective.

LTS&M requirements will be presented in the site-specific long-term surveillance plan (LTSP), which is drafted by LM and must be concurred upon by NRC. The LTSP will then become a part of the license requirement, which LM must maintain in perpetuity. The Panna Maria, Texas, Disposal Site is still undergoing license termination activities that are being overseen by the Texas Commission on Environmental Quality.

LM Site Long-Term Surveillance and Maintenance

LM is committed to protecting human health and the environment within the communities that made sacrifices for the nation during one of the most critical periods in our country's history. We continue to conduct LTS&M at sites where nuclear waste has been disposed, where residual contamination remains, and where passive or active treatment of groundwater contaminated by radionuclides or other contaminants of concern is being conducted. Our LTS&M activities make certain that the remedies at our legacy sites continue to protect human health and the environment.

We are conducting LTS&M activities at 100 sites and our site inventory will expand as other sites are transferred to LM upon the completion of remediation and regulatory closure. Sites can be transferred to LM when treatment or management strategies for contaminated groundwater are in place. Consequently, groundwater treatment continues to be an important LM responsibility at some of our sites. LM conducts LTS&M activities including the isolation of radioactive and hazardous materials (often in engineered disposal cells), management and remediation of contaminated groundwater, and maintaining ICs ranging from signs to legal instruments such as deed restrictions. Even at LM sites where no contamination was left and there are no future use restrictions, LM maintains site information and addresses stakeholder inquiries as part of maintaining institutional knowledge.

LTS&M of LM sites includes annual site inspections, environmental monitoring, implementation of environmental remediation strategies (particularly for groundwater), and ensuring ICs remain in place and are being enforced. ICs do not take the place of site remediation and are not intended as a substitute for such things as groundwater cleanup, but rather are protective measures needed while cleanup progresses. Some engineering controls will remain indefinitely, such as barriers to the mill tailings from processing uranium ore at UMTRCA sites and low-level radioactive waste that was left in place at sites closed under RCRA and CERCLA. ICs inform the public of the potential danger from residual contamination, and prevent uses of sites (e.g., drilling of water supply wells where groundwater contamination is present) that could cause inadvertent exposure to people.

After years of conducting LTS&M, our understanding of the challenges posed by protecting human health and the environment at LM sites has changed. Many sites were expected to require only records retention and limited inspections. However, at some UMTRCA sites, water discharged during mill operations resulted in contaminated groundwater that has proved to be more difficult to remediate than originally anticipated, requiring more extensive characterization, monitoring, and implementation of new treatment technologies.

Due to technical or economic limitations, many sites will never be released for unrestricted use. However, these sites must meet the regulatory standards and agreements defined by LTS&M responsibilities. For example, LM will be responsible for several small, privately owned FUSRAP sites and adjacent properties that will require close monitoring because of their residual contamination and proximity to commercial and residential areas. We recognize that, as environmental remediation efforts continue and sites are transitioned to LM for long-term care, our LTS&M responsibilities will become increasingly complex and varied and require continual improvements to protect human health and the environment.

In 2019, LM issued updated Guidance for Developing and Implementing Institutional Controls for Long-Term Surveillance and Maintenance at DOE Legacy Management Sites. The guidance establishes the LM approach to managing, monitoring, and enforcing ICs in conjunction with DOE Policy 454.1 and various legal frameworks used to manage sites.

LM Responsibilities Are Growing

Defense-Related Uranium Mine Sites

LM leads a multi-agency effort to address the environmental legacy of DRUM and uranium milling sites in the United States. In 2014, after consulting with other federal agencies, affected states and tribal nations, and the interested public on abandoned uranium mines (AUMs), LM submitted the Defense-Related Uranium Mines Report to Congress. A DOE national inventory database was developed for the DRUM report and findings confirmed there were about 4,225 purchase records in which uranium ore was provided to the AEC between 1947 and 1970 for atomic energy defense activities. At the time that the mines were active, there were no requirements for reclamation of them when ore production ended. Some reclamation and remediation of uranium mines has occurred by state, tribal, and federal partners under different regulatory frameworks. However, there is an opportunity to coordinate government goals and improve the allocation of resources to address this national problem.

To better address the environmental legacy of DRUM, LM has partnered with the EPA, the U.S. Bureau of Land Management, the U.S. Forest Service, and other agencies to improve the content and quality of mine data in the DOE national inventory. The DRUM program partnership is verifying and validating the condition of an estimated 2,500 mines on public land by FY 2022. We will transition to inventorying mines on private property and tribal land following completed assessments of mines on public land. LM will begin closure, or reclamation, of physical hazards at these mines once inventories and condition assessments are completed. We are providing a significant national service by addressing existing data gaps, helping to validate and verify site-specific mine data, and mitigating hazards. Our efforts help governments address high-priority mines using a coordinated and cost-effective approach.

In June 2019, the DRUM program added a fifth field team to meet the demands of verifying and validating data on mines. As of May 2020, DRUM field teams have verified and validated 918 of 2,500 mines on public land.

Uranium Leasing Program

In addition to work on AUMs, LM manages 31 lease tracts (29 of them active) within the Uravan Mineral Belt in southwestern Colorado where private companies can mine uranium and vanadium ores. The Uranium Leasing Program (ULP) tracts (approximately 25,000 acres in total area) are leased on a competitive bid basis to mining companies who operate under the terms of agreements that include the payment of annual and production royalties to the U.S. Treasury. A programmatic environmental impact statement for the ULP was completed in 2014. In accordance with the ROD, LM plans to manage exploration, mine development and operations, and reclamation of uranium mines for an additional 10-year period.

ULP management is an opportunity for LM to demonstrate responsible life-cycle uranium mining. The leases require actions to mitigate potential environmental impacts at all stages of the mining cycle, including reclamation of the mines when production ends. Additionally, the ULP is an opportunity for the Department to support U.S. mining companies in their efforts to provide a domestic supply of uranium. The supply of uranium is vital to U.S. national and energy security, since the U.S. is the world's largest consumer of uranium. The ULP helps to lessen concerns about reliance on foreign uranium reserves. Commercial nuclear energy contributes roughly 20 percent of the electricity for the U.S. electric grid, which is essential to the critical industrial infrastructure upon which the nation's economy, security, and health rely.

In October 2019, DOE restarted uranium mine leasing on the ULP tracts, while incorporating more stringent environmental standards into the process. The program was previously on hold since 2011 when an injunction was issued in federal court halting all mining activities until a Programmatic Environmental Impact Statement was completed. All leases for these mining sites will require a detailed environmental assessment of the impacts of future mining on the area to ensure protection of air, water, wildlife, and cultural resources, with a renewed emphasis on safety.

DOE National Laboratory Network and Applied Studies and Technology Program

LM is expanding and maximizing access to environmental management technical expertise and assistance through collaboration with the Savannah River National Laboratory (SRNL) and other DOE laboratories in the development and deployment of environmental remediation and monitoring technologies. This includes, but is not limited to, evaluation and optimization of long-term performance of disposal cells, groundwater treatment systems, and LTS&M systems and strategies. This commitment was acknowledged with a Memorandum of Understanding signed on March 1, 2018, between DOE's SRNL, EM, and LM. We have developed a National Lab Network for collaborative efforts to support LM's mission needs.

Our Applied Studies and Technology program enhances cleanup effectiveness, protectiveness, and sustainability. It also can decrease our long-term costs. The program oversees long-term studies that address a variety of critical issues, such as soil remediation, groundwater treatment, disposal cell performance, remote sensing, and unmanned aircraft monitoring. Improving our scientific understanding and application of cutting-edge technology improves our site management.

LM is proactive in studying and applying new cost-effective technologies that improve worker and public safety and enhance protection of the environment. We continually evaluate emerging engineering and scientific advancements, and expect to further apply remote sensing, telemetry, and unmanned aviation-based sensors with instruments to assist with site monitoring efforts.

LM remotely monitors instrumentation and operates equipment systems that allow a single operator to simultaneously monitor the performance of environmental remedies at multiple sites. This technology has significantly expanded our monitoring capabilities, while allowing staff to focus on other mission critical functions.

Given the long half-lives of radionuclides, LM sites will require LTS&M for hundreds or even thousands of years. Incorporating improvements in scientific understanding and technology applications into site management and remediation strategies improves the effectiveness of site clean-up and reduces long-term costs. We remain informed of emerging engineering and scientific advancements that support ongoing LM studies and promote data sharing and scientific achievements by collaborating with other federal agencies, the environmental community, universities, national laboratories, and the international scientific community. The overriding goal is to incorporate advances in science and technology to improve LM capabilities. Individual countries and international organizations are recognizing the importance of long-term stewardship as they address their own environmental issues from Cold War activities. As a result, LM engages in multi-lateral (e.g., the International Atomic Energy Agency [IAEA]) and bi-lateral (e.g., Canada's Nuclear Safety Commission) international activities.

These engagements provide LM the opportunity to share lessons learned and expertise in legacy uranium sites and in LTS&M at all types of former radioactively contaminated sites, in stakeholder participation, records management, and beneficial reuse of sites.

Public Outreach and Site Institutional Control Through History, Visitor Centers, and Other Facilities

LM's success depends on connecting and effectively communicating with the public, other government organizations, and tribal nations. Accordingly, public outreach, intergovernmental collaboration, and effective dialog with tribal nations are central to all our work and is critical to achieving nearly all objectives of the organization. Engaging the public, governments, and interested parties includes strategic outreach, interpretive services, and participation in environmental justice (EJ) efforts. Outreach often takes the form of person-to-person interaction between LM and community members at open houses, site tours, and interpretive centers.

Interpretive centers are an effective means of connecting with the public. In addition to operating existing centers at the Weldon Spring Site in Missouri, the Fernald Preserve in Ohio, and the Grand Junction office, LM is evaluating partnerships with other government agencies, museums, and educational institutions to expand access to current and legacy information, including collaboration with Dayton History who operate the Mound Cold War Discovery Center. We are also evaluating ways to better preserve

the history of the Manhattan Project and Cold War. Preservation of our sites' history is a key element in protecting future generations from long-lived residual contamination.

Climate Resiliency of LM Sites

Severe weather events pose additional challenges. To gain insight into how we might adapt LTS&M strategies, LM routinely participates in a DOE-wide working group to exchange knowledge and experience and attends training and conferences focused on climate resilience. Internally, we have conducted various initiatives to determine where LM sites are most vulnerable, ways to mitigate those vulnerabilities, and how to incorporate relevant severe-weather-event factors into program decisions. Other changes to remedies such as landfills and disposal cells are the result of soil formation and vegetation establishment and succession. For LM sites in arid and semi-arid regions, some of these processes have occurred faster than originally anticipated. LM is studying the potential impacts of these changes, and in some cases, several of these processes are improving the effectiveness of disposal cells for isolating waste.

LM Manages Several Other Programs and Projects that Have Cross-Cutting Impacts or Support Broader Federal and International Objectives

Environmental Justice Program

LM has ensured that site management activities comply with Executive Order 12898 of February 11, 1994, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." By continuing our efforts to review, plan, and implement EJ commitments, we will ensure integration of EJ into our policies, programs, and activities. We have made significant progress in engaging minority and low-income communities, Native Americans, and Alaska-Native communities, in the decision-making process. This is reflected through ongoing long-term stewardship and maintenance activities, such as LM's participation in the third multi-year plan, "Federal Actions to Address Impacts of Uranium Contamination in the Navajo Nation," as well as rehabilitation and community reuse of former defense nuclear facilities and other properties.

In addition to ensuring community involvement in decision-making, we have also continued to pursue educational partnerships for the public by working with a variety of culturally distinct communities. The partnerships include public open-house sessions at LM-managed sites, educational opportunities, student site visits, and internships that provide hands-on mentoring and work experience at LM's Grand Junction office in Colorado. Training sessions on tribal culture, regulations, and environmental ethics are conducted for LM staff on a regular basis. We also continue to play a key role in federal-wide efforts to provide training to all federal employees and promote a national dialogue on EJ.

In May 2019, DOE published the 2019 Environmental Justice Second Five-Year Implementation Plan. The plan establishes EJ commitments by DOE and implements the goals and objectives of the DOE Environmental Justice Strategy. DOE and LM remain committed to EJ and continue to give community groups the tools they need to participate more effectively in environmental decision-making.

Science, Technology, Engineering, and Mathematics and Intern Programs

LM is committed to supporting students through science, technology, engineering and mathematics (STEM) programming in high schools, collaborative internships and mentorships for college students, and employment opportunities for recent graduates. We continue to arrange educational outreach events with local schools to introduce students to topics such as radon, radiation, and the legacy of uranium mining and milling. Through teaching, presenting seminars, and mentoring students engaged in fieldwork, LM scientists and engineers actively support students. LM is providing opportunities for the young scientists and professionals in fields such as environmental engineering, civil engineering, geology, hydrology, GIS/remote sensing, and ecology in addressing LM's long-term legacy management challenges. A few examples of LM STEM outreach events include:

- In March 2019, Thunder Mountain Elementary School's Math and Science Night in Grand Junction, Colorado, drew more than 250 people and included 15 interactive booths. LM involvement included three booths at the event with hands-on activities that encouraged interaction between students and scientists.
- In April 2019, LM personnel and support staff engaged with Ganado High School students in Ganado, Arizona, as part of STEM-sation Day events. More than 5,500 students, grades nine through 12, participated from eight different high schools within the Navajo Nation. LM participants provided students with hands-on materials and information about LM work at various sites within the Navajo Nation and the Bluewater, New Mexico, Disposal Site.
- In February 2020, LM traveled to the Dena'ina Center in Anchorage, Alaska, to participate in the 22nd annual Alaska Forum on the Environment. The forum included 1,800 attendees and provided LM the opportunity to interact with government agencies, non-profit and for-profit business leaders, Alaskan youth, conservationists, biologists, and community elders and provided information about LM's work across the country.
- In March 2020, LM established the STEM with LM Program to further our commitment to STEM education. The program includes hands-on tools and engaging resources to enhance education about the past, present, and future of LM sites. The STEM with LM Program is a nationwide effort that includes school and community events, curriculum development, student and teacher mentoring, internships and graduate programs, interpretive centers, tribal collaborations, and the integration of applied studies and technology of LM site management activities.

Photos from STEM events that focused on nuclear science, energy, radiation, soil science, ecology, and botany.

Records and Information Management

We continue to modernize our records and information management policies and practices to become a more efficient and increasingly digital workplace. This work meets the Department's initiative to develop a framework for modern records and information management practices. Our efforts support the Department's goal to promote openness and reduce long-term records and information costs by transitioning to a digital government.

The Department manages records consistent with legal and regulatory requirements and complies with National Archives and Records Administration (NARA) and DOE guidance. As sites are identified for mission closure, remediated, and transferred into LM authority, the associated records and information are identified, transferred, and preserved in accordance with established retention policies. LM's ability to fulfill records preservation and information management responsibilities is enhanced by our NARA-certified LMBC records storage facility — a state-of-the- art, climate-controlled storage area designed to maximize LM's preservation capabilities. The facility is equipped to house 150,000 cubic feet of records materials, lower the long-term cost of records storage, and improve efficiencies and responsiveness to stakeholders seeking information about America's Cold War era nuclear sites.

LM's level of requests for records has remained steady, averaging approximately 2,000 requests per year since 2012. The majority of requests support the U.S. Department of Labor efforts to process claims associated with the Energy Employees Occupational Illness Compensation Program Act (EEOICPA). The volume of documents per request under the Freedom of Information Act, as well as the Privacy Act of 1974, requires a significant level of effort to meet statutory timeliness requirements. With the Department's emphasis for open and transparent government through the use of electronic record keeping, LM began a transition toward an information governance approach to managing all of LM's information assets the same way it manages federal records. Key to this transition is the acquisition and implementation of an Electronic Content Management system. Over the next two years, the system will be rolled out to 28 identified work groups within LM to provide all federal and contractor employees access to the system to better manage information and to place appropriate governance on our information assets.

Data governance will be a focus at LM to exercise authority and control (planning, monitoring, and enforcement) over the management of data assets. Leveraging data as a strategic asset is the mission of the Federal Data Strategy established by OMB (OMB, M-19-18). Accordingly, LM will develop and implement an enterprise data governance strategy consistent with the operational principles and best practices described in the OMB memorandum. Current governance processes developed for environmental and spatial data will be refined in consideration of the Foundations for Evidence-Based Policymaking Act of 2018 and the Geospatial Data Act of 2018 and inform the comprehensive LM data governance strategy.

Improved use of IT continues to be a key factor in enhancing the productivity of the LM workforce. Both information sharing (mission enablement) and information safeguarding (mission assurance) are expected to increase and require continued evaluation and prioritization. To accomplish this focus, LM has implemented a risk-based decision-making IT governance process, which will improve effectiveness and operational efficiency and align LM with the Federal Information Technology Acquisition Reform Act. The risk-based decision-making process ensures risks are identified, understood, and mitigated, as necessary.

Securing our systems continues to demand constant awareness by all LM staff. When new technologies emerge, (e.g., cloud computing), the system security enables the safe adoption of new technology to improve operational efficiency. These LM processes provide a forum for the best ideas from within the entire LM-user community to be considered, evaluated, and implemented. LM has embarked on feature enhancements for the Geospatial Environmental Mapping System (GEMS), a publicly available system (https://gems.lm.doe.gov/) to provide regulators and the public access to our LTS&M data. And lastly, LM is implementing Aquarius to enhance and improve the data loading, processing, reporting, and visualization of our historical and future real-time continuous data.

One of LM's ongoing responsibilities is the preservation of the science and information generated by the Yucca Mountain Project (YMP) in Nevada. In 2010, LM assumed responsibility for the preservation of approximately 14,400 cubic feet of physical records, as well as more than 200 information systems, containing over 96 terabytes of data that document the science and information when the project was active. LM remains responsive to stakeholders and researchers that have an ongoing need for YMP scientific information. LM must carefully balance technical risk and cost while ensuring that all of the critical information systems and information are functional and available to the Department once a final disposition decision is reached. LM remains ready to support the Department's implementation with dependable, cost-effective information management services.

International Programs

LM continues to contribute and share lessons learned with professionals in other nations and with international organizations that are addressing environmental remediation and long-term stewardship.

In FY 2019, LM signed a "Practical Arrangement" to more formalize its work with the IAEA, an independent, intergovernmental organization within the United Nations that serves as a global focal point for nuclear cooperation. Because of LM's experience with AUMs and mills, the Office will provide technical support to IAEA efforts to address areas of uranium mining and milling in the former Central Asian Republics of the Soviet Union. The IAEA International Working Forum on the Regulatory Supervision of Legacy Sites (RSLS), was initiated in 2010 to improve short- and long-term management of contaminated legacy sites in Member States around the world. LM is contributing to the workplan for the next phase of RSLS, which will include greater focus on post-closure management of remediated sites, and engaging people who live near sites. LM will help in developing "safety guides" for management of legacy sites and will host visitors from other Member States to help them learn first-hand how LM addresses post-closure requirements at its sites.

LM also signed a memorandum of agreement with Wismut GmbH, the federally owned company in Germany responsible for the world's largest uranium mine and mill closure program addressing Cold War legacies. Initiated in 1991, the Wismut program is nearing the point of having many of its sites enter long-term stewardship and wishes to benefit from LM's experience. In turn, Wismut GmbH has already put into beneficial reuse many of its sites, an accomplishment that can assist LM in its reuse efforts. LM will continue other exchanges with the Nuclear Decommissioning Authority of the United Kingdom and with the Canadian Nuclear Safety Commission.

LM Implements Risk Management Practices to Prioritize Funding and Allocate Resources

LM has implemented risk management practices to provide for an intentional and data-driven risk management strategy for prioritizing funding and other resource allocations for management of sites and support activities. A primary tool for this is a site risk-ranking methodology, which assesses all the LM sites (including those transitioning soon) on a set of common factors, including:

- Human Health Risk: Likelihood that human receptors can be exposed to unacceptable levels of site-related contamination.
- Stakeholder Risk: Likelihood that the status of a given site can be affected or questioned in some way based upon input from stakeholders (individuals or organizations). Scrutiny could lead to a need for conducting additional studies or characterization at the site. This could also lead to reevaluating an existing remedy or selecting a different remedy.
- Regulatory Risk: Likelihood that a site will not attain compliance goals (as in the case of sites where groundwater cleanup is ongoing) or that compliance will not be maintained into the future (if the remedy is no longer operating properly or site conditions change).
- Institutional Control Risk: Likelihood that ICs could be violated in the future.

In addition to prioritizing funds for site management, the results of the risk ranking help LM make science and technology investments through programs such as Applied Studies and Technology and the National Laboratory Network for LM.

LM also performs a programmatic risk assessment annually in accordance with OMB Circular A-123, Management's Responsibility for Enterprise Risk Management and Internal Control. This annual programmatic risk assessment provides LM management an understanding of where the areas of highest programmatic risk reside within the organization, and a basis for prioritization of resources to help mitigate systemic areas of high risk.

Integration of Environmental Compliance, Safety and Health, and Quality Assurance Enhances the Effectiveness and Efficiency of Operations

Integration of LM management systems associated with environmental compliance and sustainability, safety and health, and quality assurance into our day-to-day practices enhances the effectiveness and efficiency of LM operations. While LM's Strategic Plan addresses its Environmental Management System in Goals 1 and 4, safety and health and quality assurance are also key elements in management excellence.

Safety and Health: We consider no aspect of our mission more important than ensuring safe and healthy work conditions for all LM employees; contractors; subcontractors; and visitors, including regulators, at legacy sites, offices, and other work areas. This is achieved by fostering a culture focused on awareness, open communication, safety education and supervision, and safe working methods. Because LM sites are in a variety of environments and settings, we implement tailored safety and health programs and systems. Safety and health are also responsibilities of every person. If an LM employee, contractor, or visitor observes a situation or feels that something they are asked to do is unsafe, they have a right to ask for work to stop until the problem is addressed or until everyone is satisfied that the activity will be completed safely.

LM provides safety program management, technical oversight, and expertise in the fields of industrial safety and hygiene, occupational safety, construction safety, radiation protection, fire safety, accident/incident investigation and reporting, and safety and health training. In addition, we are implementing a comprehensive Emergency Management Program (EMP), including site-specific requirements for all our offices outside of Washington, D.C.; our sites that have federal and/or contractor workers assigned to them; as well as our "unoccupied sites." Because our sites have little or no infrastructure, LM works closely with local first responders for EMP implementation. LM is using more effective systems to notify, account for, and communicate with our federal and contract partner staff in the event of an emergency or catastrophic event. We are also implementing measures to ensure the continuation of necessary business functions and to effectively communicate with stakeholders in the event of a catastrophic event.

As part of our safety and health program, LM implements the Federal Employees Occupational Safety and Health Program, Title 10 CFR 851, "Worker Safety and Health Program," and we have an Integrated Safety Management program to ensure compliance with federal and state laws, DOE Orders, codes, standards, guides, federal and state regulations, and industry best practices.

Quality Assurance: LM has implemented Quality and Performance Assurance (Q&PA) processes and programs to assure work is performed in a compliant manner and consistently meets or exceeds mission objectives while minimizing potential hazards to the environment, the public, and workers. LM's program incorporates the requirements of DOE Order 414.1D, Quality Assurance, using ISO Standard 9001:2015 as the chosen national standard. Our Q&PA management systems ensure requirements are identified and integrated into LM procedures and work activities are adequately described in documents such as workplans and procedures.

LM implements sustainable management practices at sites and facilities in accordance with federal, state, and tribal government regulations. LM achieves and demonstrates environmental excellence by assessing and controlling the impact of our activities and facilities on public health, employee safety, and the environment under our Environmental Management Systems program. LM strives to be mindful of the long-term nature of our mission and plans for efficiency, optimized performance, and reduced costs and waste associated with energy use, renewable energy, water conservation, and our fleet and aviation management programs. We are cognizant of potential impacts our program

may have on natural resources, but also how potential severe weather events may impact the effectiveness of the remedies at LM sites for protecting human health and the environment. LM strongly considers the environment when managing our occupied facilities across the country. Whether we lease or own assets, we plan to promote High Performance and Sustainable Building (HPSB) guiding principles and strive to meet Leadership in Energy and Environmental Design (LEED) standards for construction.

LM Made Significant Progress in Completing Portions of Its Mission Since the Last HPO Plan

Transfer Pension Plan Liabilities and Assets to Insurance Companies

LM funds pensions and post-retirement medical and life insurance benefits for more than 9,000 former contractor workers and their spouses. The Department's oversight of post-retirement benefits of former contractor workers at closure sites is unique in the federal government — DOE continues to fund the benefit programs after contract closeout, while maintaining and improving the quality of services to post-closure retirement plan participants. DOE holds the risks of investment return volatility; changes in the bond market, which affects the interest rates used to value liabilities; medical costs inflation; and changes in legislation that affect funding pension plans long after the contract work is complete.

Closure site contractors have revised their investment approaches and shifted their pension plan assets to a conservative investment portfolio appropriate for a "closed" population of workers. The combination of this investment approach, changes to the stock and bond markets, and a fiscally conservative approach for funding the minimum contribution required under the Employee Retirement Income Security Act has resulted in pension plan assets rising to 100 percent or more of liabilities. The outcome has significantly reduced LM's out-year budget requirements for pensions and post-retirement benefits.

However, efforts to anticipate changes in market conditions continue to affect budget formulation. Accordingly, five closure-site contractors have requested and received Departmental approval to transfer the liabilities and assets of pension plans to insurance companies. The result has been to safeguard former workers' pension benefits by eliminating the funding risk associated with an uncertain federal budget.

During FY 2021 through FY 2025, a significant amount of LM's budget will be used to fund contractor post-retirement benefits, with medical insurance accounting for the single largest outlay. This creates a significant funding risk for LM because the cost of health care has been increasing faster than inflation. In addition, a growing federal deficit has contributed to increased pressure to reduce or maintain the current level of federal spending. Also, the full impact of the Affordable Care Act on retiree medical benefits remains uncertain. Three contractors have mitigated this funding risk by proposing and receiving Departmental approval to implement health reimbursement arrangements for retirees. This provides retirees with a fixed amount to be used to purchase Medicare supplemental insurance on the open market. Several other DOE contractors with open plans have looked to LM's approach as a model.

LM expects the following contractor actions to continue including lump-sum buyouts and insurance company annuities, and implementation of health reimbursement arrangements for retirees eligible for Medicare. We have created a process for handling these contractor actions. LM will continue to safeguard retirement benefits and control costs by working closely with an intra-agency working group, contractor staff, and independent actuarial firms to understand the latest practices.

Pension and benefit continuity fulfills the Department's commitment to former contractor employees who previously worked at sites prior to closure. For sites that have been closed, following the end of active programs and completion of site remediation, LM is responsible for ensuring former contractor employees, their dependents, and their beneficiaries receive the pensions and post-retirement benefits that are part of the contractual agreements for the respective sites. Dependent upon the contract provisions for the respective sites, LM funds the contractor cost of providing retirement benefits to former contractor employees. These retirement benefits include pension plans, health insurance, health reimbursement account stipends, Medicare Part B reimbursement, and life insurance.

In FY 2020, LM's last pension plan was terminated, which transitioned plan assets to private insurance companies and thereby reduced LM liabilities. LM will continue to support the administration of post-retirement benefits (healthcare and insurance) for the following sites: Fernald, Ohio; Mound, Ohio; Portsmouth, Ohio; Grand Junction, Colorado; Rocky Flats, Colorado; Paducah, Kentucky; and Pinellas, Florida.

Beneficial Reuse

LM is proactively managing real property assets over the long-term to use lands and facilities for federal, public, and private purposes while remaining consistent with the tenets of sustainability and good land-management practices. Beneficial reuse for LM refers to a productive use of land or assets that no longer have a DOE mission after being remediated to a specified land use. LM promotes beneficial reuse activities that are consistent with final cleanup objectives and compatible with long-term maintenance and ensures protection of human health and the environment. Our reuse activities are environmentally sound and retain good stewardship of natural resources.

LM's overall goal for beneficial reuse is to revitalize 100 percent of available DOE-owned sites and implement multi-faceted reuse at as many sites as feasible. LM implements DOE's integrated land-use planning processes, taking into account environmental, economic, ecological, social, and cultural factors affecting each site or parcel of land. LM supports seven categories of reuse: disposal, energy-related, conservation, commercial/industrial, community, agriculture, and cultural resources.

To pursue national and regional initiatives, LM collaborates with internal and external working groups when developing beneficial reuse opportunities. These activities include supporting adjacent land uses or local community master plans on properties that are owned or managed by multiple entities. For example, conservation reuse is a viable option for many of the LM sites and it provides for various environmental, economic, and social benefits. Ecologically revitalizing a site encourages recreational activities and economic development such as tourism, agriculture, and urban development.

In 2018, LM issued the Beneficial Reuse Management Plan that identifies, summarizes, and explains LM's beneficial reuse criteria, screening, and general procedures. The plan provides the framework for the Beneficial Reuse Program, including the goals, objectives, and metrics under which LM measures program implementation. Two main elements for reuse are: protectiveness — activities are compatible with long-term maintenance and ensure protection of public health and the environment; and environmentally sound — activities retain good stewardship of natural resources.

In July 2019, EPA announced that the Fernald Preserve, Ohio, Site, won the second annual "National Federal Facility Excellence in Site Reuse" award for the National Priorities List category. EPA established the annual award program in 2018 to recognize outstanding efforts to remediate and restore federal sites for reuse, with the hope of teaching best practices for other sites to replicate. Environmental remediation, ecological restoration, and continuing long-term stewardship of the Fernald site have converted the former Cold War production facility to a 1,050-acre undeveloped park with an emphasis on wildlife.

Most recently, EPA awarded LM the 2020 Federal Facility Excellence in Site Reuse Award to the Weldon Spring Site. This award recognizes noteworthy restoration and reuse of federal facility sites through innovative thinking and cooperation among federal agencies, states, tribes, local partners, and developers. The Weldon Spring Site played a pivotal role in U.S. weapons development in World War II and the Cold War. The 228-acre site located 30 miles west of St. Louis, Missouri, was remediated and revitalized for beneficial reuse as a community educational center, restored native prairie, and recreational site. The Weldon Spring Site Interpretive Center is an outstanding example of reuse for community benefit, featuring an exhibit hall that informs and educates the public on the historical legacy of the site as well as LM's ongoing work as stewards and protectors of public health and the environment.

PLANNING AND PERFORMANCE REPORTING EFFORTS

The Department and LM have completed and continue to conduct several planning and performance reporting initiatives that directly support the LM FY 2021–FY 2025 HPO Plan. These initiatives include but are not limited to the DOE 2018–2022 Strategic Plan, the LM 2020–2025 Strategic Plan, the LM 2021–2025 Human Capital Management Plan, the LM Site Management Guide, the LM Program Update, and the LM Post Competition Accountability Report. Each of these initiatives are briefly described in the following sections.

Planning Efforts Support LM's New HPO Plan

DOE Strategic Plan

The DOE mission is to advance U.S. national security and economic growth through transformative science and technology innovation that promotes affordable and reliable energy through market solutions and meets nuclear security and environmental cleanup challenges.

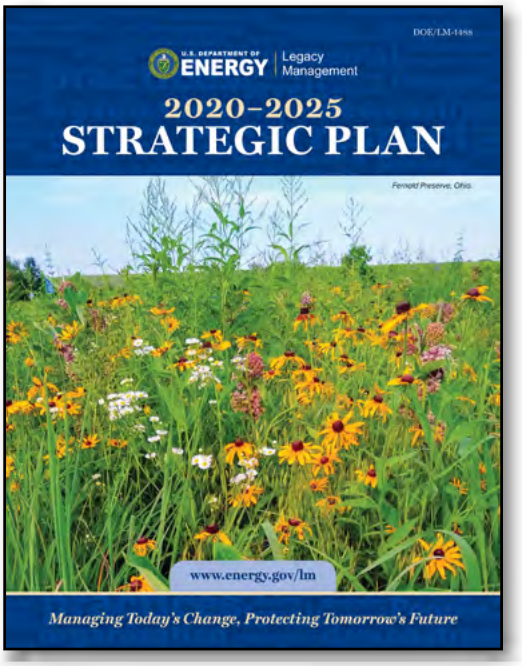
The Department's Strategic Plan reflects the priority to ensure the nation's security and prosperity by addressing its energy, environmental and nuclear challenges through science and technology solutions. The DOE Strategic Plan highlights efforts to transform the nation's energy system and secure leadership in clean energy technologies, pursue world-class science and engineering as a cornerstone of economic prosperity, and enhance nuclear security through defense, nonproliferation, and environmental efforts.

The energy, science, nuclear security, nuclear waste management, and cybersecurity goals in the DOE Strategic Plan are aligned with the DOE mission. The DOE enterprise is composed of approximately 14,000 federal employees and more than 90,000 management and operating contractors and other contractor employees at the Department's headquarters in Washington, D.C., and at 83 field locations across the country. DOE operates a nationwide system of 17 national laboratories that provides world-class scientific, technological, and engineering capabilities, including the operation of national scientific user facilities used by more than 29,000 researchers from academia, government, and industry. The breadth, depth, and scale of science and technology (S&T) development at the DOE laboratories provide strategic assets to accomplish DOE missions, support government responses to unforeseen domestic and international emergencies, and provide technical capabilities to help shape the global S&T landscape.

LM's primary contributions to DOE's mission include addressing the Manhattan Project and Cold War legacy responsibilities, performing LTS&M of legacy sites, disposing of excess land for other beneficial uses, and assisting DOE in meeting sustainability goals.

The LM Strategic Plan is a Roadmap Through FY 2025

In January 2020, LM published its *2020–2025 Strategic Plan*, which describes the goals, objectives, and strategies LM will implement to support the DOE Strategic Plan and to execute its mission and achieve its vision. The LM Strategic Plan documents the organization's core values and operating principles and is organized around the following six goals:

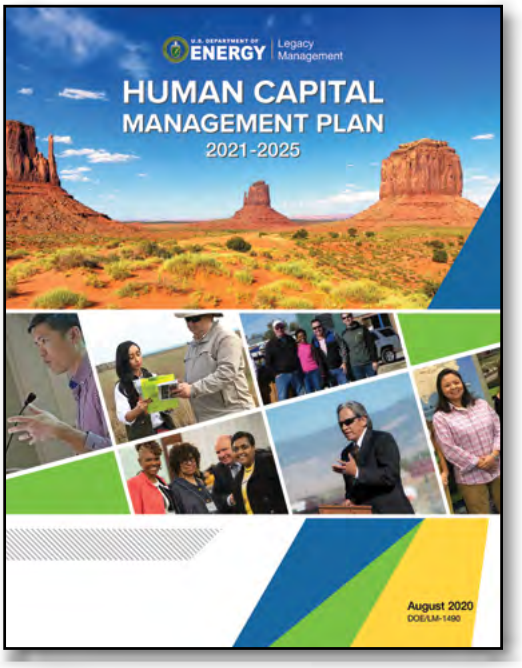


- Protect Human Health and the Environment (Goal 1)
- Preserve, Protect, and Share Records and Information (Goal 2)
- Safeguard Former Contractor Workers' Retirement Benefits (Goal 3)
- Sustainably Manage and Optimize the Use of Land and Assets (Goal 4)
- Sustain Management Excellence (Goal 5)
- Engage the Public, Governments, and Interested Parties (Goal 6)

Each goal includes a situational analysis along with objectives and strategies for meeting the goal. Also included are specific performance measures for each goal that LM will use to determine how effective strategies have been implemented and whether objectives have been accomplished. These performance measures are directly incorporated into LM's HPO Plan and provide the metrics by which LM will measure its effectiveness in implementing its Strategic Plan.

LM Human Capital Management Plan

To accomplish our mission and achieve our vision, LM must rely on the capabilities and dedication of its staff. The continued growth in the LM scope and mission requires a detailed Human Capital Management Plan (HCMP) that takes into account the current and future human capital needs of the organization, and establishes the programs and processes needed to meet the challenges that come with managing additional sites.



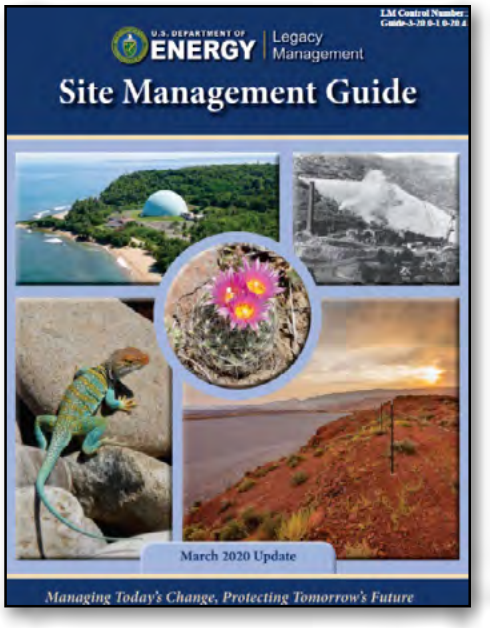
To this end, the LM 2021–2025 HCMP establishes the framework of programs and practices that will guide us in meeting the needs of our workforce. This plan includes strategies and actions that will enable us to improve the way we attract, hire, develop, retain, empower, and improve the lives of our workforce now and in the future.

The HCMP summarizes the future needs of the LM organization, the objectives of changes to its organizational structure, current and projected future staffing levels, grade structure, and technical capability needs, workforce planning, diversity, and the geographic distribution of its staff, and specific actions to achieve its human capital objectives. Portions of the HCMP are summarized in Section 4, The LM Organization.

LM Site Management Guide

LM maintains and publishes annual updates to its Site Management Guide. The Site Management Guide is a reference document for LM and its contractor(s), which provides accurate and consistent site information, including but not limited to, site name and location, transferring organization, planned and actual transfer dates, regulatory drivers and programmatic framework, and site category.

The data elements in the Site Management Guide are under configuration control and cannot be altered without proper approvals. LM manages and controls all Site Management Guide changes except changes to data about EM Closure Sites transferring to LM, which require joint approval by EM-1 and LM-1.



LM Program Update

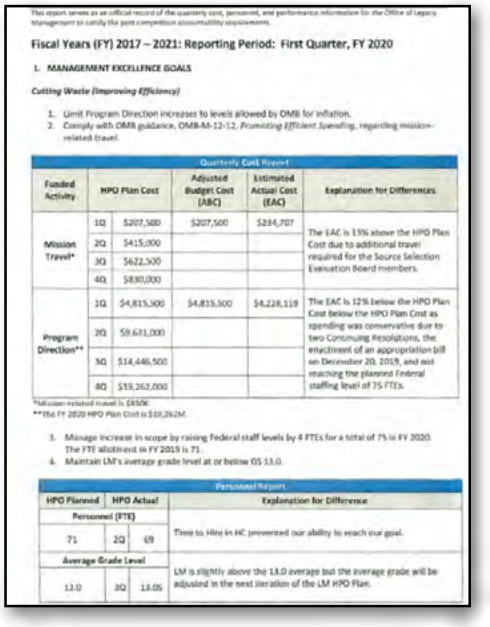
LM publishes a quarterly Program Update to provide a status of activities. The Program Update documents and communicates the progress LM continues to make implementing the objectives and strategies for each of the six goals in the LM Strategic Plan.

The LM quarterly Program Update highlights the key initiatives throughout the entire organization including the specific contributions and accomplishments of individuals responsible for LM's continued success. LM advances in each of the six goals are represented.

LM Post Competition Accountability Report

LM also publishes a quarterly Post Competition Accountability Report, which provides data associated with the organization's performance against commitments in its HPO Plan. The report serves as an official record of the quarterly cost, personnel, and performance information for LM to satisfy post competition accountability requirements.

LM will continue to report quarterly against the performance measures and commitments included in the FY 2021–FY 2025 HPO Plan.


Fiscal Years (FY) 2017 – 2021: Reporting Period: First Quarter, FY 2020

I. MANAGEMENT EXCELLENCE GOALS

Cutting Waste (Improving Efficiency)

1. Limit Program Direction increases to levels allowed by OMB for inflation.
2. Comply with OMB guidance, OMB-M-12-12, *Promoting Efficient Spending*, regarding mission-related travel.

Quarterly Cost Report

Funded Activity		HPO Plan Cost	Adjusted Budget Cost (ABC)	Estimated Actual Cost (EAC)	Explanation for Differences
Mission Travel*	1Q	$207,500	$207,500	$284,707	The EAC is 13% above the HPO Plan Cost due to additional travel required for the Source Selection Evaluation Board members.
	2Q	$415,000			
	3Q	$622,500			
	4Q	$830,000			
Program Direction**	1Q	$4,815,300	$4,815,300	$4,228,119	The EAC is 12% below the HPO Plan Cost below the HPO Plan Cost as spending was conservative due to two Continuing Resolutions, the enactment of an appropriation bill on December 20, 2019, and not reaching the planned Federal staffing level of 75 FTEs.
	2Q	$9,631,000			
	3Q	$14,446,500			
	4Q	$19,262,000			

*Mission-related travel is $850K.
**The FY 2020 HPO Plan Cost is $19,262M.

3. Manage increase in scope by raising Federal staff levels by 4 FTEs for a total of 75 in FY 2020. The FTE allotment in FY 2019 is 71.
4. Maintain LM's average grade level at or below GS 13.0.

Personnel Report

HPO Planned		HPO Actual	Explanation for Difference
Personnel (FTE)			
71	2Q	69	Time to Hire in HC prevented our ability to reach our goal.
Average Grade Level			
13.0	3Q	13.05	LM is slightly above the 13.0 average but the average grade will be adjusted in the next iteration of the LM HPO Plan.

THE LM ORGANIZATION

The LM Organization Reflects Its New Responsibilities and Significant Changes in the Composition of Its Employees

The LM organization is composed of personnel with a multidisciplinary set of skills and abilities with federal and contractor staff located in Grand Junction, Colorado; Monticello, Utah; Morgantown, West Virginia; Pinellas, Florida; Southwest Ohio (to support the Fernald and Mound sites); St. Charles, Missouri (the Weldon Spring Site); Tuba City, Arizona; Westminster, Colorado; and Washington, D.C. Our geologists, hydrologists, engineers, and physical scientists ensure long-term protection of the environment. Our certified realty officers and property specialists manage and dispose of federal property. We also have IT specialists and records professionals to capture, safeguard, and share information. Our historians and public participation specialists help us engage with stakeholders and governments. And lastly, our human resource and administrative staff provide cost-effective support to management and site personnel and associated workflow needs.

The LM mission continues to grow with expanding programs and responsibilities at an increasing number of sites. We are cost-effectively managing these responsibilities with a fewer number of employees. We are able to do this by attracting and retaining high-caliber and multidisciplinary staff, focusing on inherently governmental functions, and maintaining flexibility and supporting job rotations to achieve defined and measurable performance outcomes.

DOE LM staff photo

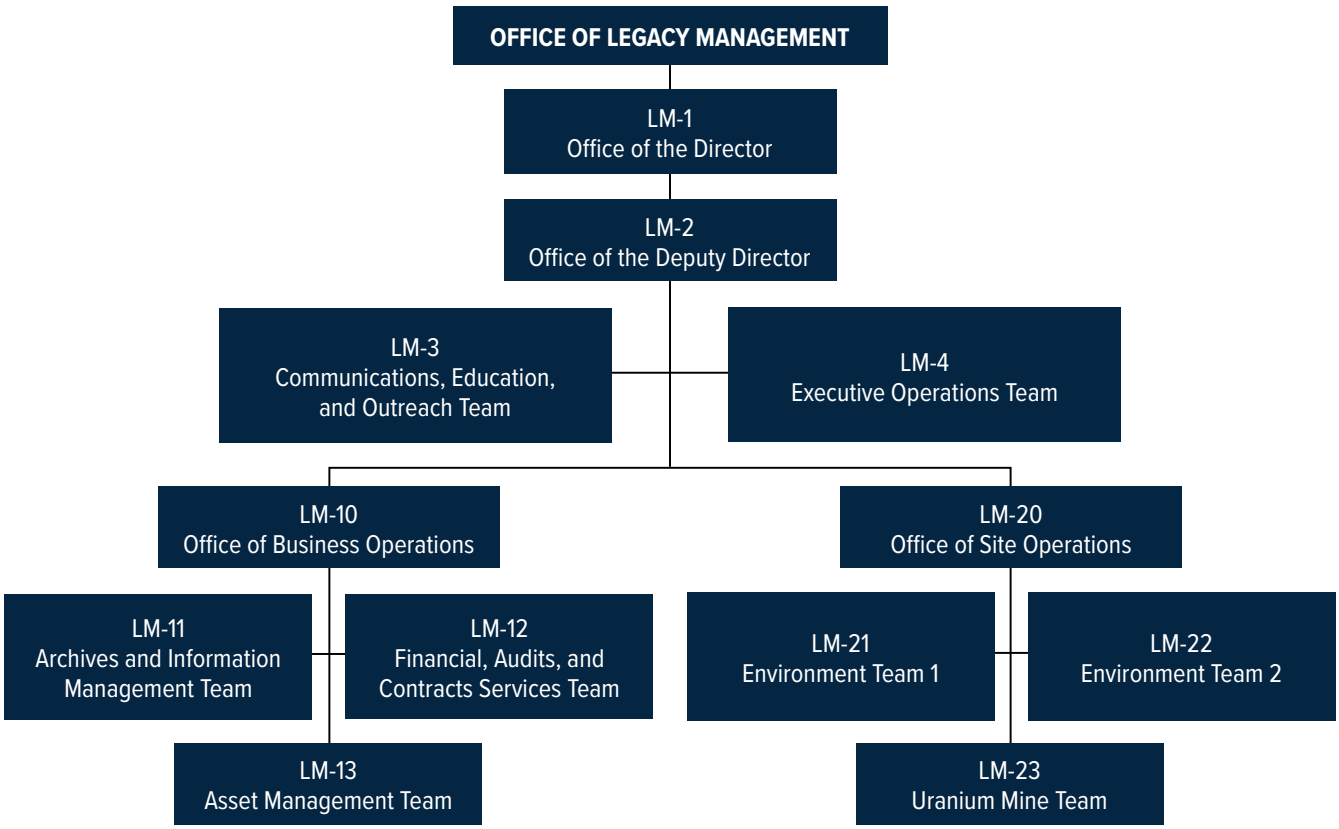
We recognize the importance of having a lean Headquarters organization in Washington, D.C., and deploying the majority of our personnel in the field, close to LM sites, embedded in respective communities, and partnering with state and local governments. Over the next five-year HPO period, we intend to manage our responsibilities with 80 personnel averaging a grade of GS-13. LM's ability to accept increasing mission responsibilities without significantly increasing staff is based on our leveraging an operating model that includes partnerships with USCAE, national laboratories, an Engineering Services Support Contractor, and a General Service Support Contractor.

The LM organization (Figure 1) is structured to conduct our mission in a safe, cost-effective, and responsive manner. Significant organization changes since the June 2017 HPO Plan include:

- The Communications, Education, and Outreach Team was so-named and expanded to develop a fully integrated outreach and communication program with the public, federal, state, and local governments, and tribal nations to allow LM to be more efficient, proactive, effective, and responsive to planned and unplanned events.
- The History Program mission was recently assigned to LM and resides within the Communications, Education, and Outreach Team. The program plays a key role in maintaining Departmental history and it will support the Department's Federal Preservation Officer (FPO).
- The Asset Management Team moved from the Office of Site Operations to the Office of Business Operations to increase emphasis on execution of a key program priority — the disposition of excess assets to non-DOE ownership, including reuse or transfer of the real and personal property to other agencies or private interests.
- The Environmental Compliance, Safety and Health, and Quality Assurance group was created in the Office of Site Operations to improve integration of environmental compliance and sustainability, safety and health, emergency management, and quality assurance into day-to-day activities to enhance the effectiveness and efficiency of LM operations.
- The Human Resources Management Team and the Coordination, Operation, and Guidance Team were combined and renamed Executive Operations to enhance employee recruitment and retention programs and provide increased focus on crosscutting organizational initiatives such as continuity of operations, emergency planning, and personnel security.

In 2017, the Director of Business Operations and the Director of Site Operations exchanged positions to drive more integration and understanding of all LM functions. Business Operations and Site Operations are both technically demanding and organizationally challenging. This strategy enabled a more comprehensive understanding of all LM functions within the organization. With office directors experienced in both of LM's major functional areas, the organization has increased flexibility, integration, and collaboration and has led to enhanced strategic thinking and problem solving throughout LM.

Figure 1. LM Organizational Structure



LM Teams and Positions Align with New Programs and Strategic Goals

Office of the Director/Office of the Deputy Director

The Office of Director/Office of the Deputy Director is responsible for providing overall management and direction to the LM organization including developing strategies, plans, policies, and program guidance to assure coordination of LM functions; ensuring all needed safety and security programs are in place in accordance with DOE policies; making public participation a fundamental component of all program operations, planning activities, and decision-making by coordinating and integrating activities with external organizations that have a relationship with LM; and developing and maintaining relationships with all stakeholders, including national and local groups on the implementation of environmental remedies and LTS&M.

The Office of Director/Office of the Deputy Director has primary responsibility for EJ within the Department. LM serves as the DOE lead for implementation of the Executive Order No. 12898 on Environmental Justice. This responsibility includes integrating EJ into DOE programs, policies, and activities and establishing measures of performance that reduce or eliminate the disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, American Indian Tribes, and Alaska Natives.

Communications, Education, and Outreach Team

All LM employees have some involvement in interfacing with stakeholders, as well as various levels and types of governments (local, state, federal, and tribal nations). The Communications, Education, and Outreach Team is responsible for improving integration of LM's work with stakeholders. This integration includes both from a national to a local level, as well as having local site-specific engagement shape national policies. Responsibilities include leading LM's participation in national forums such as the State and Tribal Government Working Group, the Energy Communities Alliance, and the National Conference of State Legislatures, among others; continuing to publish LM's quarterly Program Update newsletter; and interfacing with DOE Headquarters organizations such as the Office of Public Affairs and the Office of Congressional and Intergovernmental Affairs. The Communications, Education, and Outreach Team is also responsible for working with site managers to develop innovative approaches to provide information and seek input from stakeholders and other governments, including tribal nations. The team also maintains and manages historical information, including the official history of the Department and guides departmental staff on the collection and preservation of DOE historical records and its predecessor agencies.

Executive Operations Team

The Executive Operations Team is responsible for providing human resources, administrative functions, organizational initiatives. Responsibilities include developing and implementing the LM HCMP, including recruiting, retention, and performance evaluation processes; administering training policies and programs; and supporting continuity of operations, emergency planning, and personnel security activities.

Office of Business Operations

The Office of Business Operations is responsible for planning, developing, and implementing systems and processes for budget formulation and execution, including identification of priorities for future spending and an itemized forecast of future funding and expenditures during a targeted period of time through the collection and use of performance information to assess the effectiveness of programs to develop budget priorities. Additional responsibilities include coordinating information collection, storage, dissemination, and disposition and managing policies, guidelines, and standards regarding information management; planning, designing, and maintaining an IT infrastructure to effectively support automated

needs (i.e., platforms, networks, servers, etc.); overseeing the administrative records management policies and procedures which guide and govern the physical and electronic records management operations of the organization; implementing DOE policy for post-closure continuity of retiree benefits for eligible site closure contractor employees and providing oversight to ensure budgets for post-closure benefits program are in compliance with management controls; planning, developing, and implementing systems and processes for maintenance and disposition of real and personal property under the control of LM, including beneficial reuse plans and transfer to community or other organizations.

Archives and Information Management Team

The Archives and Information Management Team is responsible for custodianship of legacy physical and electronic records for LM sites, including management of the physical and electronic records of legacy sites, programs, and operations at the LMBC, a NARA-certified storage facility, in Morgantown, West Virginia. Specific responsibilities include management of LM's IT infrastructure requirements including modernization of records and information systems, improved information management collaboration capabilities, and continuous enhancement of cyber security. The team is directly responsible for approximately 120,000 feet of physical records and approximately 184 terabytes of electronic records. Responsibility in this area includes management of the records and information systems (e.g., the Licensing Support Network) associated with the YMP, in compliance with the Federal Records Act. The team will continue to maintain the official archives until such time as the Yucca Mountain and Interim Storage Program is prepared to transfer the electronic records to a modern, cybersecurity compliant system.

Responsibilities include operational records retention, records maintenance and use, and records disposition processes and activities to ensure proper documentation of LM's environmental protection, and hazardous waste disposition-related policies and activities. This includes coordinating information collection, storage, dissemination, and disposition as well as managing the policies, guidelines, and standards regarding information management; maintaining IT infrastructure — including maintaining functional equipment, operating systems, and software capable of accessing electronic records — and providing planning, design, and maintenance of an IT infrastructure to effectively support automated needs (e.g., platforms, networks, servers, printers, etc.) and providing IT security for LM's unclassified computing networks.

Financial, Audits, and Contracts Services Team

The Financial, Audits, and Contracts Services Team is responsible for coordinating LM program planning and budget formulation and execution. Team responsibilities include implementing and managing financial reporting and internal controls, coordinating the acquisition of goods and services, managing LM program finances, overseeing procurement and the LM support services contract, managing performance measurement administration, and coordinating with DOE HQ staff offices.

Asset Management Team

The Asset Management Team is responsible for providing oversight of over 60,000 acres of land and other assets. Team responsibilities include fleet and aviation management, awarding and administering leases for property used in program functions, facility management and security of owned and leased facilities, infrastructure management, and the reuse or transfer of the real and personal property to other agencies or private interests. The team is responsible for implementing a key program priority — the disposition of excess assets to non-DOE ownership, which allows the land to be reused productively, reduces the Department's Cold War legacy "footprint," and enables resumption of local property taxes.

Office of Site Operations

The Office of Site Operations is responsible for developing and implementing policy and guidance for monitoring, maintaining, and accepting LM sites, developing Safety Management Policy and implementing integrated safety management principles into all LM functions, providing specialized quality assurance (QA) technical expertise and matrix support to all LM programs including developing QA policies, guidance, and programs, and evaluating the effectiveness of LM contractor QA activities, including performing audits, surveillance and assessments, and recommending corrective actions.

Specific Office of Site Operations responsibilities include monitoring and maintaining environmental remedies at LM sites, working with closure sites to develop LTS&M plans at selected sites prior to transfer of the sites to LM, communicating with appropriate departmental offices, regulators, state agencies, stakeholders, and the public regarding LTS&M conditions, conducting analyses of LTS&M and technology needs and developing and maintaining knowledge of state-of-the-art LTS&M technologies, systems, and science and technology projects, supporting other Program Secretarial Offices in reviewing transition plans and closure plans to facilitate transfers and/or sales of real property assets to LM, and interfacing with other agencies, the private sector, and departmental organizations conducting science and technology activities. The Environmental Compliance, Safety and Health, and Quality Assurance group is responsible for administration of DOE's stewardship and preservation under the National Historical Preservation Act, administration of an Environmental Management System (EMS) for maintaining environmental compliance and sustainably managing LM sites.

Environment Teams

Within the Office of Site Operations, LM has established two Environment Teams — one focused on UMTRCA/NVOs sites and the second concentrating on RCRA/CERCLA/FUSRAP sites. Both Environment Teams are responsible for all activities associated with LTS&M at respective sites including monitoring environmental conditions, reviewing ICs, maintaining site records, working with regulators, and responding to stakeholder inquiries. The teams are also responsible for developing site management plans for each of the sites and producing LTS&M plans for each site, as warranted.

Uranium Mine Team

The Uranium Mine Team is responsible for management of LM's ULP as well as LM's continuing role in addressing DRUM sites. Specific responsibilities include working with the U.S. Bureau of Land Management, U.S. Forest Service, and state agencies to conduct verification and validation of DRUM sites on public land managed by these agencies and executing leases for the ULP.

LM Has Made and Will Continue to Make Important Strategic Hires

The LM organization is composed of experienced, well-trained professionals specifically selected and assigned to carry out significant portions of our mission. We are conducting a workforce analysis and developing a staffing plan that is expected to be completed in late FY 2020/early FY 2021. Key tenants of the staffing plan include filling positions in a nimble and timely manner to maintain certification as an efficient and effective HPO, right-sizing the organization through recruitments for the approved number of staff per fiscal year, with the appropriate skill sets, maintaining two Senior Executive Service allocations (Director and Deputy Director) and properly defining the Directors of Site/Business Operations as Excepted Service positions to better reshape the organization, mitigating the risk associated with losing critical skills by maintaining program of priority hires and assist human resources in their work planning, anticipating skill gaps created through attrition and retirement and have action plans ready to execute, and maintaining an effective, efficient, and lean organization with limited but necessary bench strength.

LM estimates and budgets for staff are based on mission requirements, as well as the need for succession planning and proposes that number as part of the program direction portion of its budget submittal. For the period of FY 2021 through FY 2025, LM internal planning for program direction would have its staff count increase from an authorized level of 75 at the end of FY 2020 to a steady state of 80 for the FY 2021 through FY 2025 period.

The Need for Future Strategic Hires Also Creates Promotion Opportunities for LM Employees

LM reviews and monitors the planned retirement for eligible employees and the potential impacts of those retirements on the ability to conduct our mission. To address the impacts of planned retirements, LM conducts succession planning to maintain continuity of operations in Executive Operations, Business Operations, Site Operations, and throughout the entire organization.

During FY 2021 through FY 2025, LM will continue to hire supervisors as GS-14s with promotion potential to GS-15. In the future, the GS-14/15 supervisor positions will provide promotion opportunities for GS-13 employees who are interested in management positions.

LM Continues to Make Progress on Meeting Grade Structure Goals

LM continued to make progress on meeting grade structure goals. We maintained an average grade slightly above a GS-13, increased the number of site manager positions to handle LM's growing mission, created promotion opportunities to the GS-13 and GS-14 levels to retain level of expertise needed for our increasing complex mission, and established Team Leaders as full supervisors. LM will continue to maintain an average grade level around a GS-13, but it will be slightly higher than in previous years. LM has and will continue to make use of expertise from other organizations through temporary assignments and details to meet our missions.

Other LM Human Capital Considerations

Sustaining Superior Employee Engagement, Performance, Development, and Morale

Recruiting and retaining highly qualified, experienced, and talented employees requires an organization dedicated to professional development. Key factors to our success in building a skilled and experienced workforce is shared accountability for personal development, where employees take charge of their individual development plans and use available resources and tools to develop a plan that closes gaps in the skills and competencies required for their position. LM management routinely provides constructive performance feedback, not just once per year, but by regularly engaging with staff in career development discussions.

In addition to addressing gaps in skills and competencies required for positions, LM personnel also have the specific knowledge needed to be able to accomplish their roles and responsibilities. Our employees are well-trained and remain proficient in Department-wide and LM-specific programs, processes, procedures, and information technology systems that are used in carrying out their job responsibilities. Individual development plans are developed on an annual basis in conjunction with the performance review process and are in place at all levels of the LM organization with rare (and justified) exceptions.

Geographical Redistribution of Federal Employees to Improve Program Management and Interaction with Regulators and Stakeholders

LM employees are geographically dispersed throughout the country to provide safe, cost-effective, and responsive management of the 100 sites within our responsibility. As the number of sites LM manages increases, we will continue to consider locating existing employees and new hires to those parts of the country to manage the sites in the most cost-effective manner and to allow better interaction with regulators and stakeholders in those regions.

Figure 2. LM *2020–2025 Strategic Plan* Goals

Goal 1. Protect human health and the environment.

1. Comply with environmental laws and regulations related to radioactive and hazardous waste and materials.
2. Improve cost effectiveness while reducing post-closure-related health risks.
3. Improve the long-term sustainability of environmental remedies.
4. Address the environmental legacy of defense-related uranium mining and milling sites.
5. Transition new sites to LM in a safe, timely, and cost-effective manner.

Goal 2. Preserve, protect, and share records and information.

1. Protect and maintain legacy records and information.
2. Make technology solutions more efficient, relevant, and accessible to the LM stakeholder and user communities.
3. Preserve the Yucca Mountain Project science and information.

Goal 3. Safeguard former contractor workers' retirement benefits.

1. Ensure prudent funding of former contractor workers' retirement benefits.
2. Shelter former contractor workers' retirement benefits from risks.

Goal 4. Sustainably manage and optimize the use of land and assets.

1. Enhance sustainable environmental performance for facilities and personal property and address severe weather events.
2. Optimize the use of federal lands and properties.
3. Transfer excess government real and personal property.

Goal 5. Sustain management excellence.

1. Ensure LM sites are safe and secure for federal and contractor personnel, regulators, and the general public.
2. Develop and maintain high standards for planning, budgeting, acquisition, and program and project management.
3. Sustain a talented, diverse, inclusive, and performance-driven workforce.
4. Improve the quality, efficiency, and effectiveness of site management and business support actions.

Goal 6. Engage the public, governments, and interested parties.

1. Engage the public in our program, project, and site activities.
2. Work effectively with local, state, and federal partners; nonprofit organizations; international organizations; and other countries.
3. Consult, collaborate, and partner with tribal nations.
4. Support development of the Manhattan Project National Historical Park.
5. Implement Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, within LM.

LM'S FY 2021–FY 2025 HPO PLAN

The LM FY 2021–FY 2025 HPO Plan includes goals, milestones, and other metrics similar in format to those included in the June 2017 HPO Plan. Goals are established in two broad categories: Program Performance and Management Excellence.

The HPO Plan Program Performance and Management Excellence goals are aligned with the six goals in the LM *2020–2025 Strategic Plan* depicted in Figure 2. Table 4 includes the Program Performance goals, which are aligned with five of the LM Strategic Plan goals. Table 5 summarizes the Management Excellence goals, which have been established to specifically support LM Strategic Plan Goal 5, Sustain Management Excellence.

Goals are included in both categories that have been included in prior LM HPO Plans because they continue to reflect LM priorities and are significant indicators of LM program performance and management excellence as a high performing organization.

Program Evaluation and Performance Measurement

LM's performance continues to be evaluated by a diverse group of organizations in a variety of ways. The internal and external evaluation processes serve as benchmarks for continuous performance improvement. LM and our contractors also have self-assessments and internal audits to evaluate performance and cost effectiveness.

Local, state, and federal government agencies and tribal nations review LM performance. Local governments participate in a bi-annual survey conducted by the Energy Communities Alliance. The survey evaluates the major DOE programs with site and community responsibilities. State agencies serve as either environmental regulators or they own land adjacent to LM sites. At the federal level, LM is regulated by DOE, EPA, and NRC, and the Government Accountability Office conducts reviews that address several aspects of LM's mission.

Within the Department, specific areas of performance are evaluated by the Inspector General; the Chief Financial Officer; the Office of Environment, Health, Safety and Security; the Office of Enterprise Assessments; the Chief Information Officer; the Office of Management; the Office of Human Capital; as well as other organizations. The Under Secretary for Science also reviews LM's programmatic performance on a regular basis.

LM also receives formal and informal feedback from members of the communities near our sites, and from retired contractor workers who receive pension checks and health benefits from contractors funded by LM. The personnel located near LM sites and retirees are the stakeholders most impacted by LM's activities.

LM's internal evaluations and audits include reviews of our contractors' performance, our own assessment of programmatic performance, and individual federal employee reviews within the context of a federal employee performance management system.

Performance information is used by LM to identify lessons learned, leverage knowledge, and improve service delivery and outcomes. We carefully adopt and monitor the implementation of performance measures to establish program priorities and provide program direction. As a relatively small federal program, LM is typically limited to one or two performance measures in the Department's budget. However, we also establish additional performance measures as part of our HPO commitments with OMB, as well as internal measures as part of our continuous performance improvement initiatives.

LM is working within the Department and with OMB to establish FY 2021 through FY 2025 program-level performance measures. Lower tier performance measures are also established on an annual basis for each of the six goals in the LM Strategic Plan. We use these additional measures to evaluate performance at various levels within the organization.

Proposed Program Performance Goals

Table 4 includes the LM FY 2021–FY 2025 HPO Plan proposed Program Performance Goals.

Table 4. LM FY 2021–FY 2025 HPO Plan Proposed Program Performance Goals

Proposed Program Performance Goal	Goal	Target
Periodic monitoring, and compliance reports are completed on time and the results are accepted by our regulators as demonstrating remedy performance.	1	Annually
Post-closure requirements are met and final remedies are maintained in accordance with applicable laws. ICs are effective, durable, visible, and protective.	1	Annually
Baseline costs to operate, monitor, and maintain environmental remedies are reduced.	1	Annually
Five-year and other periodic independent program reviews (conducted by parties not performing the work) validate the scientific and engineering soundness of site remedies and identify opportunities for risk and cost reduction.	1	Annually
Complete the inventory of DRUM on public land.	1	FY 2022
Physical hazards of DRUM on public land are safeguarded.	1	Annually
Requests for information are answered with high-quality, timely responses that meet or exceed legally mandated time requirements.	2	Annually
LM's IT up-time meets or exceeds industry standards.	2	Annually
Control and reduce (where possible) baseline costs to manage hard copy records.	2	Annually
Control and reduce (where possible) baseline costs to manage electronic data and information.	2	Annually
LM's presence on data.gov meets or exceeds other federal organizations of similar size and mission.	2	Annually
Retired contractor medical and life insurance payments are delivered on time.	3	Annually
The systems used to predict post-retirement benefit funding requirements are accurate and reliable.	3	Annually
Business case analyses of contractors' proposals to change retiree medical benefits are developed and submitted to the Secretary of Energy for approval in a timely manner.	3	Annually
Meet or exceed sustainability goals for federal agencies.	4	Annually
Reduce long-term facility operating costs and minimize the use of natural resources through adherence to HPSB guiding principles and LEED standards.	4	Annually
Evaluate and track potential opportunities for beneficial reuse to increase the number of DOE-owned sites that incorporate beneficial reuse.	4	Annually
Ensure excess real and personal federal property is transferred to other agencies, organizations, and individuals for their use.	4	Annually
Manage the ULP so that there are no environmental compliance violations on the lease tracts.	4	Annually
Overall stakeholder survey results identify higher levels of satisfaction regarding LM communication.	6	Annually

Proposed Program Performance Goal	Goal	Target
Attendance at existing visitor centers continues to increase and new visitor centers show an upward trend in visits.	6	Annually
LM website content, articles in the LM quarterly newsletters, and information provided through other media reflect the subjects that are of the most interest to stakeholders.	6	Annually
Partnerships with other governments result in more effective solutions at reduced costs.	6	Annually
Feedback on engagement activities that are tailored to the history, interest, and needs of different tribal nations.	6	Annually
Periodic reviews of the EJ strategies used to inform, stimulate, and involve the public.	6	Annually

Proposed Management Excellence Goals

Table 5 includes the LM FY 2021–FY 2025 HPO Plan proposed Management Excellence Goals.

Table 5. LM FY 2021–FY 2025 HPO Plan Proposed Management Excellence Goals

Management Excellence Goals (Goal 5)	Target
Complete the milestones identified in the LM HCMP.	Annually
OPM FEVS results show that LM is one of the best organizations to work for in DOE and the federal government.	Annually
LM-identified personnel have received applicable and relevant safety and project management training.	Annually
Site management funding, resource allocation, and science and technology investments are prioritized based on the implementation of well-defined risk management practices.	Annually
Oversight results confirm LM programs are achieving their intended results in a safe, compliant, and efficient manner.	Annually

Environmental Liability Reduction

In addition to establishing Program Performance and Management Excellence goals as part of its HPO Plan, LM is committed to managing and reducing its environmental liabilities. The FY 2019 estimate of LM environmental liability was $7.35 billion, an amount that has been relatively stable over the last five years. Our total environmental liability has generally remained stable in recent years, although there have been some notable fluctuations at individual sites. In FY 2015 through FY 2018, the LM total environmental liability remained between $6 billion and $7 billion per year and increased to slightly over $7 billion in FY 2019. However, the environmental liability is expected to increase as additional sites are transferred to LM.

LM activities related to LTS&M of its sites accounted for about $3 billion — or 40 percent — of its FY 2019 environmental liability. Although these estimates assume a 75-year timeframe, some sites will not complete their LTS&M activities within that period. As a result, the 75-year cost estimates may underestimate the LM full life cycle costs for managing all of our sites. LM assumptions account for uncertainty about factors that could influence costs in the future, such as those related to site conditions, regulatory requirements, technology, and cleanup standards. Further, our estimates reflect the most likely, rather than worst-case, scenarios at sites, meaning the actual costs could be either higher or lower than estimates.

There are a number of challenges we face in providing LTS&M of sites related to the performance of remedies that contain or reduce contamination, environmental conditions, and new regulatory requirements. We have taken and continue to take steps to reduce the environmental liability at our current sites by exploring alternative

approaches to reduce residual contamination. For example, we are repairing an aging landfill that was damaged by extreme rainfall events at the Rocky Flats Site in Colorado.

To address challenges related to the performance of remedies, we are currently undertaking a risk analysis effort to rank sites according to several types of risks, including the risk that a site will not attain compliance with cleanup goals or that compliance will not be maintained into the future. We plan to use the results of the risk analysis to inform decisions about where to focus resources, to identify systemic technical challenges, and to identify possible opportunities for reducing LM's environmental liability, such as through technology development. Table 6 provides examples of the top LM site risks.

Table 6. Examples of Top LM Site Risks

Site	Risk Statement
Bear Creek, WY	Transition delay and regulatory risk — NRC/Wyoming Department of Environmental Quality has not approved oil and gas activity within the surface or subsurface of a site long-term care boundary (LTCB). Active oil and gas activity exist around the site. Not all subsurface mineral rights are under DOE control within the LTCB. Applications for permit to drill have been submitted to third parties for areas within the DOE LTCB.
Rocky Flats, CO	Uranium treatment system effluent at the Solar Ponds Plume Treatment System does not meet Colorado Water Quality Control Commission standards, remedy requirements, and terms of the post closure Federal Facilities Agreement.
Bluewater, NM	The exact extent of the leading edge of the bedrock plume is unknown. NRC, stakeholders, and the state of New Mexico have indicated they would like DOE to install additional offsite monitoring wells to determine the downgradient extent of the plume. If DOE does not install wells, the stakeholder groups will continue to write New Mexico Delegation letters and threatened to go to the media. Should LM request funds from congress for DOE to address the groundwater issue, LM still has no authority to do anything other than emergency response, per the general license with NRC. The risk to DOE is perception that we are not listening to the stakeholders concerns and not maintaining a site that is protective of human health and the environment.
Weldon Spring, MO	LM risks experiencing a weather-related incident at Weldon Spring (tornado).
Hazelwood, MO	Exposure of currently inaccessible soils located below buildings on the Futura property and below the fence adjacent to the rail lines in VP-40A would result in regulatory noncompliance to LM.
Durango, CO (UMTRCA)	Disposal site: A depression of the cover material has been identified during annual site inspections in a drainage channel along the north side of the disposal cell. The depression is not occurring above tailings. An engineering evaluation has been conducted. The condition could worsen and negatively impact the integrity of the disposal cell.
Fernald, OH	Uranium in the vadose zone beneath the Former Waste Storage Area may contribute to lengthening the duration of the groundwater cleanup beyond the current model predicted date of 2039.
Gnome-Coach, NM	This site is located in an active oil and gas basin. Drilling near or into the blast cavity could result in worker exposure to blast related contaminants.
Pinellas, FL	Building 100 is fully demolished, removing the RCRA cap that is in place and requiring immediate action by DOE to address the underlying contaminated media.
Shoal, NV	Changes are made at Nevada Department of Environmental Protection and the new staff do not support moving the site to closure.

As LM acquires additional sites and as remedies age, future challenges related to remedy performance could result in the need for more extensive work, including active cleanup work that is outside the scope of LM's mission, capabilities, and resources. We face challenges with environmental conditions at the sites — some of which may become more frequent or intense — and we must react to these challenges to ensure the sites remain protective of human health and the environment. Lastly, we also face challenges when regulators update or adopt new requirements and regulations for contaminants, meaning that remedies in place when LM received a site may no longer meet standards.

The Government Accountability Office (GAO) published a report on DOE post cleanup environmental liabilities in May 2020 that included three recommendations (Table 7). LM is taking the appropriate action to address these recommendations and actively manage its environmental liabilities.

Table 7. GAO Recommendations on DOE Post-Cleanup Environmental Liabilities and LM Actions

GAO Recommendations	LM Actions	Target
The Secretary of Energy should direct the Director of LM and the Assistant Secretary of EM to develop agreements and procedures for identifying and addressing circumstances at LM sites that require new cleanup work beyond the scope of LM's mission, capabilities, and resources.	LM and EM are working together to expand on agreements and procedures for identifying and addressing new cleanup work beyond LM's mission scope of long-term stewardship.	September 2021
The Secretary of Energy should direct the Director of LM to work with NRC to develop agreements and procedures for identifying and addressing circumstances at LM sites that require new cleanup work beyond the scope of LM's mission, capabilities, and resources.	LM is working with NRC and EM to develop agreements and procedures for identifying and addressing new cleanup work beyond LM's mission scope of long-term stewardship.	September 2021
The Secretary of Energy should direct the Director of LM to, as called for in LM's Strategic Plan, develop plans to assess the effect of climate change on LM's sites and to mitigate any significant impacts. These plans should incorporate principles from GAO's Disaster Resilience Framework, as appropriate.	LM currently uses models to project long-term stewardship mission requirements. These model efforts contribute to the evaluation of LM sites' vulnerability and resilience to environmental trends over time. LM will build upon current operations to develop assessment and mitigation plans, taking into account any significant effects of climate change that will incorporate principles from GAO's Disaster Resilience Framework (GAO-20-100SP), as appropriate.	September 2022

LM will continue to make a concerted effort to identify and contain environmental liabilities at a rate commensurate with the remedies of current and future sites. We will accomplish this by semiannually reviewing current sites baselines and transitioning sites activities for changing conditions and opportunities for further increasing efficiencies.

APPENDIX A

History of LM as a High Performing Organization

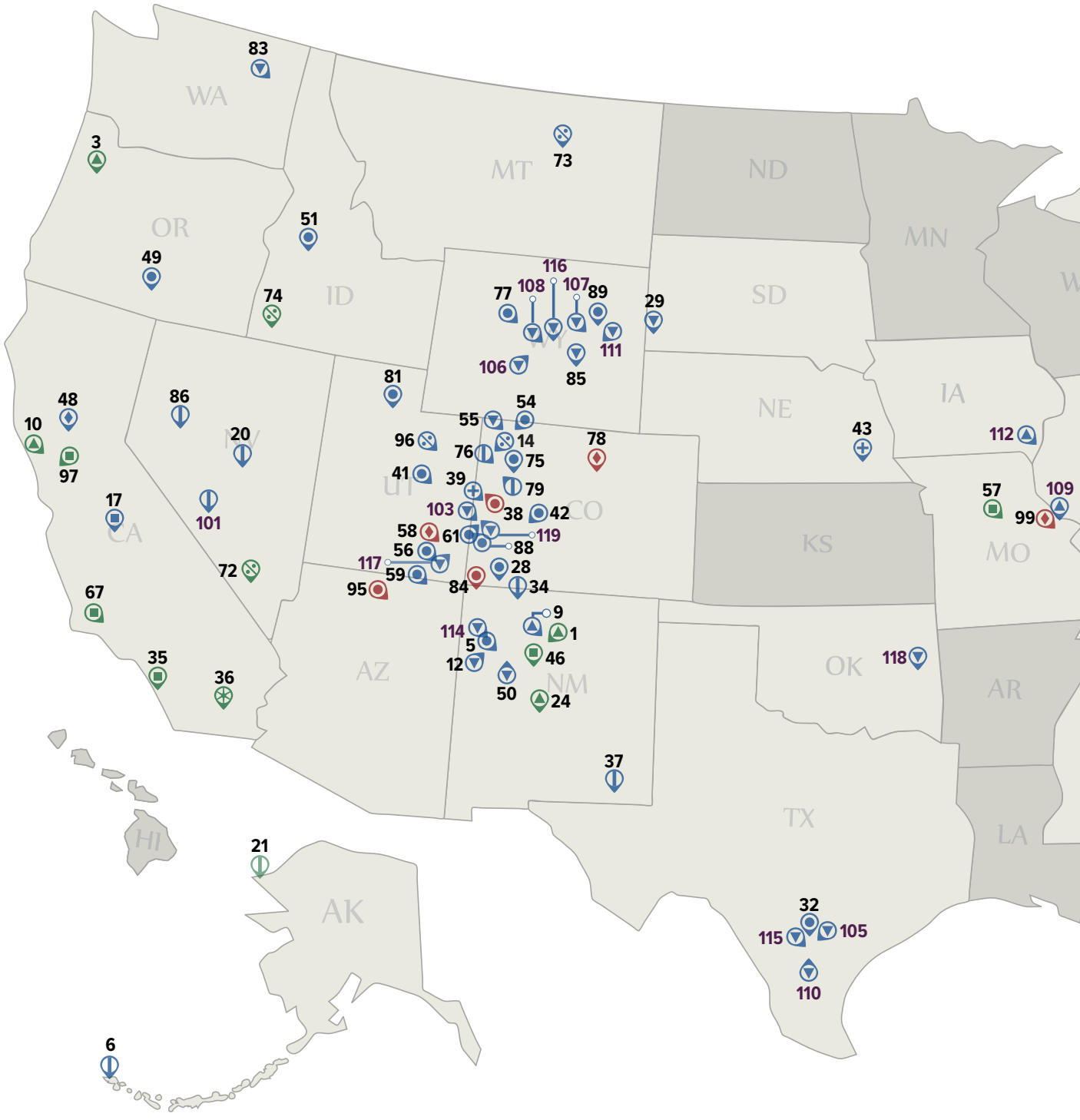
Congress established LM in December 2003. The mission of LM is to fulfill the Department's post-closure responsibilities by providing LTS&M, records management, benefits continuity, property management, and land use planning. At the end of calendar year 2019, LM managed 100 legacy sites in 29 states and the territory of Puerto Rico. Table 8 is a summary of LM key milestones as a high performing organization.

Table 8. Summary of LM Key Milestones as a High Performing Organization

FY 2004	LM established; Received responsibility to provide LTS&M at 33 sites; Published first Strategic Plan.
FY 2005	Conducted self-assessment using OMB Circular A-76 guidelines; Designated DOE lead for EJ; Reorganized into Site Operations and Business Operations Offices.
FY 2006	Published FY 2007–FY 2010 HCMP; Closed Germantown, MD, office; Established Environmental Management System.
FY 2007	Published second Strategic Plan; Completed effort to right size organization; Published FY 2007–FY 2010 HCMP; Designated an HPO by OMB.
FY 2008	Received responsibility for Rocky Flats Site, CO, and Fernald Preserve, OH, sites; Established Consolidated Data Center in Morgantown, WV; Closed Pittsburgh, PA, office.
FY 2009	Received highest achievable grade on all six Presidential Management Agenda initiatives.
FY 2010	Transferred human resources services from National Energy Technology Laboratory to Headquarters Human Resources; Established two Environmental Teams.
FY 2011	Consolidated Fernald Preserve and Mound offices in Ohio; Published third Strategic Plan; Published FY 2011–FY 2015 HCMP.
FY 2012	Received responsibility for Mound, OH, site and the Records/IT and Pension and Benefits functions for YMP, NV; Published second five-year HPO Plan to OMB.
FY 2013	Completed independent communication and outreach stakeholder satisfaction survey.
FY 2014	Published DRUM Report to Congress.
FY 2015	Completed first support services contract and awarded second contract; Published fourth Strategic Plan.
FY 2016	Received DOE responsibility for the Manhattan Project National Historical Park; Conducted Knowledge Management initiative; Completed Five-Year Review of HCMP.
FY 2017	Published first Annual Historical Summary; Published third five-year HPO Plan to OMB; Published FY 2017–FY 2021 HCMP.
FY 2018	Created Executive Operations Team and Communications, Education and Outreach Team; Consolidated Environmental Compliance, Safety and Health, and Quality Assurance under Site Operations.
FY 2019	Published EJ Second Five-Year Implementation Plan.
FY 2020	Received responsibility for 100th site to provide LTS&M; Published fifth Strategic Plan; Published FY 2021–FY 2025 HCMP; Published fourth five-year HPO Plan to OMB.

APPENDIX B

LM Anticipates Responsibility for Over 120 Sites by FY 2025



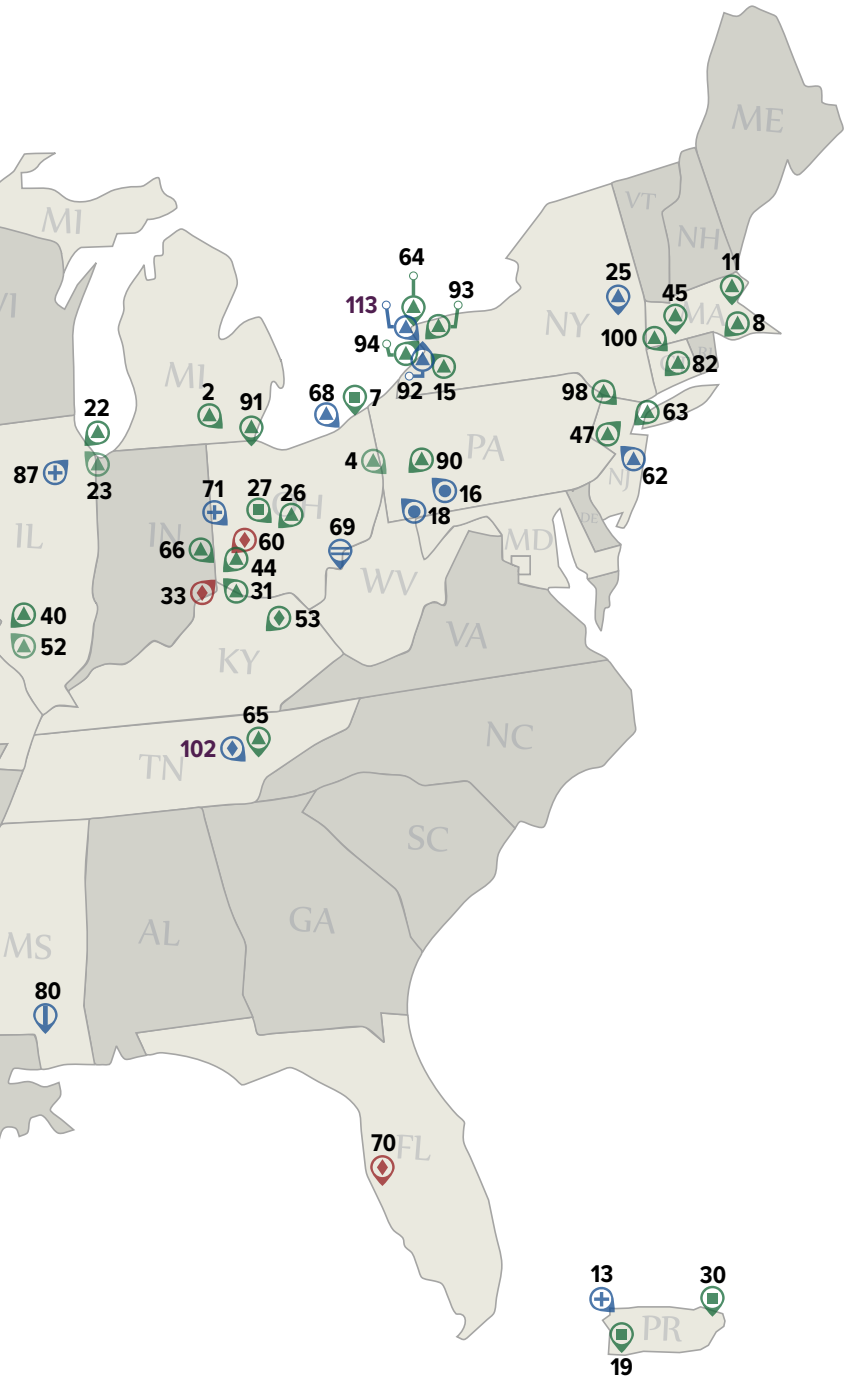
Anticipated Sites in LM Through FY 2030 Requiring LTS&M

- CERCLA/ RCRA
- D&D
- FUSRAP
- MED/AEC Legacy Site
- Nevada Offsites
- NWPA
- Plowshare/ Vela Uniform Program
- State Water Quality Standards
- UMTRCA Title I
- UMTRCA Title II

Site Categories

Category 1 activities typically include records-related activities and stakeholder support

Category 2 activities typically include routine inspection (any site visit needed to verify the integrity of engineered or institutional barriers) and monitoring/maintenance, records-related activities, and stakeholder support



Category 3 activities typically include operation and maintenance of active remedial action systems, routine inspection (any site visit needed to verify the integrity of engineered or institutional barriers) and monitoring/maintenance, records-related activities, and stakeholder support

03/2020

Site Name and Transfer Date (FY)

(1) Acid/Pueblo Canyon, NM (1985)
(2) Adrian, MI (1996)
(3) Albany, OR (1993)
(4) Aliquippa, PA (1997)
(5) Ambrosia Lake, NM (1998)
(6) Amchitka, AK (2008)
(7) Ashtabula, OH (2010)
(8) Attleboro, MA (2019)
(9) Bayo Canyon, NM (1984)
(10) Berkeley, CA (1985)
(11) Beverly, MA (2004)
(12) Bluewater, NM (1997)
(13) BONUS, PR, DR (2004)
(14) Bronco, CO (2019)
(15) Buffalo, NY (2002)
(16) Burrell, PA (1994)
(17) Burris Park, CA (2015)
(18) Canonsburg, PA (1996)
(19) Center for Energy and Environmental Research, PR (2006)
(20) Central Nevada Test Area, NV (2008)
(21) Chariot, AK (2005)
(22) Chicago North, IL (1989)
(23) Chicago South, IL (1989)
(24) Chupadera Mesa, NM (1986)
(25) Colonie, NY (2019)
(26) Columbus East, OH (2001)
(27) Columbus, OH (2008)
(28) Durango, CO, D/P (1996)
(29) Edgemont, SD (1996)
(30) El Verde, PR (2006)
(31) Fairfield, OH (1996)
(32) Falls City, TX (1997)
(33) Fernald, OH (2008)
(34) Gasbuggy, NM (2008)
(35) General Atomics Hot Cell Facility, CA (2005)
(36) Geothermal Test Facility, CA (2005)
(37) Gnome-Coach, NM (2008)
(38) Grand Junction, CO, D/P (1999)
(39) Grand Junction, CO (2002)
(40) Granite City, IL (1994)
(41) Green River, UT (1998)
(42) Gunnison, CO, D/P (1997)
(43) Hallam, NE, DR (1998)
(44) Hamilton, OH (1997)
(45) Indian Orchard, MA (2004)
(46) Inhalation Toxicology Laboratory, NM (2012)
(47) Jersey City, NJ (1983)
(48) Laboratory for Energy-Related Health Research, CA (2006)
(49) Lakeview, OR, D/P (1995)
(50) L-Bar, NM (2004)
(51) Lowman, ID (1994)
(52) Madison, IL (2002)
(53) Maxey Flats, KY (2004)
(54) Maybell, CO (1999)
(55) Maybell West, CO (2010)
(56) Mexican Hat, UT (1997)
(57) Missouri University Research Reactor, MO (2005)
(58) Monticello, UT, D/P (2002)
(59) Monument Valley, AZ (1997)
(60) Mound, OH (2012)
(61) Naturita, CO, D/P (1999)
(62) New Brunswick, NJ (2001)
(63) New York, NY (1996)
(64) Niagara Falls Storage Vicinity Properties, NY (1992)
(65) Oak Ridge, TN, Warehouses (1994)
(66) Oxford, OH (1997)
(67) Oxnard, CA (2008)
(68) Painesville, OH (2016)
(69) Parkersburg, WV (1994)
(70) Pinellas County, FL (2004)
(71) Piqua, OH, DR (1998)
(72) Plowshare/Vela Uniform Records, NV (2019)
(73) Pre-Gondola and Trencher, MT (2019)
(74) Pre-Schooner II, ID (2019)
(75) Rifle, CO, D/P (1998)
(76) Rio Blanco, CO (2008)
(77) Riverton, WY, Processing (1991)
(78) Rocky Flats, CO (2008)
(79) Rulison, CO (2008)
(80) Salmon, MS (2008)
(81) Salt Lake City, UT, D/P (1997)
(82) Seymour, CT (1995)
(83) Sherwood, WA (2001)
(84) Shiprock, NM (1996)
(85) Shirley Basin South, WY (2005)
(86) Shoal, NV (2008)
(87) Site A/Plot M, IL, DR (1998)
(88) Slick Rock, CO, D/P (1998)
(89) Spook, WY (1993)
(90) Springdale, PA (1996)
(91) Toledo, OH (2001)
(92) Tonawanda, NY (2017)
(93) Tonawanda North, NY, Unit 1 (2009)
(94) Tonawanda North, NY, Unit 2 (2009)
(95) Tuba City, AZ (1996)
(96) Utah, UT (2019)
(97) Vallecitos Nuclear Center, CA (2013)
(98) Wayne, NJ (2007)
(99) Weldon Spring, MO (2003)
(100) Windsor, CT (2019)

TRANSITION SITES

(101) Tonopah Test Range, NV (2020)
(102) East Tennessee Technology Park (Phase I)**, TN (2021)
(103) Durita, CO (2022)
(104) Elemental Mercury Storage Facility (2022)*
(105) Panna Maria, TX (2022)
(106) Split Rock, WY (2022)
(107) Bear Creek, WY (2023)
(108) Gas Hills North, WY (2023)
(109) Hazelwood, MO (2023)
(110) Ray Point, TX (2023)
(111) Highland, WY (2024)
(112) Middletown, IA (2024)
(113) Tonawanda, NY, Landfill (2024)
(114) Ambrosia Lake West, NM (2025)
(115) Conquista, TX (2025)
(116) Gas Hills East, WY (2025)
(117) Lisbon Valley, UT (2025)
(118) Sequoyah County, OK (2025)
(119) Uravan, CO (2025)

*Location of future site undetermined as of date of issuance.

**East Tennessee Technology Park (Phase II) will transition in FY25.

D/P = Disposal/Processing

DR = Decommissioned Reactor

APPENDIX C

List of Acronyms

AEC	U.S. Atomic Energy Commission
AML	Abandoned Mine Lands
AUM	Abandoned Uranium Mines
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFO	Office of Chief Financial Officer
CFR	Code of Federal Regulations
CROET	Community Reuse Organization of East Tennessee
D&D	Decontamination and Decommissioning
DOE	U.S. Department of Energy
DRUM	Defense-Related Uranium Mine
EEOICPA	Energy Employees Occupational Illness Compensation Program Act
EJ	Environmental Justice
EM	Office of Environmental Management
EMP	Emergency Management Program
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
EQuIS	Environmental Quality Information System
ETTP	East Tennessee Technology Park
FEVS	Federal Employee Viewpoint Survey
FIMS	Facilities Information Management System
FUSRAP	Formerly Utilized Sites Remedial Action Program
GAO	Government Accountability Office
GCAP	Groundwater Compliance Action Plan
GEMS	Geospatial Environmental Mapping System
GIS	Geographic Information System
HCMP	Human Capital Management Plan
HPO	High Performing Organization
HPSB	High-Performance and Sustainable Buildings
IAEA	International Atomic Energy Agency
IC	Institutional Control
IDP	Individual Development Plan
ISO	International Organization for Standardization
IT	Information Technology
FY	Fiscal Year

LEED	Leadership in Energy and Environmental Design
LM	Office of Legacy Management
LMBC	Legacy Management Business Center
LTCB	Long-Term Care Boundary
LTS&M	Long-Term Surveillance and Maintenance
LTSP	Long-Term Surveillance Plan
MOA	Memorandum of Agreement
NARA	National Archives and Records Administration
NL	National Lead Industries
NRC	Nuclear Regulatory Commission
NVOs	Nevada Offsites
NWPA	Nuclear Waste Policy Act
OMB	Office of Management and Budget
OPM	Office of Personnel Management
ORNL	Oak Ridge National Laboratory
OU	Operable Unit
PCAR	Post Competition Accountability Report
QA	Quality Assurance
Q&PA	Quality and Performance Assurance
RCRA	Resource Conservation and Recovery Act
RFLMA	Rock Flats Legacy Management Agreement
RGR	Rio Grande Resources Corporation
ROD	Record of Decision
RSLS	Regulatory Supervision of Legacy Sites
S&T	Science and Technology
SMG	Site Management Guide
SRNL	Savannah River National Laboratory
STEM	Science, Technology, Engineering and Mathematics
STP	Site Transition Plan
ULP	Uranium Leasing Program
UMTRCA	Uranium Mill Railings Radiation Control Act
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compound
WRPS	Washington River Protection Solutions
YMP	Yucca Mountain Project


"Hot Town"
Las Colonias Park