DOE/LM-1482

2017

ANNUAL HISTORICAL SUMMARY

MANAGING TODAY'S CHANGE, PROTECTING TOMORROW'S FUTURE

U.S. DEPARTMENT OF ENERGY | Legacy Management

Mexican Hat, Utah, Disposal Site.

https://energy.gov/lm

GOAL 1

Protect Human Health and the Environment

GOAL 2

Preserve, Protect, and Share Records and Information

GOAL 3

Safeguard Former Contractor Workers Retirement Benefits

GOAL 4

Sustainably Manage and Optimize the Use of Land and Assets

GOAL 5

Sustain Management Excellence

GOAL 6

Engage the Public, Governments, and Interested Parties


Preserve
Sustain
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Human
Public
Assets
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Retirement
Optimize

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Table of Contents

Las Colonias Park in Grand Junction, Colorado.

U.S. Department of Energy Modernization

In December 2017, Secretary of Energy Rick Perry announced the Department's intention to modernize its organizational structure to advance policy goals consistent with its statutory requirements. The DOE Office of Legacy Management now reports to the Undersecretary for Science.

Under the new plan, the Office of the Undersecretary for Science and Energy was separated into two undersecretary positions so there are once again three undersecretaries: the Undersecretary of Energy; the Undersecretary for Science; and the Undersecretary for Nuclear Security and National Nuclear Security Administration Administrator, as is consistent with DOE's statutory mandate. The Undersecretary for Science focuses on supporting innovation, basic scientific research, and environmental cleanup.

The modernized structure enhances DOE's focus on early-stage scientific research and development and energy technology innovation, while improving environmental and legacy management outcomes.

U.S. Department of Energy, Washington, DC.

LM Goals and Objectives

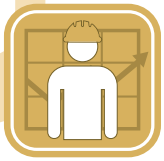
Managing Today's Change, Protecting Tomorrow's Future

Goal 1 – Protect Human Health and the Environment

- Comply with environmental laws and regulations to radioactive and hazardous materials, to prepare for receiving sites into LM.
- Reduce post-closure-related health risks in a cost-effective manner.
- Improve the long-term sustainability of environmental remedies.
- Address the environmental legacy of defense-related uranium mines and milling sites.

Goal 2 – Preserve, Protect, and Share Records and Information

- Protect and maintain legacy records.
- Make information more accessible.
- Preserve Yucca Mountain Project science and information.



Goal 3 – Safeguard Former Contractor Workers' Retirement Benefits

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

Goal 4 – Sustainably Manage and Optimize the Use of Land and Assets

- Enhance sustainable environmental performance for facilities and personal property, and account for climate change in LM site management.
- Optimize public use of federal lands and properties.
- Transfer excess real and personal government property.
- Manage the Uranium Leasing Program.

Goal 5 – Sustain Management Excellence

- Develop and maintain high standards for planning, budget, acquisition, and project management.
- Sustain a talented, diverse, inclusive, and performance-driven federal workforce.
- Improve the efficiency and effectiveness of administrative actions.

Goal 6 – Engage the Public, Governments, and Interested Parties

- Engage the public in our program, project, and site activities.
- Work effectively with local, state, and federal governments and nonprofit organizations.
- Consult, collaborate, and partner with the people and governments of tribal nations.
- Support development of the Manhattan Project National Historical Park.
- Implement Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, within LM.

Overview of the U.S. Department of Energy Office of Legacy Management

The U.S. Department of Energy (DOE or Department) is committed to managing its responsibilities associated with the legacy of World War II and the Cold War. This legacy includes radioactive and chemical waste, environmental contamination, and hazardous materials at over 100 sites across the United States and the territory of Puerto Rico. DOE has taken major steps toward fulfilling its commitments to clean up this environmental legacy by successfully implementing an accelerated environmental remediation program.

Congress directed DOE to remediate legacy sites, fulfill commitments to the former contractor workforce, and ensure a healthy environment for future generations. Congress established the Office of Legacy Management (LM) on December 15, 2003. LM's role is to meet the Department's post-closure responsibilities to provide long-term surveillance and maintenance (LTS&M), records management, workforce restructuring and benefits continuity, property management, land-use planning, and community assistance for DOE sites.

LM uses a support services contractor (LMS) to ensure consistency and accountability for protecting human health and the environment, preserving records, managing land and assets, sustaining management excellence and engaging stakeholders. Navarro Research and Engineering, Inc. (Navarro) is LM's current support services contractor.

Purpose of this Document

This document records major accomplishments that LM achieved in calendar year 2017. The intent is to provide a record for future generations who are interested in the work completed during 2017. LM will note any data reflected by the fiscal year—as opposed to calendar year—as applicable throughout the document.

Annual Historical Summaries provide a selection of the many activities LM performs during calendar years. The summaries offer stakeholders information about recent work that LM has conducted. In addition, future historians and researchers can use the summaries to place the activities of LM into larger contexts, such as the history of the U.S. Department of Energy.

LM Mission and Vision

Mission Statement

Fulfill the Department of Energy's post-closure responsibilities and ensure the future protection of human health and the environment.

Vision

- The Department's legacy workforce, communities, and the environment are well-protected and served.
- Consistent and effective long-term surveillance and maintenance protects people and the environment.
- The public has easy access to relevant records and information.
- Because we work together, stakeholders, tribal nations, and state and local governments trust us.
- The Department safeguards former contractor workforce retirement benefits through prudent, timely funding.
- People are treated fairly and have meaningful involvement.

GOAL 1: Protect Human Health and the Environment

LM manages over 90 sites in the United States and Puerto Rico.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

Fernald Preserve, Ohio, Site

- Wastewater Treatment Optimization Project
  - Safely completed removal and disposal of old system components in January to make way for the new, appropriately sized treatment system. This involved removing eight large treatment tanks, the spent treatment media within them, and the associated piping and infrastructure. LM published a video of the work at https://energy.gov/lm/articles/lm-updates-wastewater-treatment-facility-fernald-site.
  - Safely transported 38 containers of low-level radioactive waste via 14 separate shipments to a disposal site in Texas. The total volume shipped was 10,343 cubic feet. The total weight shipped was 268 tons. The total radioactivity of the waste was 0.381 curies, with ranges from 0.000694 to 0.0962 curies per shipment.
  - Awarded the construction contract for the new system in August and began construction in September. Construction of the new system was 44 percent complete by the end of the year. The project is on schedule for completion in spring 2018.
  - Removed 503.06 pounds of uranium from the Great Miami Buried Valley Aquifer.
- The Fernald Preserve supported a "drone demo" in August in collaboration with U.S. Army Corps of Engineers (USACE), U.S. Army Engineer Research and Development Center, and Environmental Laboratory—Environmental Remote Sensing Unmanned Aerial System Team.

  The group collected remote sensing data in ecologically restored forested areas and restored grassland areas of the site. This technology is expected to reduce personnel time spent on field inspections using higher quality and increased efficiencies, with more useful environmental data.
- Other site work included:
  - Paving the Weapons-to-Wetlands and Visitors Center trails.
  - Completing three prescribed burns in November, totaling approximately 40 acres, without incident. The work comprised over half of the fall 2017/spring 2018 planned burns in restored areas.

CAWWT interior before (October 2016) and after (January 2017) tank removal to provide room for the new, smaller treatment system.

GOAL 1

Pinellas County, Florida, Site

LM installed a Vapor Intrusion Mitigation System for Building 100, an occupied 11-acre manufacturing building. The system minimizes the potential for human exposure to site-related contaminants by maintaining a slight continuous vacuum beneath the floor slab to evacuate soil vapor, including contaminant vapor, safely outside the building and eliminating vapor intrusion into the building.

LM completed a site-wide bioinjection campaign consisting of injecting a solution of microbes, nutrients, and amendments into the subsurface to enhance and accelerate naturally occurring biological degradation of the chlorinated solvents in groundwater.

Rocky Flats Site, Colorado

- Completed the fourth CERCLA Five-Year Review for the Rocky Flats site.
- Completed short-term maintenance on the North Walnut Creek slump and began the geotechnical evaluation for long-term stabilization. This work is in response to recent slumping of the hillside, which could interfere with access to a monitoring location and impact the Solar Ponds Plume Treatment System collection trench. Slumps are a common occurrence at Rocky Flats.
- Work continued on the Original Landfill (OLF) stabilization project including:
  - Repairs and upgrades to the East Subsurface Drain
  - Operation of a temporary groundwater intercept system
  - Completion of the geotechnical evaluation and stabilization recommendations for the OLF

The OLF was used to dispose of solid sanitary and construction debris wastes from 1952 to 1968. Waste placed within the OLF is contaminated and commingled with hazardous constituents, including organic compounds and metals.

A soil cover installed during site cleanup has slumped in certain areas outside the waste footprint from shallow groundwater moving downgradient. The subsurface drain and temporary groundwater intercept system divert groundwater before it moves under the landfill cover. LM's geotechnical evaluation will support developing recommendations for a long-term solution to the slope stability issues.

The Pinellas Plant, circa 1960s.

Formerly Utilized Sites Remedial Action Program (FUSRAP)

The USACE, New England District submitted closure reports for two FUSRAP sites in February—Shpack Landfill, Attleboro, Massachusetts, and Combustion Engineering, Windsor, Connecticut. At the Attleboro site, USACE achieved its site cleanup goals, meaning it could be delisted from the National Priorities List. ABB Inc. owns the Windsor site, which met its cleanup goals and required no further action. Both sites are now in a two-year transition period for transfer to LM. Before transition, LM worked closely with USACE and ABB to ensure LM understands fully the site histories and current conditions through the records before transition.

Tonawanda, New York, Site

In March, LM accepted long-term care responsibility for the Tonawanda FUSRAP site from USACE. While under contract from 1942 to 1946, Linde Air Products Company used portions of the property to separate uranium dioxide from uranium ores and convert it to uranium tetrafluoride. In 1980, DOE designated the Tonawanda facility as a FUSRAP site. Remediation began in 1996 and ended in 2013. Today, Praxair Inc. owns the 135-acre industrial facility.

The two-year-long transition timeframe began when LM prepared a site-specific transition plan with key understandings of remedial actions and final site conditions. LM's site manager coordinated with the USACE project manager to receive key data and transfer site records. LM conducted outreach with site stakeholders. Upon site transfer from USACE, following the transition, LM documented the site's required future actions in a long-term stewardship and maintenance plan.

Transition and Long-Term Stewardship of FUSRAP sites

In October, staff from the USACE, LM, and LMS gathered in Pittsburgh, Pennsylvania, for the second FUSRAP joint program meeting.

The meeting helped LM and USACE better understand each other's program responsibilities, authorities, assumptions, and expectations. Attendees also identified opportunities for improved partnership. Ultimately, collaborative work results in streamlined and cost-effective long-term stewardship.

USACE meeting attendees included 20 management and technical staff from six districts, headquarters, and the Environmental and Munitions Center of Expertise.

USACE, LM, and LMS attendees at the 2017 FUSRAP joint program meeting.

GOAL 1

Nevada Offsites

Nevada Field Office American Indian Program Update Meeting

The National Nuclear Security Administration invited LM to participate in the Nevada Field Office American Indian Program Update Meeting in April. LM presented the status of long-term stewardship activities at the Central Nevada Test Area and Project Shoal Area; both are former underground nuclear test sites in Nevada.

CNTA site, Warm Springs, Nevada.

Chariot, Alaska, Site Update Meeting

Leaders from the City of Point Hope, Alaska, and the Village of Point Hope Tribal Council invited LM to Point Hope in September to update the City and Tribal leaders about the Chariot site at Cape Thompson. LM provided information about the results of the remediation work conducted in 2015 and discussed measures for long-term protection of the Chariot site. Project Chariot was part of the Plowshare Program, created to study peaceful uses for atomic energy. Cape Thompson, south of Point Hope, was chosen as a potential project site to excavate a harbor using a series of nuclear explosions. Strong public opposition led to cancellation of Plowshare Program work at the Chariot site. No nuclear explosions were conducted at the site and no nuclear devices were ever brought to the site, however some excavation did occur in preparation of these tests.

Project Shoal site,
Sand Springs Range, Nevada.

Mud-Pit Cap Inspections on Amchitka Island, Alaska

The U.S. Department of Defense and U.S. Atomic Energy Commission (AEC) conducted three underground nuclear tests in the late 1960s and early 1970s on Amchitka Island. The mud-pit caps are a result of drilling performed for the testing.

In June 2014, a 7.9 magnitude earthquake occurred 11 miles northwest of Amchitka Island, with aftershocks ranging from 6.0 to 6.9 within a 100-mile radius. During an inspection, LM observed that the earthquake slightly damaged two mud-pit caps, moderately damaged a third mud-pit cap, and caused foundation soils beneath two other mud-pit caps to become unstable. The earthquake did not expose mud material.

This year's inspection results showed that the mud-pits are intact and that previous earthquake damage appears to have stabilized. LM will monitor the mud-pit caps until a corrective action is implemented. LM will continue to communicate with its stakeholders on its long-term plan for the site.

Draft Environmental Assessment Prepared at Central Nevada Test Area

The U.S. Bureau of Land Management completed their draft Environmental Assessment for a land withdrawal surrounding Test Area UC-1, Central Nevada Test Area. The withdrawal would remove 361 acres around the site located near Warm Springs, Nevada. LM is the site's long-term steward and helped prepare the assessment.

The Central Nevada Test Area is a former nuclear test area site known as "Project Faultless." AEC performed a nuclear test at the site in 1968. It yielded an estimated 0.2 to 1 megaton TNT equivalent. Withdrawing land from the area helps ensure long-term stability and prevents disturbances to the remaining contaminated soils.

Uranium Mill Tailings Radiation Control Act (UMTRCA)

Durango, Colorado, Site Tour

Education is an important part of LM's role. LM provided a tour in May of the Durango processing and disposal sites for two Colorado congressional staffers. LM shared the site's history, as well as information on cleanup and reuse activities and on the site's evaporation pond removal

Durango, Colorado, Site Evaporation Pond Decommissioning

LM decommissioned the Durango, Colorado, Disposal Site's evaporation pond in June. The disposal cell encapsulates contaminated soil and debris from the uranium mill that operated there between 1942 and 1963. When operators built the cell in 1989, they noticed a linear area of moisture along the side slope. To capture the excess water, DOE installed a water management system to transfer the water to a double-lined evaporation pond. The system reduced the water levels in the disposal cell and seeps no longer appear on the cell's side slopes. Therefore, LM no longer needs the system to manage the site water content. Regulators from the U.S. Nuclear Regulatory Commission (NRC) and the Colorado Department of Public Health and Environment reviewed LM's work plan. LM removed the evaporation pond and transported the pond debris and liners to the Grand Junction, Colorado, Disposal Site for permanent disposal. LM regraded the site to reflect the original topography in the area.

Durango, Colorado, Site.

Mexican Hat, Utah.

Tribal Meetings with Navajo Nation and Hopi Tribe Representatives

LM held three management meetings with the Navajo Nation and Hopi Tribe representatives this year. Discussions focused on the four UMTRCA sites on the Navajo Nation and near the Hopi's traditional lands. LM provided the following statuses:

- Groundwater contamination remediation
- Navajo Uranium Remediation Advisory Commission updates
- Cooperative agreement management
- Community outreach plans

Development of Institutional Controls on the Navajo Nation

LM reached an agreement with tribal representatives on the path forward to implement additional institutional controls on the Navajo Nation. The need for additional controls is a necessary response to increased population near disposal cells and further demands of tribal lands. To maintain protectiveness, LM is assembling information for the Navajo Nation to establish formal controls that will include:

- Maps
- Site boundaries
- The extent of groundwater contamination
- Well locations
- Proximity of residences and businesses

Cooperative Agreement Award with Northern Arapaho Tribe

LM awarded a five-year cooperative agreement with the Northern Arapaho Tribe, in support of management of the Riverton, Wyoming, Processing Site. The agreement allows the Northern Arapaho Tribe to assist with management and monitoring of the Riverton site. Some of the work may involve:

- Coordinating access to adjacent properties
- Reporting unusual events such as major flooding
- Notifying LM of any vandalism or illegal activities
- Maintaining institutional controls
- Coordinating with residents and tribal members during planned activities
- Assisting with outreach efforts related to other agencies and the public

DOE warning sign near the Oxbow Lake. Riverton, Wyoming, Processing Site.

Bluewater and Grants, New Mexico, Sites

In September, the New Mexico Environment Department hosted a public meeting to discuss the prohibition of well drilling near the Bluewater and Grants sites. The Bluewater site is LM's largest site, containing over 23 million tons of contaminated material with an activity level of 11,200 curies. It is expected that the Grants site will transfer into LM in 2024. Barrick Mining Inc. currently owns the Grants site, which was the location of the Homestake Uranium Mill.

Other organizations present included:

- New Mexico Office of the State Engineer
- U.S. Nuclear Regulatory Commission
- U.S. Environmental Protection Agency (EPA)
- Homestake Mining Company of California

The meeting had a brief presentation with an overview of the proposed prohibition area, followed by a question and answer session.

Repairs to Grand Junction Regional Airport Calibration Facility

LM completed repairs to large area calibration pads at the Grand Junction Regional Airport. Facility users can calibrate portable surface gamma-ray survey meters and borehole logging instruments. LM removed the surface layer of the concrete pads, smoothed the ground, and replaced the adjacent asphalt to reduce hazards to aircraft. This LM-managed facility is one of five LM facilities nationwide and aids in calibrating equipment and instruments used for uranium exploration, environmental remediation, and homeland security. The facilities are recognized nationally as stable, well-characterized radiation sources. Industry and government agencies have used the technology since the mid-1970s.

Uravan, Colorado, Site Transition

An Interagency Working Group for the Uravan UMTRCA site met in May to discuss transitioning the former uranium mill site to LM for long-term care. The site is unique because it is one of four sites with dual regulation under UMTRCA and CERCLA. This has added to the complexity and extended the schedule for site transition. The working group includes representatives from Uravan County; Colorado Department of Transportation; U.S. Bureau of Land Management (BLM); NRC; EPA; LM; and UMETCO, the current licensee.

Panna Maria and Ray Point, Texas Sites

LM prepared to assume responsibility for the Panna Maria and Ray Point, Texas, UMTRCA Title II sites. LM acquired and processed site records and data, evaluated the surface and groundwater remedies, drafted long-term surveillance plans, and began planning for beneficial reuse. DOE coordinated activities with the licensees and regulator to fill information gaps and resolve technical issues. LM anticipates the site will transfer at the end of fiscal year (FY) 2018.

Bear Creek, Wyoming, Site

LM provided documents to NRC in preparation of Bear Creek site transition. These included a site-specific Long-Term Surveillance Plan (LTSP) and cost estimates to manage the site. Once all transition issues are resolved and the licensee pays the long-term care fee, NRC will accept the LTSP to complete site transition to LM.

EQuIS Data Management System

The Environmental Quality Information System (EQuIS) data management system achieved operational and available status for the generic sites on June 5, 2017. The generic sites include the UMTRCA sites, the Nevada Offsites, and Other sites. The Monticello, Utah; and New Rifle and Old Rifle, Colorado, sites were among the first planned and scheduled sites included in the system. LM created all of the generic site dashboards and completed training for the system. This new data management system is an updated, maintainable system for managing the environmental data for all of the LM sites.

Germanium detectors were calibrated by EPA Region 5 staff in December 2017.

GOAL 1

Applied Studies and Technology (AS&T)

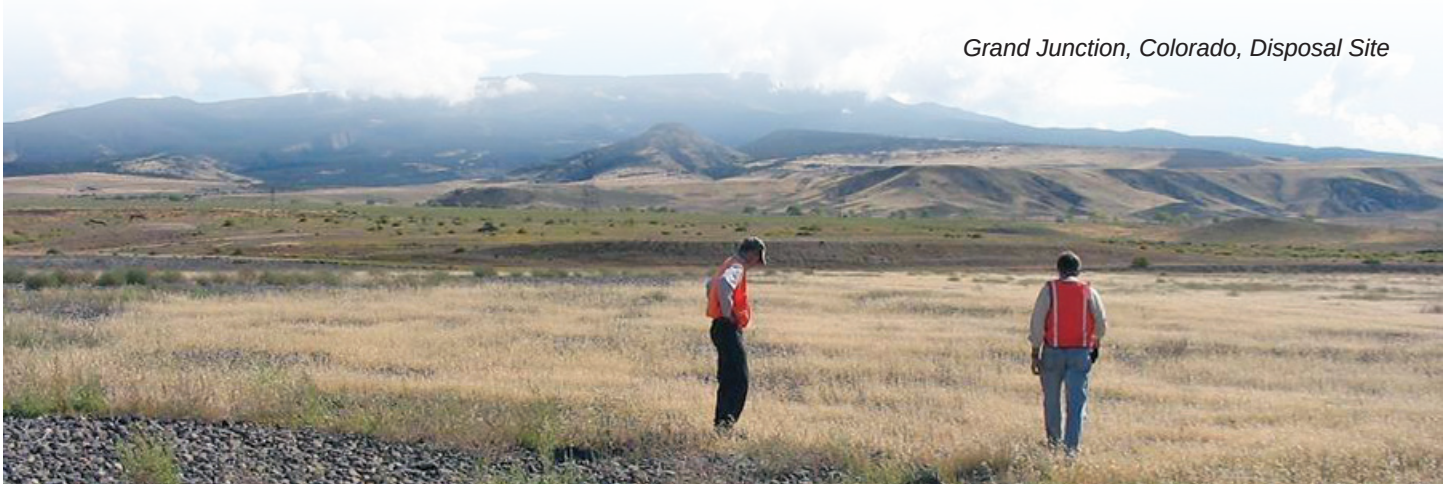
LM's AS&T program focuses on developing and investigating technologies that could improve LM's ability to provide LTS&M in a reliable, sustainable, and cost-effective manner.

LM created the AS&T Educational Collaboration focus area to strengthen and build LM's long-standing commitment to environmental science, and science, technology, engineering, and mathematics (STEM) education. Its goals are to strengthen existing partnerships with tribal colleges and Native American graduate students and to explore opportunities for new partnerships with colleges and universities. LM's partnerships with stakeholder colleges and universities also support the Secretary of Energy's commitment to educational outreach in STEM.

In FY 2017, AS&T worked on 10 long-term studies and five short-term investigations, as shown below.

FY 2017 Active Long-Term Studies and Short-Term Investigations

	Title	Status
Long-Term Studies	Variation in Groundwater Aquifers	Ongoing in FY 2018
	Plume Persistence	Completed in FY 2017
	Persistent Secondary Contaminant Sources	Ongoing in FY 2018
	SOARS: System Operation and Analysis at Remote Sites	Ongoing in FY 2018
	Data Mining, Geochemical Analysis, and Project Visualization	Ongoing in FY 2018
	Long-Term Cover Performance	Ongoing in FY 2018
	Enhanced Natural Attenuation	Ongoing in FY 2018
	Educational Collaboration	Ongoing in FY 2018
	Gold King Mine Release Impact to Uranium Mill Tailings Radiation Control Act Sites	Completed in FY 2017
	Unmanned Aircraft System Technology Evaluation	Ongoing in FY 2018
Short-Term Studies	Nevada Offsites ArcGIS Two-Dimensional (2D) Transport Modeling Assessment	Completed in FY 2017
	NVOS 3D Visualization Project	Completed in FY 2017
	LM and Subsurface Insights Modeling Collaboration	Ongoing in FY 2018
	Literature Review of Uranium Sequestration Through Polyphosphate Injection	Ongoing in FY 2018
	Title II Groundwater Flow and Contaminant Transport Model Evaluation Guidance	Ongoing in FY 2018



Grand Junction, Colorado, Disposal Site

SOARS: System Operation and Analysis at Remote Sites

Many LM sites are in remote locations, making routine field visits costly. AS&T established System Operation and Analysis at Remote Sites (SOARS) to remotely collect and transmit data in real time to LM servers.

In FY 2017, SOARS instrumentation and data was used as part of the AS&T Gold King Mine Release Impact to UMTRCA Sites project. Additionally, a new data mining, analysis, and visualization program was developed to calculate a water balance for the Shiprock site and the Monticello site evaporation ponds based on SOARS data.

SOARS locations.

Rifle, Colorado, Disposal Site.

Shiprock, New Mexico, Disposal Site.

Central Nevada Test Area (CNTA), Nevada, Site.

Multimedia Environmental Modeling

DOE Geospatial Science Steering Committee

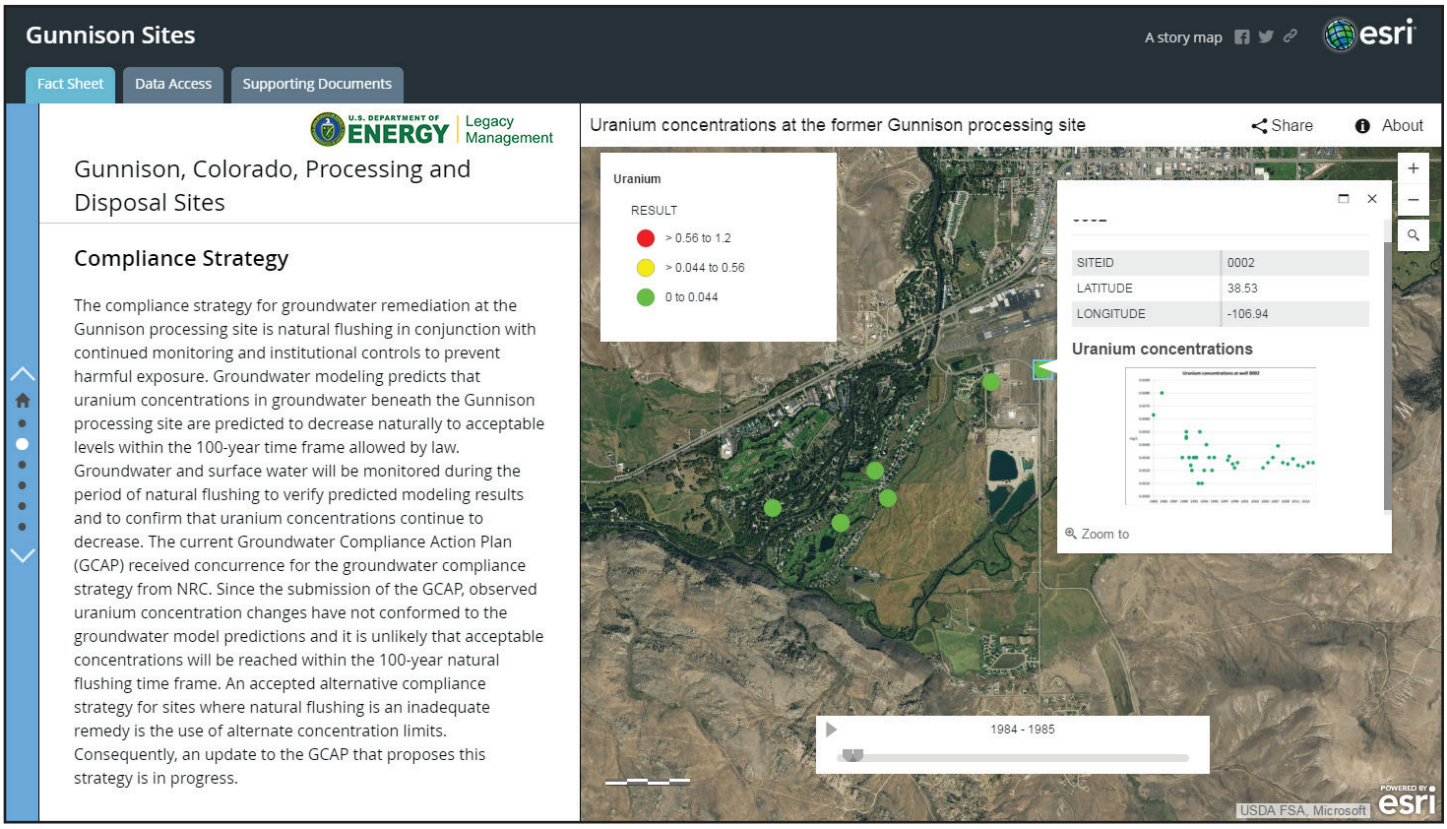
LM hosted the first quarterly meeting of 2017 for the DOE Geospatial Science Steering Committee in January via webinar. The committee advises DOE national laboratories, major facilities, headquarters and field offices in the use of Geographic Information System science and technology. The committee works to:

- Foster technical excellence and communication
- Identify and advocate best business practices
- Provide sound recommendations on policy and standards
- Coordinate with other agencies in areas of mutual interest

Environmental Systems Research Institute (ESRI) Story Maps

LM demonstrated its use of ESRI story maps to EPA in January. LM developed the story maps to improve site pages and to create a more user-friendly system. LM merged Geospatial Environmental Mapping System mapping and monitoring technology with its multimedia content on its webpages.

Stakeholders will be able to use this information to gain a better understanding of the work LM manages in their areas of interest. LM expects its site pages will convert to ESRI story maps in 2018.



Demonstration Story Map of the Gunnison processing and disposal sites. Included is an animation of measured groundwater uranium concentrations with embedded time-series plots of all sample data measured at wells. Colors indicate compliance with drinking water standards (green), proposed alternate concentration limits (yellow), and noncompliance (red).

Information Sharing with EPA

LM staff met with EPA representatives from the Cleanups in My Community Project in February. LM provided information to EPA that will enhance future data sharing between the two agencies and their mutual stakeholders. EPA's project helps users map and list hazardous waste cleanup locations and grant areas, and gain information about those cleanups other related information.

EPA's Cleanups in My Community Map (https://ofmpub.epa.gov/apex/cimc/f?p=cimc:map::::71).

Title X Uranium and Thorium Reimbursement Program

DOE appropriated $30 million in FY 2017 to the DOE Office of Environmental Management (EM) for the Title X Uranium and Thorium Reimbursement Program. This appropriation follows LM's review of reimbursement claims for activities performed by uranium and thorium processing licensees in 2015 under the Title X Program (Energy Policy Act of 1992, "Remedial Action and Uranium Revitalization," Subtitle A,"Remedial Action at Active Processing Sites"). The appropriation uses the Federal Reimbursement Ratio to determine the reimbursement that each licensee was entitled to receive. From that FY 2017 appropriation, each licensee receives reimbursement for their approved claims that directly relate to remedial actions.

Defense-Related Uranium Mines (DRUM) Program

- LM participated in an interagency effort to address the potential physical, health, and environmental risks of more than 4,000 abandoned uranium mines that provided ore to the AEC. LM performed verification and validation of 362 DRUM sites, which exceeded the program target by 21 percent.
- Performed verification and validation with partner agencies on their respective lands. Partner agencies included:
  - BLM in Colorado, New Mexico, and Utah
  - U.S. Forest Service in the Rocky Mountain Region
  - State of Utah Division of Oil, Gas, and Mining
  - State of Colorado Division of Reclamation, Mining, and Safety

  This was the first step in a five-year campaign of work to assess risk and make reclamation and remediation decisions on over 2,000 DRUM sites on public lands.

Cribbing and ore chute at the Merry Widow Mine in Colorado (main photo) and Ore Bin 4 at the Paradox 4 Mine in Colorado (inset photo).

- Researched and reconciled location and ownership data of over 500 DRUM sites in Colorado, New Mexico, and Utah

Diné College Partnership

- Maintained a multiyear partnership that supports classroom instruction and creates hands-on field experiences for environmental science students
- Presented four seminars on ecological remedies for uranium mill tailings
- Taught five classes and conducted laboratory studies covering phytoremediation, environmental sampling designs and statistics, and long-term remedy performance
- Involved Diné College intern students in field sampling activities at LM sites on Navajo land
- Led three field science trips to LM sites during the summer

Entrance for Pine Tree Mine located in San Juan County, Utah.

A 3-D model is used to demonstrate groundwater concepts to 2017 STEM Festival participants at Diné College.

University of Arizona Partnership

- Continued partnership with a faculty member, who serves as an environmental science extension specialist to Native American communities and recruits Native American graduate students. An AS&T scientist serves as an adjunct faculty advisor for students who have secured non-DOE grants to collaborate on LM studies.
  - One student completed research on the long-term success of revegetation practices at the Tuba City site and graduated with an M.S. in environmental science
  - Another student passed comprehensive exams for admission to a Ph.D. program that will include research on the long-term performance and adaptability of LM disposal cell covers to climate change and related changes in cover ecology soil morphology
  - Students presented their research at an LM/Navajo/Hopi quarterly meeting in Flagstaff, Arizona

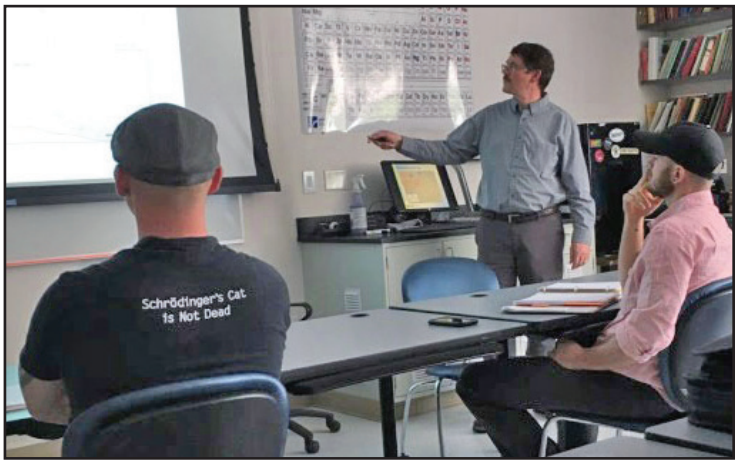
Additional Higher Education Collaborations

LMS collaborated with Colorado Mesa University in Grand Junction, Colorado

- Served as guest instructors in geology and environmental science classes
- Mentored an undergraduate geology intern on thin-section preparation and fission-track radiography interpretations

LMS facilitated research collaborations with graduate students and faculty at the following universities:

- University of Virginia, College of Engineering
- University of Wisconsin-Madison, Geological Engineering
- University of Arizona, Soil, Water, and Environmental Science
- University of Nevada-Reno, Desert Research Institute



An LMS staff member presents to an applied geochemistry class in Grand Junction, Colorado.

Environment, Safety, Health, and Quality Assurance

- The DOE Associate Undersecretary for Environment, Health, Safety, and Security granted exception to DOE Laboratory Accreditation Program for LMS in September 2017 for the whole body radiation exposure monitoring (dosimetry) program. This exemption status allows LMS to participate in an accepted dosimetry program while minimizing cost and effort to LM and LMS. Personnel whole body dosimetry (i.e., thermoluminescence dosimeter, or TLD) was issued for the first time in over 10 years to DRUM field team members. Team members began wearing TLDs the first week in October, in order to monitor whole body radiation exposures while working on DRUM sites.
- Submitted the Voluntary Protection Program (VPP) application
- Submitted Annual VPP report
- Received VPP Star of Excellence
- Submitted to LM for review and approval the following documents:
  - EM Baseline Needs Assessment
  - All Hands Survey
  - EM Program Description
  - EM Readiness Assurance Plan
- Conducted nine shelter in place drills and nine evacuation drills
- Performed one independent assessment: IA-17-002, Integrated Work Control Program
- Performed 10 management assessments including:
  - MA-17-002, Safety and Health Records Management
  - MA-17-003, Injury and Illness Reporting
  - MA-17-004, Fire Protection – Weldon Spring
  - MA-17-005, Radiation Control Technician Training
  - MA-17-006, Radioactive Waste Management
  - MA-17-007, ESL Chemical Hygiene Program
  - MA-17-008, Voluntary Protection Program
  - MA-17-010, Lockout, Tagout
  - MA-17-011, Respiratory Protection Program
  - MA-17-016, Fire Protection, Western Sites

Selected Publications and Presentations

LM and LMS staff presented work at 16 industry conferences this year. The work ranged from water savings approaches to the mobility of uranium at disposal sites.

Conference or Workshop	Location	Date	Title	Authors	Type
Third Annual Conference on Hydropedology	Beijing, China	10/16/2016	*Patterns of Decadal Soil Change on Technogenic Soil Systems Employed for Radioactive Waster Contaminant*	*M. Willems*	Presentation
American Geophysical Union	San Francisco, California	12/15/2016	*Potential for Water Savings by Defoliation of Saltcedar by Saltcedar Beetles in the Upper Colorado River Basin*	*P.L. Nagler U. Nguyen H.L. Bateman C. Jarchow C. van Riper W. Waugh E. Glenn*	Poster
American Geophysical Union	San Francisco, California	12/16/2016	*Biogeochemical Constraints on Uranium Cycling in Redox Active Floodplain Sediments*	*V. Noel K. Boye J. Bargar K. Maher S.E. Bone E. Cardarelli W. Dam* R.H. Johnson*	Presentation
American Geophysical Union	San Francisco, California	12/16/2016	*Hydrologic and Temporal Influences of Evaporite Minerals on the Vertical Distribution, Storage, and Mobility of Uranium Presentation Persistent Secondary Sources*	*S.J. Roycroft K. Boye C. Besancon K.L. Weaver R.H. Johnson W. Dam* S.E. Fendorf J. Bargar*	Presentation
American Geophysical Union	San Francisco, California	12/16/2016	*Methods for Measuring Effects of Changes in Tamarisk Evapotranspiration on Groundwater at Southwestern Uranium Mill Tailings Sites*	*W. Waugh P.L. Nagler J. Vogel E. Glenn U. Nguyen C.J. Jarchow*	Poster
Waste Management	Phoenix, Arizona	3/7/2017	*Radon Fluxes from Two Earthen Barriers over Uranium Mill Tailings After Two Decades of Service*	*C. Benson W. Albright M. Fuhrmann W. Likos N. Stefani K. Tian W. Waugh M. Williams*	Proceedings article and presentation
Waste Management	Phoenix, Arizona	3/8/2017	*Effects of Rangeland Evapotranspiration on Groundwater Recharge, Discharge and Flow at the Tuba City, AZ disposal site*	*R. Bush* W. Waugh A. Laase T. Bartlett E. Glenn C. Jarchow*	Proceedings article and presentation

*LM Employee

Conference or Workshop	Location	Date	Title	Authors	Type
Waste Management	Phoenix, Arizona	3/8/2017	*Long-Term Stewardship at a Former Uranium Mill Tailings Site in Riverton, Wyoming*	*W. Dam* A. Gil* R. Johnson S. Campbell*	Proceedings article and presentation
Waste Management	Phoenix, Arizona	3/9/2017	*Use of Groundwater Flow, Solute transport and Geochemical Modeling to Evaluate Long-Term Nitrate Plume Concentrations Following Phreatophyte Source Control*	*R.H. Johnson A. Denny* A. Laase W. Waugh A. Ranalli R. Zinkl D. Dander J. Gillespie*	Proceedings article and presentation
Abandoned Uranium Mines Working Group Meeting	Albuquerque, New Mexico	5/1/2017	*DOE-BLM Defense-Related Uranium Mines Partnership: Radionuclide and Metal Screening Levels*	*R. Edge* S. Brown D. Cox*	Presentation
MODFLOW and More	Golden, Colorado	5/21/2017	*Estimating Evapotranspiration and Recharge Rates Using a Remote Sensing Algorithm*	*A. Laase W. Waugh S. Marutzky*	Poster
SUITMA 9	Moscow, Russia	5/22/2017	*The Spatial Extent of Evolved Soil Architecture Along a Bioturbation Sequence on an Engineered Cover for Uranium Mill Tailings Containment in New Mexico*	*M. Williams W. Albright C. Benson M. Fuhrmann W. Likos N. Stefani K. Tian W. Waugh*	Presentation
Uranium Recovery Workshop	Denver, Colorado	6/5/2017	*Screening Level Risk Assessment Approaches for DOE Legacy DRUM Sites on BLM Land*	*R. Edge* S. Brown*	Presentation
Ecological Society of America	Portland, Oregon	8/8/2017	*Effects of Changes in Tamarisk Evapotranspiration on Groundwater at Southwestern Uranium Mill Tailings Sites*	*W. Waugh P.L. Nagle, J. Vogel E. Glenn U. Nguyen C.J. Jarchow*	Presentation
Ecological Society of America	Portland, Oregon	8/10/2017	*Growing Desert Phreatophytes to Control Row of Contaminated Groundwater at a Uranium Mill Site*		Poster
Goldschmidt Geochemistry Conference	Paris, France	8/15/2017	*Redox, Hydrological and Molecular Controls over Uranium Mobility in Redox-Variable Aquifers*	*J.R. Bargar V. Noël S.E. Bone S. Roycroft W.L. Dam* R.H. Johnson K.H. Williams*	Keynote presentation

*LM Employee

GOAL 1

Cultural Resource Management

National Historic Preservation Act (NHPA) of 1966 Compliance

Section 106 of the NHPA requires federal agencies to consider the effects of their work on historic properties. Agencies must allow the Advisory Council on Historic Preservation a reasonable opportunity to comment. If the responsible federal agency determines its work could potentially affect historic properties, it must consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO).

Riverton, Wyoming, Processing Site.

LM initiated the Section 106 consultation process 15 times in 2017. LM completed 12 of these consultations in 2017. None of these consultation efforts resulted in any findings of adverse effect to historic property. Some consultations involved SHPOs and/or THPOs and some undertakings required more than one letter on the topic. LM also included the City of Grand Junction and Mesa County on one consultation process involving the renovation of a historic building at the Grand Junction, Colorado, Site.

LM initiated 106 consultations with six SHPOs and three THPOs for 10 LM sites:

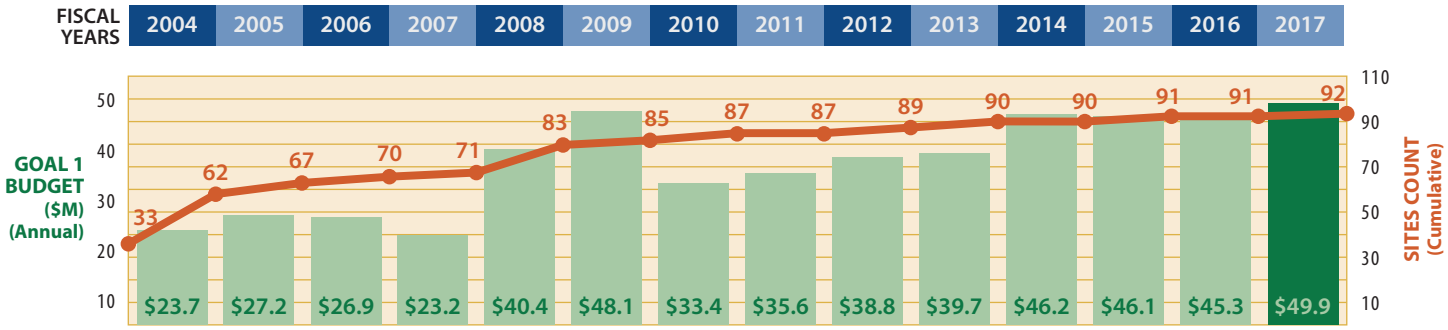
LM Site	Consulted Historic Preservation Officers
Falls City, Texas, Disposal Site	Texas SHPO
Grand Junction, Colorado, Disposal/Processing Site	Colorado SHPO
Grand Junction, Colorado, Site	Colorado SHPO
Lakeview, Oregon, Disposal/Processing Site	Colorado SHPO
Monticello, Utah, Disposal and Processing Sites	Utah SHPO
Monument Valley, Arizona, Processing Site	Navajo Nation SHPO
Naturita, Colorado, Disposal/Processing Site	Colorado SHPO
Piqua, Ohio, Decommissioned Reactor Site	Ohio SHPO
Rifle, Colorado, Disposal/Processing Site	Colorado SHPO
Riverton, Wyoming, Processing Site	Northern Arapaho THPO Wind River Cheyenne THPO Wyoming SHPO

LM contracts its archaeological surveys to identify if there are any prehistoric and historic archaeological resources that could be affected by an undertaking. LM completed two archaeological surveys in 2017 of 3.2 acres. The survey locations were Lakeview, Oregon, and Shirley Basin South, Wyoming. The survey identified no new archaeological sites.

Section 110 of the NHPA of 1966 asks all federal agencies to establish historic preservation programs for the identification, evaluation, and protection of historic properties. LM completed one historic building survey for the Piqua, Ohio, decommissioned reactor building. LM initiated Section 110 consultation based on the results with the Ohio SHPO, recommending that the decommissioned reactor building be considered historic property.

Falls City, Texas, Disposal Site.

Goal 1 Budget



View looking south into Paradox Valley from Rattler 1 in Uravan mining district.

Goal 2: Preserve, Protect, and Share Records and Information

This year was a balance of adopting some of the newest technologies while disposing of records that no longer met retention guidelines. LM will continue to monitor its records collections so that they provide the most value possible.

Cybersecurity Week

LM's Cyber Security Team held Cybersecurity Week at the Grand Junction, Colorado, office in August. Cybersecurity Week helped LM review existing and emerging cyber security threats against its information systems and data. Some LM focus areas were:

- Applying the National Institute of Standards and Technology controls guidance to LM's information systems
- Environmental Data Collection and Application/Analytical Systems in Grand Junction

A second event in September in Morgantown, West Virginia, focused on business operations applications and systems. LM used information from the week to prioritize FY 2018 work within the overall LM cyber security program.

Yucca Mountain, Nevada, Project Records

LM hosted and presented to a group of visitors from DOE Nuclear Energy, General Counsel, Sandia, and USA Repository Services. The visitors were doing exploratory work on the possibilities of the Yucca Mountain Project restart. LM communicated what they have done to preserve the project's records and information. This helped the visitors understand the technical complexities that could occur should the project restart in FY 2018.

Feasibility of Information Governance Program

LM led an initiative to create a formal Information Governance Program. The program provides the foundation for the entire Information Technology Team to properly plan, organize, schedule, execute, and track the activities and projects that comprise the LM information technology enterprise. This detailed framework and implementation procedure brings LM in compliance with key management goals of the Federal Information Technology Acquisition Reform Act of 2014.

LM identified 20 recommended actions for a phased rollout to address its electronic data. The roadmap included costs, timelines, and dependencies for each action, and outlined a collaborative approach with the various business units. The benefits of an information governance program to LM include:

- Cost reduction connected with information storage
- Risk avoidance
- Consistent, automated management of electronic information
- Improved ability to locate needed information

Litigation Process and Release of Information

LM enhanced its litigation process to reflect a more subject matter expert-focused approach. The new method was applied retroactively to all existing litigation holds. This released the following information:

- 130 terabytes of information from hold in eDiscovery
- 100 gigabytes of records from hold in Documentum
- 7,500 boxes released from hold in OmniRIM
- 241,300 holds released in the Yucca Mountain Records Information System

SharePoint Historical Reference Library

LM's Public and Intergovernmental Engagement Team and Archives and Information Management Team staff developed and implemented the SharePoint Historical Reference library that provides all LM federal and contractor personnel with the most important legacy information available about LM sites. The reference library provides important information about historical operations and the environmental conditions of LM sites.

Filing of USACE Records for Closed Defense Sites

LM filed remediation records received from USACE for the Tonawanda, New York; Attleboro, Massachusetts; and Windsor, Connecticut, closed defense sites. LM's recordkeeping systems Documentum and the FUSRAP reference application will hold the records. The Morgantown, West Virginia, office holds paper copies of these records.

Strengthening Relevant Material for LM Stakeholders

LM reviewed Freedom of Information Act/Privacy Act (FOIA/PA) documents on the LM network protected share drive to determine casefile relevance. LM dispositioned approximately 71 gigabytes of electronic casefile reference materials stored on the LM network protected share drive that had met disposition retention requirements. LM uploaded 557 electronic FOIA/PA casefiles that had not met retention requirements to the LM Electronic Recordkeeping System. LM removed casefiles copies from the network protected share drive.

LM's Use of National Agriculture Imagery Program (NAIP) Data Products

LM reported about the value of the U.S. Department of Agriculture's NAIP data to DOE's Office of the Chief Information Officer. The report included input from four DOE offices including:

- National Energy Technology Laboratory
- Office of Electricity Delivery and Energy Reliability
- Office of Energy Information
- Office of Science

LM also solicited input from contractor personnel from 11 national laboratories that comprise the DOE Geospatial Science Steering Committee. LM determined that its organization widely uses NAIP products to quantify land-use changes, improve environmental models, and verify locations of other spatial information.

NAIP products help LM gain a better understanding of site conditions.

GOAL 2

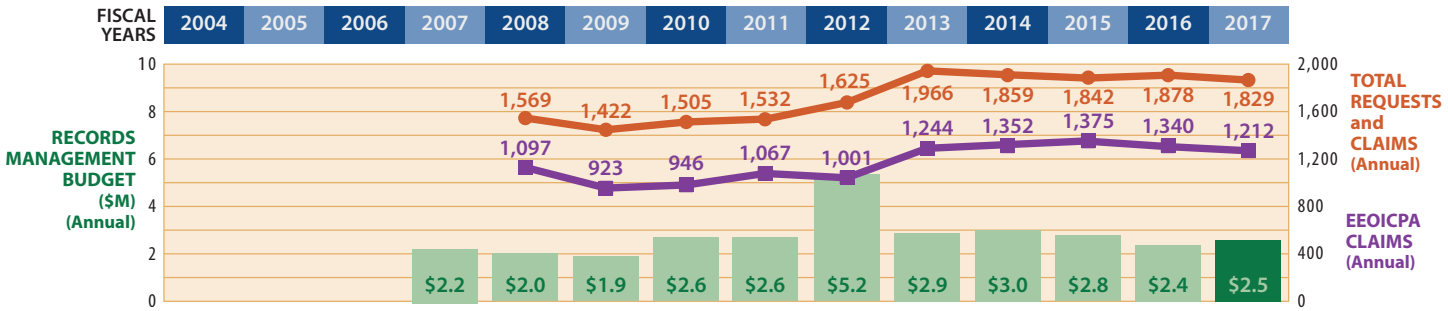
Records Consolidation

The LM Records Management Team consolidated 10 existing records management-related procedures into one cohesive records management document issued under the new Quality Assurance Program. The final streamlined procedure details responsibilities, provides guidance on records-related requests and includes appropriate National Archives and Records Administration requirements for managing federal records in one document. This eliminates duplicative administrative efforts required to review and publish separate documents.

Completed Records Requests

- Total number of all completed Records requests (including the Energy Employees Occupational Illness Compensation Program Act [EEOICPA] and Yucca Mountain) – 1,829
- Total number of completed EEOICPA requests only – 1,212

Goal 2 Budget



DOE LM Business Center located in Morgantown, West Virginia.

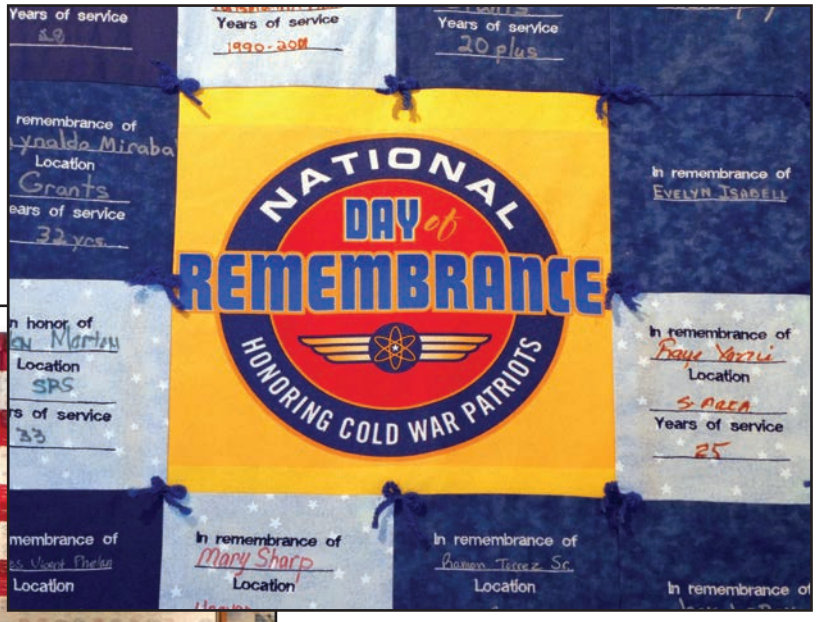
Goal 3: Safeguard Former Contractor Workers Retirement Benefits

LM is responsible for funding pensions, health insurance, and life insurance for over 10,000 former workers and their spouses. Most of the beneficiaries of these programs reside in Colorado, Florida, Kentucky, and Ohio.

In 2017, the Pinellas and Mound pension plans were terminated by their contractor plan sponsors. During a pension plan termination, each participant is given a choice between a lump-sum payment or an annuity provided by a top-rated insurance company in lieu of the income that would have been provided by the pension plan. Both options are actuarially equivalent and there is no loss in benefits. By terminating the plans, DOE is no longer subject to future market risks that would require annual appropriations to reimburse the contractors for maintaining minimum funding levels. Additionally, these actions are expected to save the taxpayers $21 million in administrative costs over what would have been the remainder of the plans.

LM is committed to safeguarding former contractor workers' retirement benefits. By supporting contractors' efforts to terminate pension plans, LM is able to keep their promise to Cold War retirees and their spouses while using taxpayer dollars more prudently and efficiently.

Visitors look over the large American flag quilt displayed at the Fernald Preserve, Ohio, site.



National Day of Remembrance is celebrated in October to recognize Cold War workers.

GOAL 3

Goal 3 Budget

Road to Fernald Preserve, Ohio, Site.

Goal 4: Sustainably Manage and Optimize the Use of Land and Assets

While LM provides technical site management, it is also a steward of the land through sustainable management of its land and assets. Where possible, LM supports beneficial reuse so that former sites can turn into community assets.

Asset Management

Dispositioning of Excess Land and Facilities at the Mound, Ohio, Site

On June 29, 2017, EM transferred landlord responsibilities for the Mound site to LM. These responsibilities included maintaining leased portions of the site and transferring all remaining property to Mound Development Corporation (MDC) through the lease purchase agreement. LM transferred Buildings 45 and 61 to MDC via Quitclaim Deeds. MDC subsequently sold the properties to private buyers.

Opening of Las Colonias Park Amphitheater in Grand Junction, Colorado

Las Colonias Park amphitheater formally opened on July 6, 2017, with a ribbon-cutting ceremony attended by over 100 citizens, elected officials, and agency representatives. The ceremony celebrated the park's origins and evolution into a community asset. LM's Grand Junction office manager spoke about the site's history. LM has responsibilities at the park location associated with the LM Grand Junction processing site, which is regulated under Title I of UMTRCA. The amphitheater is located on 130 acres of restored Colorado River riverfront. It was home to Latino migrant farmworkers before the Climax Mill was built in 1950 to process uranium. In 1996, the site transferred to the City of Grand Junction after surface contamination cleanup ended. The City plans to develop the park further.

Las Colonias Park Amphitheater in Grand Junction, Colorado.

GOAL 4

Responding to Legal Matters

El Paso Natural Gas Settlement

In 2017, the Navajo Nation Attorney General signed a settlement with El Paso Natural Gas and the U.S. Department of Justice. This was the last remaining issue in a lawsuit filed in 2007, where El Paso Natural Gas, who operated the Tuba City, Arizona, uranium processing site from 1956 to 1966, sought compensation for remediation costs under both RCRA and UMTRCA. This successfully resolved the contentious issue and allowed LM to move forward with the Navajo Nation in a positive manner.

Uranium Leasing Program

In March, the U.S. District Court for the District of Colorado ruled in favor of LM on its Uranium Leasing Program. The Colorado Environmental Coalition et al. (Plaintiffs) filed their motion to supplement the program's Administrative Record to the U.S. District Court for the District of Colorado on August 26, 2016. The ruling denied plaintiffs' motion to supplement the Administrative Record on the Programmatic Environmental Impact Statement and ordered LM to file its combined motion to dissolve the injunction and opening merits brief on or before April 7, 2017.

C-JD-8 Mine (Colorado).

Fernald Preserve, Ohio, Site.

Beneficial Reuse Goals

Salamander Run Preserve Park

In May, the Fernald Natural Resource Damages (NRD) Trustees transferred the Salamander Run Preserve Park to the MetroParks system of parks in Butler County, Ohio. LM, Ohio EPA, and the U.S. Fish and Wildlife Service comprise the trustees. The agencies commemorated the occasion through a ribbon-cutting event.

The park is a result of the agencies' desire to use Fernald NRD Trustees funds on land reuse projects that benefit local communities. As of May 2017, over 4,000 acres of conserved land, much of it contiguous with the Fernald Preserve, had been purchased using NRD settlement funds. Fernald regulators, stakeholders and surrounding communities are pleased with this accomplishment.

Goal 4 Budget

FY 2004–2007 budget authority does not show Goal 4 as a separate line item.
FY 2008–2011 from congressional justification files.
FY 2012–2017 budget authority total from September final reports, amounts verified with congressional justification files.

Butterfly-catching event at Weldon Spring Site.

Goal 5: Sustain Management Excellence

This goal focuses on LM's internal management and is led by the program's Director Carmelo Melendez. In his first year with the program, Melendez has already established a strategic path forward that involved:

- Developing a High Performing Organization Plan
- Hiring additional staff
- Supporting the overall modernization of the department

LM could not conduct the work it does without the efforts of its federal and contractor staff members. LM strives to implement best practices as they apply to the organization.

LM Director Carmelo Melendez.

Human Capital Management

LM Issued Its Human Capital Management Plan

LM issued its human capital management plan to define how the organization will recruit, hire, and train federal employees to carry out its mission, vision, and objectives as directed by Congress. Such a plan serves as a guidepost in the hiring and employee management process. LM strives to implement best practices into its work and to provide a workplace where employees can succeed and help achieve departmental goals together.

New LM Hires

Quin Clyburn joined the Human Resource Management Team as a Program Analyst. Clyburn is a graduate of Strayer University in Washington, DC, where she earned her degree in human resource management, minoring in business administration. Prior to joining LM, Clyburn contracted with National Nuclear Security Administration (NNSA) in 2014 as a senior executive administrator. In this role, she supported the NNSA director with executive travel and administrative needs. She also worked for the General Service Administration (GSA) as an administrative assistant II and Amyotrophic Lateral Sclerosis Association as an executive assistant during the ice bucket challenges.

Greg Cummings joined the LM Asset Management Team. Cummings received his Bachelor of Science degree from the University of Arizona in Tucson in 2006. Following graduation, he was commissioned and entered active duty in the U.S. Air Force. Cummings served as a logistics readiness officer and was stationed at Elmendorf Air Force Base in Anchorage, Alaska. After five years of working various assignments, Cummings left active duty in 2011 and was hired by GSA as a project manager in the Anchorage Field Office. For the past five years, he has managed build outs of lease and construction projects, providing space requirements for multiple federal agencies in Alaska.

Jonathan Damiano is LM's first quality assurance manager. He is located at the LM Westminster, Colorado, office. Prior to joining LM, Damiano was the program manager of the Internal Control/Assurance and Risk Management Program at the Bureau of Reclamation (BOR) of the U.S. Department of the Interior (DOI) in Lakewood, Colorado. Before working for BOR, he worked for the U.S. Department of Defense performing engineering and quality assurance oversight on design, development, and production acquisition programs. Damiano has a Bachelor of Science in industrial engineering from Purdue University and a Master of Science in systems engineering from the Naval Post Graduate School.

Krystyna Frolich joined the Public and Intergovernmental Engagement (PIE) Team as a public participation specialist. Frolich graduated from DePaul University in Chicago, Illinois, where she earned a Bachelor of Arts and Master of Arts in communication. Prior to joining the PIE Team, Frolich was employed as a hearing representative with the U.S. Department of Labor's Division of EEOICPA. In this role, she held hearings and issued final decisions on claims for benefits filed by current and former DOE contractor and subcontractor employees (or their survivors) who worked at covered DOE facilities. Frolich also processed claims filed by Radiation Exposure Compensation Act Section 5 employees (or their survivors) who worked at covered DOE uranium mines and mills.

Cassandra "Cassie" Gauthier is a physical scientist with the Uranium Mine Team. Prior to DOE she worked as site lead on the LMS contract managing a large variety of LM sites and projects. She began her career as a medicinal chemist after completing

undergraduate studies in chemistry at Michigan Technological University in Houghton, Michigan. Gauthier's desire for a diverse career and her passion for science led her to return to school to pursue a master's degree in environmental science and engineering at Colorado School of Mines. After completing her graduate studies and a brief stint in the oilfield, Gauthier found her fit with LM and returned to the Grand Junction office to continue her career.

Tashina Jasso moved to Grand Junction, Colorado, from New Mexico where she was born and raised. Prior to working for LM, Jasso was attached to the 44th Army National Guard band where she played the flute and piccolo. She later worked for BLM as a hydrological technician and as a GIS technician, then as an LMS contractor. Her work on the LMS contact began as a field science intern and then to working in various positions; environmental monitoring operations group, project coordinator for Title I and Title II sites, and then as a site lead and part of the Title II sites group. She studied environmental science focusing on fate and transport of contaminants and incorporating spatial representation using GIS. She completed graduate school at the University of Denver where she earned her master's degree in environmental policy and management.

Andrew Keim comes to LM with a wealth of experience as a senior project manager for Leidos Engineering LLC (formerly Science Applications International Corporation) for 19 years. His expertise and knowledge of CERCLA is vast and includes playing a key role in supporting and managing work from the Remedial Investigation/Feasibility Study stage through Remedial Design/Remedial Action; managing and coordinating the development of several ecological and human health risk assessments; and development, implementation and management of post-remediation maintenance and environmental monitoring programs for a variety of sites. Keim has worked on the Monticello mill site and vicinity properties in Utah as a support contractor to EPA during oversight of the remedial design. In addition to CERCLA work, Keim has worked extensively in the oil and gas industry. Prior to his tenure at Leidos, Keim was a project manager for URS Consultants Inc. for two years. Keim has a Bachelor of Science in geology from Iowa State University and a Master of Science in geology (emphasis in hydrogeology) from University of Toledo. He is a licensed professional geologist in the states of Wyoming and Utah. Keim is working with the Environment Team 2 in the Westminster office.

Ken Kreie joined the UMTRCA/Nevada Offsites Team. Kreie was born and raised in Grand Junction. He graduated from Colorado Mesa University in 2001 with a Bachelor of Science in environmental restoration and waste management. Kreie has worked as a regulatory and environmental consultant in the oil and gas industry for 15 years. He has worked in many positions from field technician to senior project manager. The majority of Kreie's work experience has been conducting groundwater monitoring, facility planning, regulatory compliance, and incident response.

Brent Lewis joined the Uranium Mine Team after his employment with BLM as a mine reclamation specialist. Lewis has over 30 years of private and government experience including some time as a DOE employee at Rocky Flats. Lewis was the abandoned mines program lead for the state of Colorado. He has extensive reclamation and remediation experience. Lewis has received two DOI National Environmental Achievement Awards during his time with BLM. He has a master's degree in geology from University of Colorado and two bachelor's degrees from Eastern Kentucky in geology and environmental science.

David McNeil comes to the LM Asset Management Team from NNSA in Albuquerque, New Mexico, where he worked as a realty specialist and a real estate contracting officer since September, 2013. During his time at NNSA, McNeil was the realty lead for several high-profile DOE real estate projects including the Pantex Administrative Support Complex and the disposal of the Bannister Federal Complex in Kansas City, Missouri. He also led numerous other NNSA land management initiatives nationwide. Before transferring to DOE/NNSA, McNeil worked as a civilian realty specialist for HQ Air Force. In this position, McNeil was actively involved in some of the Air Force's highest profile real estate projects worldwide. He also led the real estate development for some of the Air Force's largest renewable energy projects.

Brittany Reynolds joined LM's Human Resource Management Team. She was born in Washington, DC, where she graduated from Howard University with a Bachelor of Arts in English literature. She continued her studies at the University of Maryland where she received her Master of Business Administration in management and organization. She started her federal career in the Human Resource Department at the Federal Aviation Administration. Learning a variety of human resource skills in staffing, marketing, and recruitment, worker's compensation, and executive resources, she continued her human capital career transferring to DOE serving on the Office of Electricity Delivery and Energy Reliability and Workforce Development Team where she served as training coordinator and human resources personnel liaison.

Polly Robinson joined the Asset Management Team in Grand Junction as a realty specialist. Robinson has 20 years of asset management experience in the federal sector. She began her career as an intern at the DOE Grand Junction office. Following graduation from Colorado Mesa University, having received a bachelor's degree in environmental restoration and waste management, she worked as a contractor in the Grand Junction DOE analytical laboratory, before transferring to the support contractor's asset management team for LM. More recently, Robinson worked as a contractor on the EM Moab Project as the property manager and sustainability coordinator for the past 10 years.

Bernadette Tsosie joined the UMTRCA/Nevada Offsites Team in Grand Junction as a site manager. Tsosie has 25 years of experience with the federal government and the Navajo Nation. She received both her bachelor and master degrees in geology from the New Mexico Institute of Mining and Technology. Tsosie was a Navajo Nation staff hydrologist with the Department of Water Resources Water Management Branch in Fort Defiance, Arizona, as a member of the first Navajo Nation water settlement team. She was responsible for providing water settlement technical updates and obtaining comments and resolutions from seven Navajo Nation Chapters located along the San Juan River. For the past 11 years, she was with DOI's Bureau of Indian Affairs in Gallup, New Mexico, where she served as the Water Resource and Safety of Dams Branch chief, the Navajo-Gallup Water Supply Project manager and regional hydrologist, monitoring and providing technical assistance on natural resources projects. Recently appointed as Canyon de Chelly Strategic Vision Statement team member, Tsosie assisted with the five-year predevelopment plan and while working with EPA, she also provided technical assistance to the seven Montana tribes who developed programs to develop background levels for their wetlands, surface water, and groundwater.

Brian Zimmerman joined the RCRA/CERCLA/FUSRAP Team at the Fernald Preserve. Zimmerman has been an independent contractor supporting the EPA Office of Research and Development, National Exposure Research Laboratory, Systems Exposure Division, Microbial and Chemical Exposure Research Division, Biohazard Assessment Research Branch, Environmental Futures Analysis Branch, and other program areas in Cincinnati, Ohio, since 2010. Zimmerman was instrumental in the set-up and operation of experimental systems, collecting microbiological and related water quality data, compiling and analyzing data, and writing manuscripts describing the work. He has assisted in the development of models to evaluate health risks in engineered and natural systems. He has authored several quality assurance project plans and health and safety plans, as well as several peer-reviewed journal articles, oral presentations, technical reports and poster presentations. Zimmerman received his Bachelor of Science in environmental studies in 2011 and received his Master of Science in environmental science and engineering in 2014, both from the University of Cincinnati in Ohio.

Promotions

During 2017, there were no promotions.

Retirements and Separations

During 2017, there were no retirements. One staff member accepted a position with another federal agency. LM appreciates the contributions and years of dedication by all those who have served the organization.

Appointments

In 2017, there were no appointments.

LM staff at the Waste Management 2017 LM information booth.

LM Awards "Philip C. Leahy Award" to Staff Members

In June, LM established the "Philip C. Leahy Award" to recognize employees who are outstanding team players. Leahy set up what is now LM's Grand Junction office as part of the Manhattan Project and later served as the site's first manager under the AEC. The 2017 recipients were:

- **Jeff Austin**
- **Padraic Benson**
- **Ingrid Colbert**
- **Karen Edson**
- **Ronald King**
- **Edwin Parks**
- **Christina Pennal**
- **Sue Smiley**
- **Bernadette Tsosie**
- **Erika Valencia**
- **Bob Walker**

LM recognized **Erika Valencia** as the **Employee of the Year**.

Phillip C. Leahy Memorial Park at the Grand Junction, Colorado, Office.

LM Organization Chart, January 1, 2017

55 FTE
1/1/2017

Office of Legacy Management

LM-1
C. Melendez, Director
T. Pauling, Deputy Director
M. Downing, Env. Justice Program Mgr.

HR Team
P. Poole-Shirriel, Team Leader

PIE Team
T. Carter, Team Leader
K. Edson, Pub Participation Spec
P. Benson, Prog Analyst

Office of Business Operations – LM-10.0

D. Shafer, Director

Benefits Continuity Team LM10.1
D. Barr, Acting Team Leader
M. Olsen, Prog Analyst

Financial, Audits, and Contracts Services Team LM-10.3
D. Barr, Team Leader
I. Colbert, Financial Mgmt Spec
L. Biagas, Financial Analyst
J. Chinkhota, Financial Analyst
J. Austin, Financial Analyst
C. Clayton, Program Analyst
C. Pennal, Program Analyst
T. Bronnenberg, Financial Analyst
N. Pino, Financial Analyst

Archives & Information Management Team LM-10.2
E. Parks, Team Leader
T. Garlow, IT Spec
R. Walker, IT Spec
J. Gueretta, Prog Analyst
M. Garrett, Prog Analyst

Coordination, Operations, and Guidance Team LM-10.4
T. Collins, Team Leader
C. Johnson-Freeman, Prog Analyst
R. King, Correspondence Spec
E. Jackson, Staff Asst
K. Lively, Staff Asst
P. Walters, Staff Asst
E. Valencia, Staff Asst

Office of Site Operations – LM-20.0

T. Smith Taylor, Director

S. Gutierrez, Gen Engineer

UMTRCA/NVOS Team LM-20.1
A. Gil, Team Leader
R. Bush, Gen Engineer
A. Kleinrath, Gen Engineer
M. Kautsky, Hydrologist
J. Dayvault, Hydrologist
W. Dam, Hydrologist
J. Nguyen, Phy Scientist
J. Linard, Phy Scientist
A. Denny, Phy Scientist

RCRA/CERCLA/FUSRAP Team LM-20.2
G. Hooten, Team Leader
S. Surovchak, Phy Scientist
C. Carpenter, Gen Engineer
K. Starr, Gen Engineer
D. Castillo, Gen Engineer
S. Smiley, Phy Scientist
J. Murl, Phy Scientist

Asset Management Team LM-20.3
B. Sokolovich, Team Leader
T. Ribeiro, Gen Engineer
E. Holland, Property Mgmt Spec.
C. Haggard, Prog Analyst
J. Chavez, Phy Scientist

Uranium Mine Team LM-20.4
R. Edge , Team Leader
D. Steckley, Phy Scientist

On-Site Disposal Facility valve houses seen behind restored habitat at the Fernald Preserve.

LM Organization Chart, December 31, 2017

69 FTE
12/30/2017

Office of Legacy Management

LM-1
C. Melendez, Director
T. Pauling, Deputy Director
M. Downing, Env. Justice Program Mgr.

HR Team
P. Poole-Shirriel, Team Leader
B. Reynolds, Program Analyst
Q. Clyburn, Program Analyst

PIE Team
T. Carter, Team Leader
K. Edson, Public Participation Spec.
P. Benson, Program Analyst
K. Frolich, Public Participation Spec.

Office of Business Operations – LM-10.0

Tania Smith, Director
J. Damiano, Quality Assurance Spec.

Benefits Continuity Team LM10.1
T. Smith, Acting Team Leader
M. Olsen, Program Analyst

Financial, Audits, and Contracts Services Team LM-10.3
D. Barr, Team Leader
I. Colbert, Financial Mgmt. Spec.
L. Biagas, Financial Analyst
J. Chinkhota, Financial Analyst
J. Austin, Financial Analyst
C. Clayton, Program Analyst
C. Pennal, Program Analyst
T. Johnson, Financial Analyst
N. Pino, Financial Analyst

Archives & Information Management Team LM-10.2
E. Parks, Team Leader
T. Garlow, IT Spec.
R. Walker, IT Spec.
J. Gueretta, Program Analyst
M. Garrett, Program Analyst

Coordination, Operations, and Guidance Team LM-10.4
T. Collins, Team Leader
C. Johnson-Freeman, Program Analyst
R. King, Correspondence Spec.
E. Jackson, Staff Assistant
E. Valencia, Staff Assistant

Office of Site Operations – LM-20.0

D. Shafer, Director
S. Gutierrez, Gen. Engineer
T. Atkins, Program Mgr.

UMTRCA/NVOS Team LM-20.1
A. Gil, Team Leader
R. Bush, Gen. Engineer
A. Kleinrath, Gen. Engineer
M. Kautsky, Hydrologist
J. Dayvault, Hydrologist
J. Nguyen, Phy. Scientist
J. Linard, Phy. Scientist
A. Denny, Phy. Scientist
W. Frazier, Gen. Engineer
B. Tsosie, Gen. Engineer
K. Kreie, Phy. Scientist
T. Jasso, Phy. Scientist

RCRA/CERCLA/FUSRAP Team LM-20.2
G. Hooten, Team Leader
S. Surovchak, Phy. Scientist
C. Carpenter, Gen. Engineer
K. Starr, Gen. Engineer
D. Castillo, Gen. Engineer
S. Smiley, Phy. Scientist
J. Murl, Phy. Scientist
A. Keim, Phy. Scientist
B. Zimmerman, Phy. Scientist

Asset Management Team LM-20.3
B. Sokolovich, Team Leader
T. Ribeiro, Gen. Engineer
E. Holland, Property Mgmt. Spec.
C. Haggard, Program Analyst
J. Chavez, Phy. Scientist
P. Robinson, Realty Spec.
G. Cummings, Facilities Mgr.
D. McNeil, Realty Spec.

Uranium Mine Team LM-20.4
R. Edge , Team Leader
D. Steckley, Phy. Scientist
W. Dam, Hydrologist
B Lewis, Phy. Scientist
C. Gauthier, Phy. Scientist

GOAL 5

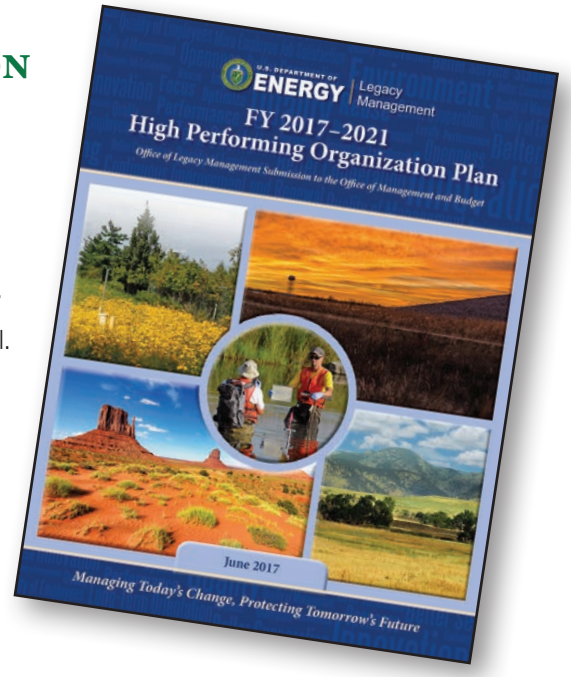
General Mission Training

In June, LM began offering General Mission Training to enhance employee knowledge, skills, attitude, and social behavior to improve organization performance. Some of the topics covered were diversity, contract administration, generational training, water sampling, the federal budget process, and quality assurance.

Office Director Exchange

In October, LM instituted a new organizational strategy of exchanging office directors between functional areas to increase integration and flexibility. The director of Business Operations and the director of Site Operations traded positions to drive more integration and understanding of all LM functions. The increased integration and collaboration will provide greater strategic thinking and problem solving throughout LM.

LM Issues High Performing Organization (HPO) Plan



LM completed its HPO plan for FY 2017 through FY 2021. This internal planning document identifies management excellence and program performance goals LM will strive to meet over the next five years. The plan includes a summary of LM's performance in meeting HPO goals and milestones that the organization set in May 2012, when the office published its HPO proposal for FY 2012 through FY 2016.

LM met entirely, or partially, 35 of the 40 goals and milestones in its previous proposal. Some of the goals in the second HPO included:

- Double the number of LM sites in beneficial reuse
- Maintain a safety record better than the DOE average
- Reduce the cost of long-term surveillance and maintenance at LM sites by 2 percent or more per year

LM has added two new ambitious performance goals to the current HPO plan that include:

- Verify and validate DRUM sites
- Provide greater public access to features at the three DOE sites that comprise MAPR

The HPO plan for FY 2017 through FY 2021 is available at https://energy.gov/sites/prod/files/2017/07/f35/2017_2021_HPO_Plan.pdf. LM's accountability reports are available at https://energy.gov/lm/program-information/lm-annual-post-competition-accountability-reports.

LM and National Park Service staff touring the Oak Ridge, Tennessee, Site.

Director's Travel to Selected Sites

LM Director Carmelo Melendez visited several LM sites this year, for a variety of purposes, to become familiar with the broad scope of LM's work.

He visited the following sites located on or near tribal lands to hear from community members and leaders about their energy-related concerns:

Arizona
- Church Rock
- Kayenta
- Kykotsmovi
- Monument Valley
- Tuba City
- Window Rock

New Mexico
- Bluewater
- Shiprock

Utah
- Bluff
- Mexican Hat
- Monticello

He met with federal and contractor staff at the following office locations to set expectations and discuss DOE's work going forward:

Colorado
- Durango
- Grand Junction
- Westminster

Florida
- Pinellas

Ohio
- Fernald
- Mound

West Virginia
- Morgantown

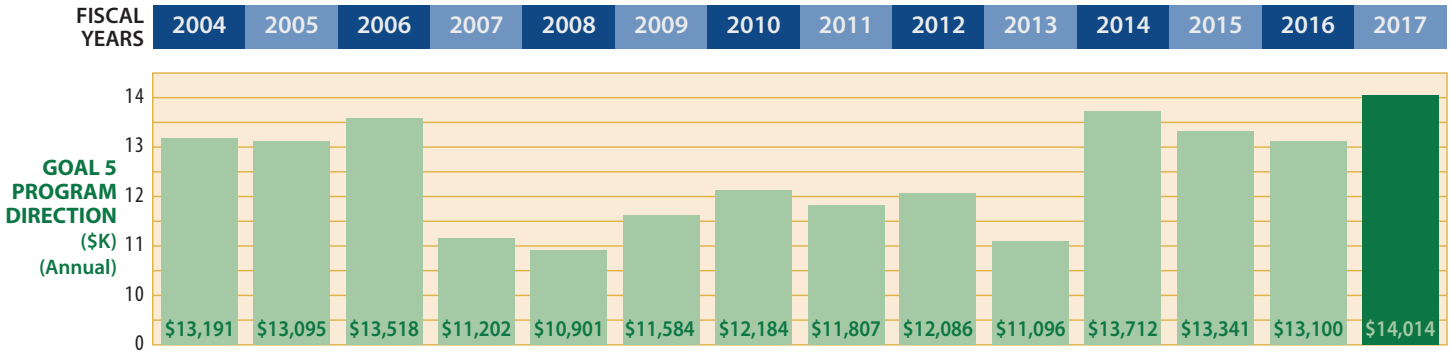
Melendez also visited Rincon, Puerto Rico, to assess LM's Boiling Nuclear Superheater Decommissioned Reactor Site (BONUS) before and after the catastrophic Hurricane Irma hit the island. The LM site suffered no hurricane damage.

Loíza, Puerto Rico, September 21, 2017. The community of Miñi Miñi flooded after the Carraizo Dam released water, due to the overflow brought by Hurricane Maria. The category 4 hurricane tore through Puerto Rico on September 20, 2017.
Photo: Yuisa Rios/FEMA

Soldiers partner with the Federal Emergency Management Agency urban search and rescue teams to deliver food and water to Puerto Rico residents isolated by Hurricane Maria damage.
Photo: U.S. Army North

GOAL 5

Goal 5 Budget



Attendees at the LM All-Hands Training in Oak Ridge, Tennessee.

Goal 6: Engage the Public, Governments, and Interested Parties

Engaging the public, governments and interested parties is a high priority for the LM director. LM does this through strategic outreach, Interpretive services, and participation in environmental justice efforts. Outreach often takes the form of person-to person interaction between LM and community members at open houses, site tours, and its Interpretive centers.

The information below details a selection of high-level outreach efforts, interpretation and environmental justice work completed in 2017.

Selected Outreach Events

Month	Category	Event	Purpose
March	Outreach	Shiprock, New Mexico, Site Tour, Open House, and Fun Run	Shared information with Five-Year Plan Agencies on Shiprock, Arizona, Site cleanup and monitoring activities
April	Outreach	Two Tuba City, Arizona, Disposal Site Tours	Introduced students to uranium mining and milling, radon, and radiation concepts
April	Outreach	Environmental and Natural Resource Conference	Provided outreach to students and community members on the Wind River Reservation in Riverton, Wyoming
July	Outreach	Diné Bi´ Eastern Navajo Nation Fair	Provided outreach to community members in Crownpoint, New Mexico
August	Outreach	Weldon Spring, Missouri, Solar Eclipse Viewing Event	Hosted solar eclipse viewing event near disposal cell for community members
August	Outreach	Weldon Spring Monarch Madness	Co-hosted event at Weldon Spring site for community to engage in butterfly tagging, crafts, games, exhibits, and more
September	Outreach	Navajo Nation Fair	Provided outreach to community members in Window Rock, Arizona
September	Outreach	American Indian Science and Engineering Society National Conference, Career Fair	Provided outreach to American Indian students, educators, and professionals through hands-on activities in project management activity
October	Outreach	Northern Navajo Nation Fair	Provided outreach to community members in Shiprock, New Mexico
October	Outreach	Western Navajo Nation Fair	Provided outreach to community members in Tuba City, Arizona
October	Outreach	Tuba City/Moenkopi Open Houses/Site Tours	Provided outreach to community members in Tuba City, Arizona
November	Outreach	Navajo Nation Division of Natural Resources Summit	Provided information and updates on LM work to Summit attendees
November	Outreach	Monument Valley, Arizona, Balloon Fest	Provided outreach to community members in Monument Valley, Arizona
December	Outreach	Keshmish Tree Lighting	Provided outreach to community members in Window Rock, Arizona
December	Outreach	Cove Chapter Christmas Dinner and Parade	Provided outreach to community members in Red Valley, Arizona

GOAL 6

Selected LM Meetings, Briefings, and Conferences Attended in 2017

LM staff attended briefings, conferences, and other meetings this year. Such meetings help LM gain a better understanding of stakeholder groups, industry developments, and congressional progress. A few of this year's highlighted meetings included:

Month	Category	Event	Purpose
February	Meeting	Navajo Nation Council Committee on Health, Education, and Human Services	Provided updates on the four UMTRCA sites located on or near Navajo Nation land
February	Conference	Navajo Nation Governance	Updated the Navajo Nation on the four UMTRCA sites located on or near their land
February	Conference	Energy Community Alliance	LM Director Melendez served as a panelist during the conference meeting entitled "Meeting the New Administration: Addressing Priorities and Securing Progress"
February	Conference	Esri Federal User	Federal professionals explored using geospatial technology for government use
March	Conference	Legacies of the Manhattan Project—75 Years	Focused on Hanford, Washington, Nuclear Production Facilities and the site's impact on the Tri-Cities area
March	Meeting	Navajo Nation and Hopi Tribe Quarterly Meeting	Technical exchange on site status, outreach events included a National Environmental Policy Act overview
March	Conference	Waste Management Symposia	LM and contractor staff presented on the agency's best practices and complexities of managing legacy waste
April	Meeting	House of Representatives Nuclear Cleanup Caucus Event	LM staff attended a panel discussion on DOE's mission, infrastructure improvements, and EM's role
May	Conference	MODFLOW and More	LM staff attended a panel discussion on DOE's mission, infrastructure improvements, and EM's role
May	Meetings	State and Tribal Government Working Group	Director Melendez and team leaders spoke on tribal leadership activities, priorities, stewardship, and MAPR progress
June	Briefing	Senate Appropriations Subcommittee on Energy and Water Development Staff	Director Melendez and LM staff members briefed the committee on LM's FY 2018 budget
June	Briefing	Senate Armed Services Committee Staff	LM Deputy Director Tom Pauling briefed committee staff on LM's FY 2018 budget
August	Meetings	Energy Communities Alliance Peer Exchange	Deputy Director Pauling discussed benefits of visitor spaces; the MAPR DOE representative discussed the park's progress
August	Meetings	All-Hands Training	Director Melendez and the entire LM federal staff attended training in Oak Ridge, Tennessee
September	Meetings	Energy Community Alliance National Cleanup	Deputy Director Pauling was a panelist and spoke about the challenges of sustainably optimizing land for reuse and updated attendees on the status of MAPR
November	Meetings	2017 Intergovernmental Meeting	Director Melendez spoke about LM at the 2017 Intergovernmental Meeting with DOE in San Antonio, Texas

Interpretive Centers

LM manages two interpretive centers among its sites. The purpose of the centers is to educate the community about these historic sites. Interpretation incorporates historical data with current site management practices to give a balanced perspective. LM's interpretive center managers work to create engaging content that provide information about past and future activities.

LM currently has interpretive centers in Fernald, Ohio, and Weldon Spring, Missouri, with plans to open a third center in Grand Junction, Colorado. Programming includes environmental-themed events. This year, high school competitions and the solar eclipse drew many community members to the sites.

A team of students discuss their answers to questions about natural resources at the 2017 Region IV Envirothon.

Fernald Preserve, Ohio, Site

Visitor numbers totaled 13,768 in 2017.

One of the site's highlights of the year was the Envirothon hosted in April. More than 500 high school students and teachers descended upon the preserve and visitors center for the 2017 Region IV Envirothon. The annual event is for high school students who participate in competitive testing on a myriad of natural resource topics.

Eighty-seven teams, each composed of five students and an advisor, participated in this year's Envirothon, which encouraged group problem solving and team building among student competitors who are poised to become the next generation of environmental leaders. The competition was sponsored by the Ohio Federation of Soil and Water Conservation Districts and the Ohio Department of Agriculture, Division of Soil and Water Resources.

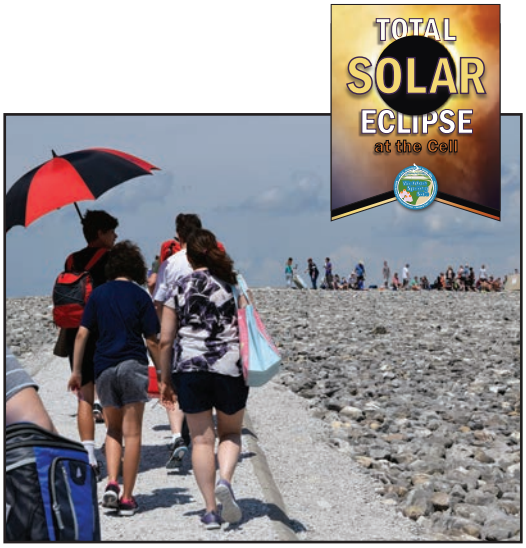
The Fernald Preserve was honored to serve as the host site for this regional natural-resources event that attracted participants from 18 counties.

Weldon Spring, Missouri, Site

Visitor numbers totaled 23,854 in 2017.

Programing included the following events:

- The Weldon Spring staff provided outreach opportunities at several regional public events such as Earth Day, Wetlands for Kids, Wolf Fest, and others. Staff uses these opportunities to share the history, remediation, and current operations at the Weldon Spring site and to encourage visitors to protect groundwater resources. Staff used a groundwater model to highlight groundwater flows and potential impacts of subsurface contamination.
- The site held the "Total Solar Eclipse at the Cell" event on August 21. Visitors received eclipse viewing glasses and enjoyed kids' crafts, NASA's livestream coverage, picnic areas, and excellent eclipse views with approximately one minute and 30 seconds of totality. The site was the only public-use site within the path of totality open to visitors during the eclipse. About 375 visitors attended the event. Many were local residents while others traveled from Arkansas, Florida, Illinois, Iowa, Michigan, Texas, and other states.



The prime total solar eclipse viewing location was atop the site's 41-acre disposal cell.

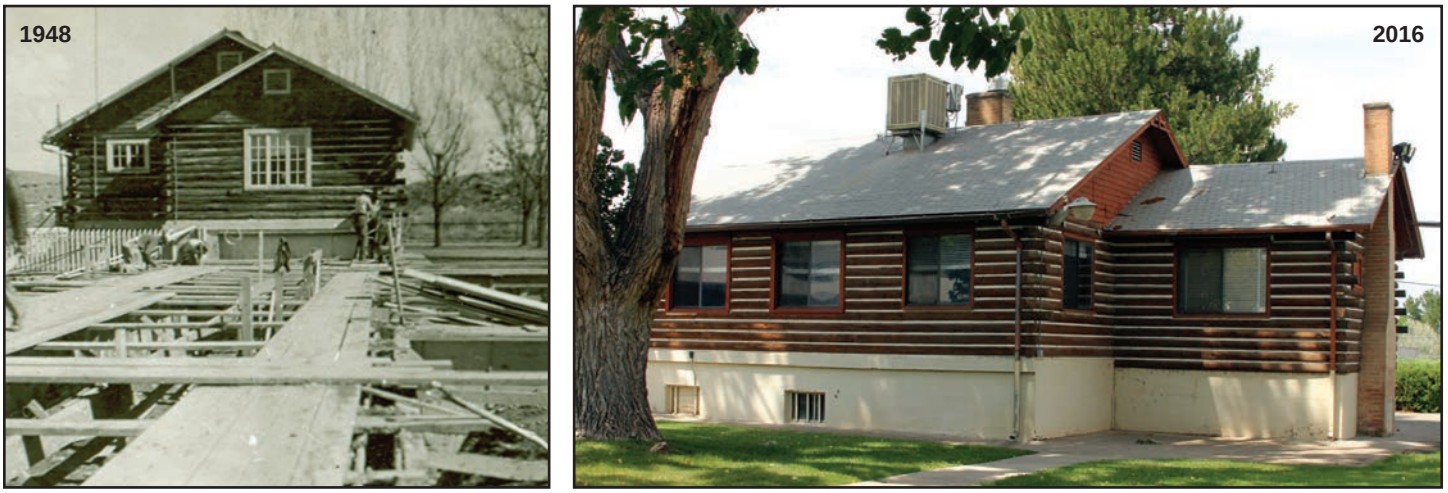
- The site co-hosted the Monarch Madness public event in September for an estimated 500 visitors. The public tagged 188 monarch butterflies at the Weldon Spring site this year with help from the Missouri Department of Conservation. Several partnering agencies made the event possible including Missourians for Monarchs, Missouri Department of Conservation and the St. Charles County Parks and Recreation Department.

GOAL 6

Grand Junction, Colorado, Atomic Legacy Learning Center

LM is working to develop an interpretive center in Grand Junction. The learning center will provide public access to a restored historic cabin that will exhibit and display information related to the Grand Junction office history.

LM updated the local Historical Preservation Board on the learning center in January. The preservation board includes members from city, county, and state governments; Colorado Mesa University; and the Museum of Western Colorado. The meeting helped align LM with local and regional historians and the State Historic Preservation Office.



The log cabin at the Grand Junction, Colorado, office was recently listed on the National Register of Historic Places.

Manhattan Project National Historical Park (MAPR)

LM's senior leadership met in May with members of the Los Alamos, New Mexico, City Council to discuss priorities for MAPR.

Priorities include:

- Adding the Tunnel Vault Site to the park
- Amending park legislation to include the Tunnel Vault Site
- Appropriating funding from DOI and DOE for site implementation

LM teamed up with three organizations to create three new exhibits and a video for MAPR at Los Alamos, New Mexico.

Other organizations involved were:

- New Mexico Highlands University's Program in Interactive Cultural Technology
- U.S. National Park Service
- Los Alamos National Laboratory's MAPR steering committee

Los Alamos is one of three sites that make up MAPR. LM's role is to co-manage the park in support of Goal 6. The new exhibits opened in July and are part of a new experience called "Manhattan on the Mesa." The exhibits include "Behind the Fence," a 360-degree immersive experience of key park properties at Los Alamos National Laboratory, as well as an interactive exhibit based on the stories of people who worked at the laboratory during World War II.

Manhattan Project National Historical Park Foundation Document Released

The U.S. National Park Service released the Foundation Document for MAPR in February. A foundation document serves as the underlying guidance for management and planning decisions in a unit of the national park system. It describes the core mission of the park unit by identifying the unit's purpose, significance, fundamental, and other important resources and values and interpretive themes. Established November 10, 2015, LM and the National Park Service co-manage MAPR.

Environmental Justice

2017 National Environmental Justice Conference and Training Program

More than 600 registered participants attended the 11th *National Environmental Justice Conference and Training Program* in Washington, DC, in March. The conference theme, "Building Successful Community/Government/Business Collaborations," was derived from the past 10 annual conferences. The conference brought together people from all over the country who are engaged and committed to environmental justice.

Milton Bluehouse Jr. (LMS) presented in a technical assistance workshop on "Listening to the Community." The conference concluded with the annual Hero and Shero awards. The recipients were Kim Lambert and Mustafa Ali. Both recipients are long-time civil servants and members of the Federal Interagency Working Group on Environmental Justice.

Dr. David Rivers (background), moderator, and panelists Lauren B. Stanton, Florence County Economic Development; Jim Moore, William County Economic Development (foreground).

DOE and the Medical University of South Carolina Sponsor Community Leaders Institute (CLI)

DOE and the Medical University of South Carolina sponsored a CLI in May, in Columbia, South Carolina. The CLI helps leaders know how to access and obtain the information necessary for making good decisions and communicating that information to the citizenry.

The focus of this institute was the unique relationship between environmental protection, human health, environmental justice, and economic development.

Sessions included:

- The Role of Federal, State, and Local Governments
- Youth Issues and Challenges
- Economic Development, Housing, Transportation, and Community Development
- Health Disparate/Health Issues

GOAL 6

The CLI helps leaders guide their communities toward becoming healthy and sustainable. Technical Assistance Workshops (TAW) that follow CLIs—like the one held in June in Columbia—emphasize essential how-to skills needed for preparing and managing a good grant application. The TAW was a classroom session focusing on:

- Terms and techniques of grant writing
- Developing a proposal and budget
- Finding available grant funding agencies

10th Annual National Conference on Health Disparities

LM Environmental Justice Program Manager Melinda Downing provided remarks at the 10th Annual National Conference on Health Disparities, "Reducing Health Disparities Through Sustaining and Strengthening Healthy Communities," which was held in May, in New Orleans, Louisiana.

This conference is the outgrowth of a health disparities conference held in Charleston, South Carolina, July 30, 2007, sponsored by the Medical University of South Carolina and the National Center on Minority Health. The conference looks at ways to reduce health disparities in our nation. The conference attracts supporters looking to reduce health disparities, with a special focus

- Education
- Environmental quality
- Housing
- Poverty
- Air and water quality
- Gun violence
- Drug abuse

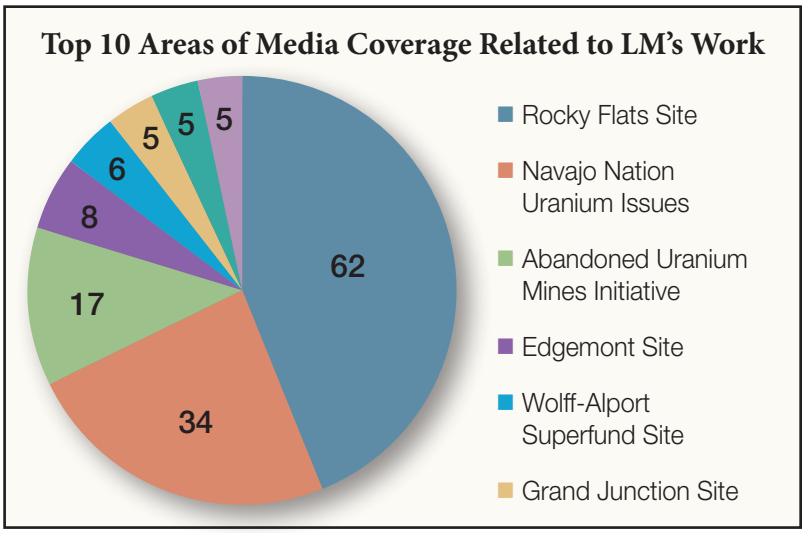
This year's conference focused on policies, research interventions, and programs that address social determinants, and personal responsibility in reducing health disparities and promoting health equality. A conference summation declared that this is the time for bold action and consensus that brings together scientists, lawmakers, philanthropists, clergy, and more to find solutions to critical issues.

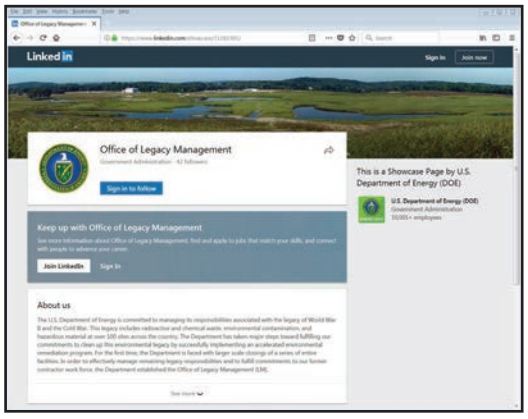
In the News

LM tracks media coverage related to its sites to monitor stakeholder interest, agency progress, and other developments. The top two most covered areas related to LM were the Rocky Flats, Colorado, Site and the Navajo Nation's uranium issues.

The numbers in the graph represent the number of articles that appeared in Google News alerts in 2017.

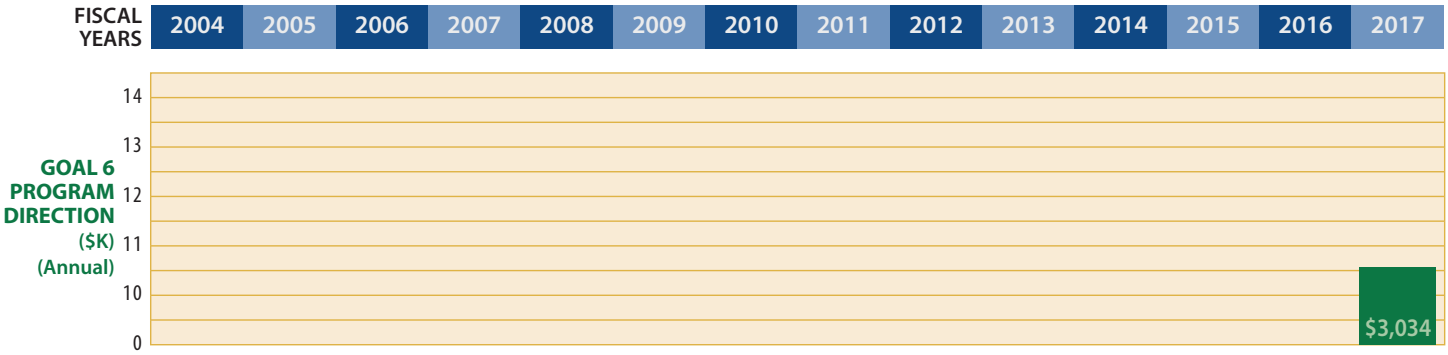
In addition to receiving media coverage this year, LM created a social media presence on LinkedIn beginning in July. The page features the latest updates about LM work.





As of December 2017, 42 LinkedIn users follow LM's page. LM will continue to grow the platform in 2018 by posting timely and relevant content. The page location is https://www.linkedin.com/showcase/11181301/.

Goal 6 Budget



The FY 2004–2016 budget authority does not show Goal 6 as a separate line item.

Weldon Spring, Missouri, Site hosts Total Solar Eclipse public viewing.

AWARDS

Selected Program Awards and Recognition

Federal Small Business Achievement of the Year Award

The Office of Small and Disadvantaged Business Utilization awarded LM with the Federal Small Business Achievement of the Year Award in May at the 16th Annual DOE Small Business Forum & Expo in Kansas City, Missouri. The office recognized LM for its small business procurements during the 2016 fiscal year and how the program promotes using small businesses.

LM received the 2017 State Historic Preservation Officer's Award at the History Colorado Center on February 1, 2017. Pictured L to R: William Frazier (LM), David Shafer (LM), Padraic Benson (LM), Jon Horn (Alpine Archaeological Consultants Inc.), Dr. April Gil (LM), Jon Maraschin (Riverview Technology Corporation); and Sam Marutzky (LMS). (Photo courtesy of History Colorado.)

State Historic Preservation Officer's Award

History Colorado recognized LM's Grand Junction, Colorado, office with the prestigious 2017 Stephen H. Hart Award. History Colorado is the state's historical preservation office and recognizes outstanding projects and individual achievements in archaeology and historic preservation throughout Colorado.

Mound, Ohio, Environmental Cleanup Dedication

In May, LM participated in a dedication ceremony for two historical monuments built at the Mound site. The first monument recognizes Mound Laboratory workers who contributed to national security and space exploration missions from 1946 through 2011. The second monument recognizes the site as the first permanent post-World War II AEC site. The Mound Science and Energy Museum (MSEM) secured the monument through the Ohio History Connection. Dignitaries from the City of Miamisburg, Mound Development Corporation, MSEM, Ohio History Connection, and Dayton History spoke at the event.

Zone Commendation at the Fernald Preserve, Ohio, Site

In June, the Garden Club of America (GCA) recognized the Fernald Preserve with a Zone Commendation. GCA recognized the site for its "ecological restoration and successful transformation of the Fernald nuclear weapons site into a nature preserve, habitat, and safe have for wildlife." GCA recognizes individuals or organizations that have made significant contributions to conservation. Composed of Ohio, Indiana, and Michigan, GCA Zone 10 presented the commendation to Fernald Preserve staff at its annual banquet. Founded in 1913, GCA is a volunteer, nonprofit organization with 200 clubs and approximately 18,000 members throughout the country.

LM By the Numbers

- Achieved 98 percent participation in the Federal Employment Viewpoint Survey
- Operated the Fernald Preserve, Ohio, groundwater remediation extraction wellfield at the designed pumping rate of 2.46 billion gallons
- Collected approximately 800 environmental monitoring samples and 900 groundwater elevation measurements related to groundwater and surface water at the Fernald Preserve
- Completed prescribed burns on 74 acres of the Fernald Preserve, including Cells 7 and 8 of the On-Site Disposal Facility
- Conducted vegetation surveys across 224 acres of restored prairie, wetland and forest communities at the Fernald Preserve
- Applied selective herbicide to over 110 acres of the Fernald Preserve to control noxious and non-native invasive species
- Treated 19 acres of invasive honeysuckle across northern-forested portions of the Fernald Preserve
- Addressed 230 findings to follow up on site inspections at the Fernald Preserve
- LM and LMS staff drove over 53,000 miles safely

Environmental Monitoring Operations 2017 Work

- 1 EQuIS integrated test
- 2 DOE Consolidated Audit Program Laboratory Audits and 54 Sampling Events
- 3 EQuIS Training Sessions at Occupied Sites
- 4 Geoprobe Soil Sampling/Well Installation Events
- 4 Site Inspections
- 6 Surveying Events
- 20 Maintenance Jobs
- 25 Site Inspection Reports
- 27 Data Validation Packages
- 60 Transducer Downloads
- 81 Sampling and Maintenance Trip Reports
- 152 Electronic Well Logs
- 370 Data Validations
- Information Technology (IT) and Records Management completed 150 contract deliverables, seven Performance Evaluation and Measurement Plan (PEMP) deliverables, 50 data calls, and 53 procurements
- Fulfilled 1,847 FOIA, stakeholder, EEOICPA, and other records requests

Continued on page 46

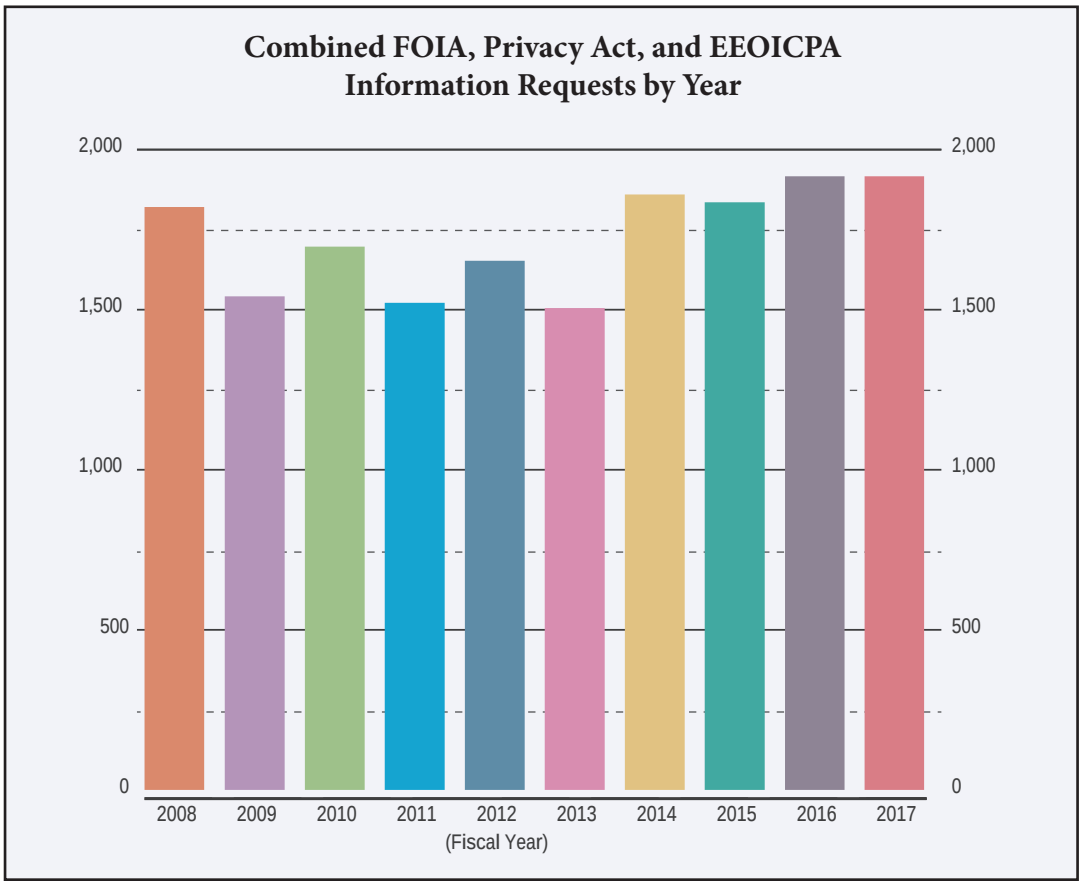
Fernald Preserve, Ohio.

Continued from page 45

LM By the Numbers

- Added 134,711 records to LM's electronic recordkeeping system
- Dispositioned or purged 74,211 records from Documentum in FY 2017
- IT configuration management included 24 entries and 458 configuration changes completed
- Completed 1,081 video teleconferencing meetings
- Managed 10,456 IT help desk tickets and closed an average of 40 tickets per day
- IT provided technological set up for 117 new users and take down for disabled accounts and system access for 53 departing users
- Navarro submitted 42 PEMP deliverables and 275 contract deliverables to LM

LM Business Center in Morgantown, West Virginia.



Program Update Articles by Issue

Quarter 1

- Goal 1: A Forgotten Legacy – The Former Burris Park Field Station
- Goal 1: Wastewater Treatment Evolution at the Fernald Preserve
- Goal 2: Annual Disaster Response Exercise Conducted at LM Business Center
- Goal 2: LM Sites Reuse and Recycle During Office Clean-Out Days
- Goal 3: LM Supports Contractor's Efforts to Save Taxpayer Dollars
- Goals 4 and 6: Weldon Spring Site Visitors Enjoy Rare Viewing of the Supermoon
- Goal 5: LM Welcomes New Employees
- Goal 5: Women's History Month: LM Women in STEM Goal 6: Environmental Justice Activities
- Goal 6: Final Foundation Document Released for Manhattan Project National Historic Park
- Goal 6: Grand Junction Office Receives Historic Preservation Award
- Goal 6: LM Shares Environmental and Spatial Data with EPA
- Goal 6: LM Well Represented at the 43rd Annual Waste Management Symposia Conference
- Goal 6: MAPR Progress Provided at Conference

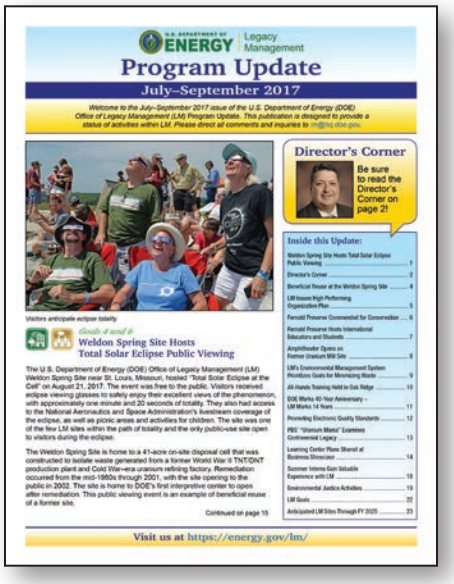
Quarter 2

- Goals 1 and 6: Engaging the Next Generation of Geoscientists
- Goal 1: LM Director Visits Sites and Meets with Tribal Officials
- Goal 1: LM Presents to Consolidated Group of Tribes and Organizations
- Goal 1: LM Releases 2016 Annual Historical Summary
- Goal 1: LM Releases Site Management Guide Update
- Goal 2: How Much is an Ounce of Prevention Worth?
- Goal 4: Revising LM's Beneficial Reuse Program
- Goal 5: LM Director Appoints Requirements Working Group
- Goal 5: LM Receives Small Business Achievement Award
- Goal 5: LM Staff Joins LM Director at Spring Tribal Energy Meetings
- Goal 6: Environmental Justice Activities
- Goal 6: Exhibit Depicts African-American Life During Manhattan Project-Era
- Goal 6: Fernald Preserve Hosts 2017 Envirothon
- Goal 6: FUSRAP Collaboration Between LM and USACE
- Goal 6: LM Participates in Earth Day Events

ARTICLES

- Goal 6: LM Shares Information at Shiprock, New Mexico, Open House and Site Tour
- Goal 6: Local Students Visit the Tuba City, Arizona, Disposal Site
- Goal 6: Preservation Assessment of Historic Cabin in Los Alamos, New Mexico
- Goal 6: User-Friendly Update for LM Website

Quarter 3

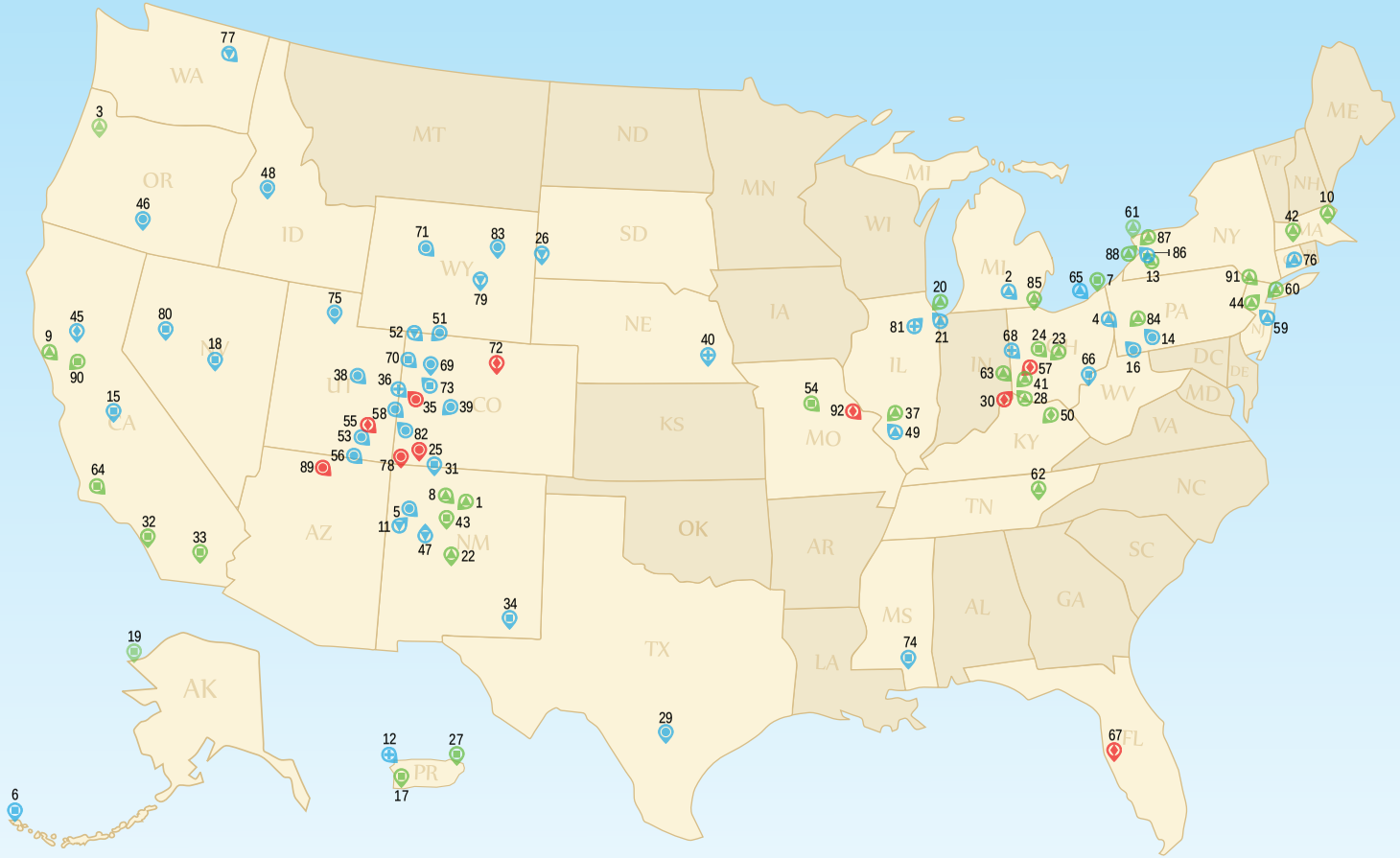


- Goals 1 and 6: Fernald Preserve Commended for Conservation
- Goal 2: Promoting Electronic Quality Standards
- Goal 4: Beneficial Reuse at the Weldon Spring Site
- Goal 4: LM's Environmental Management System Prioritizes Goals for Minimizing Waste
- Goals 4 and 6: Amphitheater Opens on Former Uranium Mill Site
- Goals 4 and 6: Weldon Spring Site Hosts Total Solar Eclipse Public Viewing
- Goal 5: All-Hands Training Held in Oak Ridge
- Goal 5: LM Issues High Performing Organization Plan
- Goals 5 and 6: Director's Corner – Puerto Rico Hurricane Work
- Goal 6: DOE Marks 40-Year Anniversary—LM Marks 14 Years
- Goal 6: Environmental Justice Activities
- Goal 6: Fernald Preserve Hosts International Educators and Students
- Goal 6: Learning Center Plans Shared at Business Showcase
- Goal 6: PBS' "Uranium Mania" Examines Controversial Legacy
- Goal 6: Summer Interns Gain Valuable Experience with LM

Quarter 4

- Goal 1: Working Group Addresses Abandoned Uranium Mines
- Goal 1: FUSRAP Collaboration Between LM and USACE
- Goal 2: LM Processes High Number of Records Requests
- Goal 2: Experiencing Four Decades of Change
- Goal 4: Got Milk ... weed?
- Goal 4: Innovative Restoration Monitoring Research Conducted at the Fernald Preserve
- Goal 6: LM Director Visits Manhattan Project Sites
- Goal 6: Commemorative Quilt Displayed at Fernald Preserve
- Goal 6: 2017 Tribal Outreach Year-in-Review
- Goal 6: Environmental Justice Activities
- Goal 6: LM NEWS Feed

LM Sites in 2017



Current LM Sites Requiring LTS&M

- CERCLA/RCRA
- D&D
- UMTRCA Title I
- FUSRAP
- Other
- 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

D/P = Disposal/Processing DR = Decommissioned Reactor

03/31/2017

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

ACRONYMS

Acronym List

AS&T	Applied Studies and Technology
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy Department
DRUM	defense-related uranium mine
EEOICPA	Energy Employees Occupational Illness Compensation Program Act
EM	Office of Environmental Management
EPA	U.S. Environmental Protection Agency
EQuIS	Environmental Quality Information System
FOIA	Freedom of Information Act
FUSRAP	Formerly Utilized Sites Remedial Action Program
GCA	Garden Club of America
GSA	General Service Administration
IT	Information Technology
LM	Office of Legacy Management
LMS	Office of Legacy Management support
LTS&M	long-term surveillance and maintenance
MAPR	Manhattan Project National Historical Park
NHPA	National Historic Preservation Act of 1966
NVOs	Nevada Offsites
NRC	U.S. Nuclear Regulatory Commission
OLF	Original Landfill
PEMP	Performance Evaluation and Measurement Plan
PIE	Public and Intergovernmental Engagement
RCRA	Resource Conservation and Recovery Act
SHPO	State Historic Preservation Officer
STEM	Science Technology Engineering and Math
TAW	Technical Assistance Workshops
THPO	Tribal Historic Preservation Officer
TLD	Thermoluminescence Dosimeter
UMTRCA	Uranium Mill Tailings Radiation Control Act
USACE	U.S. Army Corps of Engineers

Grand Junction, Colorado, Office.

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