

ANNUAL HISTORICAL SUMMARY

MANAGING TODAY'S CHANGE, PROTECTING TOMORROW'S FUTURE



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

2021



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WELDON SPRING SITE
A Legacy of Service

Cover/Inside Cover Photo

Cover: Fernald Preserve, Ohio, Site.

Inside cover: Weldon Spring Site Interpretive Center.

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PURPOSE OF THIS DOCUMENT

This document records significant accomplishments achieved by the U.S. Department of Energy (DOE or Department) Office of Legacy Management (LM) during calendar year 2021. Any data reflected by the fiscal year (as opposed to the calendar year) is noted throughout the document. Budget information, identified within the document, reflects the fiscal year (FY), which began on Oct. 1, 2020, and ended Sept. 30, 2021.

Annual historical summaries highlight a selection of the many activities performed by LM during calendar years. They also offer information about recent work conducted by LM. Future historians and researchers can use the summaries to place the activities of LM into larger contexts, such as the history of DOE.

OVERVIEW

DOE has responsibilities associated with the legacy of contamination from World War II and the Cold War. DOE established LM on Dec. 15, 2003, to fulfill the Department's post-closure responsibilities by providing long-term surveillance and maintenance (LTS&M), records management, benefits continuity, property management, and land use planning. At the end of calendar year 2021, LM managed 101 legacy sites in 29 states and Puerto Rico.

In addition to stewardship responsibilities at legacy sites, LM maintains five radiometric calibration facilities and manages the Uranium Leasing Program (ULP) and the Defense-Related Uranium

Mines (DRUM) program. LM also incorporates improvements in scientific understanding and technology applications through the Applied Studies and Technology (AS&T) program and manages the LM Business Center (LMBC) Records Storage Facility, which is a certified National Archives and Records Administration repository.

LM worked with two primary support contractors during 2021: Navarro Research and Engineering, Inc., and RSI EnTech, LLC (RSI). The program support contract fully transitioned to RSI, the new Legacy Management Strategic Partner (LMSP), on April 1.



COVID-19

LM continued its response to the COVID-19 pandemic and **ensured its sites remained protective of human health and the environment** by updating its COVID-19 Response and Recovery Plan and COVID-19 Field and Office Job Safety Analyses, based on changes in federal, state, and local guidance. LM also continued its maximized telework posture while maintaining coordination with regulators and stakeholders.

LM MISSION AND VISION

Vision

Our vision is to ensure:

- The communities near our legacy cleanup sites, the environment, and our legacy workforce are protected and well-served.
- People and the environment are protected by consistent and effective long-term surveillance and maintenance.
- Records and information are readily accessible to the public.
- Stakeholders, tribal nations, and state and local governments trust us because we are open, honest, and have a collaborative working relationship.
- Benefits are delivered to the Department's former contractor workforce in a timely manner.
- Decisions are made based on meaningful involvement of interested and affected personnel.

Mission Statement

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



LM GOALS AND OBJECTIVES

Goal 1

Protect Human Health and the Environment

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



Goal 2

Preserve, Protect, and Share Records and Information

- Protect and maintain legacy records and information.
- Make technology solutions more efficient, relevant, and accessible to the LM stakeholder and user communities.
- Preserve the 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 address severe weather events.
- Optimize the use of federal lands and properties.
- Transfer excess government real and personal property.



Goal 5

Sustain Management Excellence

- Ensure LM sites are safe and secure for federal and contractor personnel, regulators, and the general public.
- Develop and maintain high standards for planning, budgeting, acquisition, and program and project management.
- Sustain a talented, diverse, inclusive, and performance-driven workforce.
- Improve the quality, efficiency, and effectiveness of site management and business support 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 partners; nonprofit organizations; international organizations; and other countries.
- Consult, collaborate, and partner with 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.



GOAL 1 Protect Human Health and the Environment



Comprehensive Environmental Response, Compensation, and Liability Act and Resource Conservation and Recovery Act (CERCLA/RCRA)

In February, motion-activated wildlife cameras — which were placed in remote places at the **Monticello, Utah, Disposal Site** from October 2019 through October 2020 — revealed their secrets.

- The primary goal of the game cameras was to monitor for the presence of Gunnison sage-grouse, a bird protected by the Endangered Species Act, and to document overall biodiversity at the site. The cameras did not document any Gunnison sage-grouse.
- The initiative captured thousands of wildlife pictures and proved to be an effective, low-cost tool to passively survey wildlife presence and activity at LM sites.



During the summer, LM began an **expanded per- and polyfluoroalkyl substances (PFAS) sampling** program at the Rocky Flats Site in Colorado. LM committed to sampling on a quarterly basis for two years at 12 locations, comprising groundwater, surface water, seep, and treatment system monitoring points.

- LM analyzed samples for a suite of PFAS, including those listed in a Colorado Department of Public Health and Environment, Water Quality Control Commission Policy, issued in 2020.
- Rocky Flats is the only LM site conducting an ongoing PFAS sampling program.

In August, LM and the National Nuclear Security Administration (NNSA) began planning for the transition of the **Kansas City Plant, Missouri, Site** to long-term stewardship.

- The KCP site manufactured non-nuclear components for nuclear weapons, including electronic, mechanical, and engineered material components.
- The site has undergone extensive demolition and remediation by private owners, allowing for a much earlier transfer to LM, scheduled for 2026.

In September, the Weldon Spring Site, Missouri, National Lab Network Working Group began meeting to develop risk-reduction recommendations for uranium in groundwater transport. Participants included LM and the Savannah River, Los Alamos, Pacific Northwest, and National Energy Technology national laboratories. The working group identified two focus areas:

- Focus Area 1 identified the potential for additional wells to examine how or if additional wells would enhance the remedy.
- Focus Area 2 identified alternative strategies to modern natural attenuation, including enhanced attenuation or a technical impracticability for the impacted area.

In October, LM activated a Florida Sunshine 811 “Call Before You Dig” account at the Pinellas County, Florida, Site.

- Membership in the Sunshine 811 program serves as the de facto institutional control for the off-site road right of way affected by the off-site plume originating from the Building 100 area.
- The Building 100 area is the final solid waste management unit at the Pinellas site undergoing remediation.

LM conducted **CERCLA Five-Year Reviews** for six sites during the year, completing four. The purpose of a Five-Year Review is to assess whether the remedies (e.g., engineering controls, land use restrictions, long-term groundwater monitoring, contingent remediation) continue to be protective of human health and the environment.

- LM completed the **Second Five-Year Review Report Laboratory for Energy-Related Health Research Federal Facility University of California, Davis** in June. The review concluded that the remedies at the site are functioning as intended and protective.
- LM completed the **Fifth Five-Year Review Report for the Fernald Preserve** in September. The review concluded that remedies for the five Operable Units on site are functioning as intended and protective.
- LM completed the **Fifth Five-Year Review Report for the Mound, Ohio, Site** in September. The review concluded that the remedies at the site are functioning as intended and protective. Two issues, vapor intrusion and emerging contaminants, were identified for additional evaluation.
- LM completed the **Sixth Five-Year Review Report for the Weldon Spring Site, Missouri**, in September. The review concluded that the remedies at the site are functioning as intended and protective.
- LM began the CERCLA Five-Year Review process for the **Monticello, Utah, Site** and the **Rocky Flats Site, Colorado**, in April. The completed reviews for Monticello are due in June 2022 and for Rocky Flats in August 2022.



Formerly Utilized Sites Remedial Action Program

This year, LM-1 met with all three U.S. Army Corps of Engineers (USACE) Formerly Utilized Sites Remedial Action Program (FUSRAP) Districts actively conducting FUSRAP remediation.

In February, LM and the USACE finalized the “**Joint U.S. Army Corps of Engineers and U.S. Department of Energy Office of Legacy Management Information Transition Guidance for the Formerly Utilized Sites Remedial Action Program.**” The product of a multiyear, interagency effort, this document will improve stakeholder responsiveness and save taxpayer dollars by:

- Providing a common understanding of LM and USACE’s records practices and requirements.
- Setting timelines for data and records transfer at the completion of site remediation.
- Establishing procedures for efficient records transmittal.

Due to COVID-19 restrictions, LM participated in several virtual meetings and tours with USACE.

- These interagency tour events directly contributed to **improvements in LM’s planning for site transition, budget formulation, and environmental liability estimation for FUSRAP sites** that LM receives after remediation. The meetings foster collaboration and open communication between the partnering agencies, leading to a stronger program, more efficient use of taxpayer dollars, and accelerated site transitions to LM.
- The LM FUSRAP manager met virtually with the **USACE Buffalo District** managers for general discussion and site updates in April, June, September, and December.
- The LM FUSRAP team met virtually with **USACE senior program managers** for quarterly meetings in March, June, September, and December and discussed items of general interest, site-specific issues, and LM and USACE assigned actions.
- In June, LM Deputy Director Peter O’Konski, along with LM and LMSP program managers, virtually toured the eight FUSRAP sites that **USACE North Atlantic District** (NAD) is currently remediating.
- In September, LM Director Carmelo Melendez and staff, escorted by executive officer Major Nicholas Copeland and others from the USACE, St. Louis District, visited the **FUSRAP site at the Iowa Army Ammunition Plant (IAAAP) in Middletown, Iowa.**
- In October, the LM FUSRAP team met virtually with USACE headquarters and district-level staff at the sixth annual **Joint USACE/LM FUSRAP Meeting.**
- In November, LM staff attended a **USACE St. Louis District Virtual Open House.** Four sites in St. Louis, Missouri, will transfer from USACE to LM for long-term stewardship after remediation. The Missouri Department of Natural Resources and U.S. Environmental Protection Agency (EPA) also attended the open house.



In October, LM Director Carmelo Melendez presented remarks and issued three **Meritorious Service Awards** recognizing **USACE North Atlantic Division** personnel for their partnership with LM, excellence in project performance, and service to FUSRAP.

- Melendez presented the service awards to the DuPont Project Delivery Team, the New York District Project Delivery Team, and the project managers during the North Atlantic Division leaders program review meeting at Fort Hamilton in Brooklyn, New York.
- Following the meetings, Melendez visited two FUSRAP sites: the DuPont site in Deepwater, New Jersey, and the Staten Island Warehouse in New York City.

In November, Director Melendez and staff presented awards to the **USACE Luckey, Ohio, and Niagara Falls Storage Site (NFSS) Project Delivery teams.**

- The awards recognized their extraordinary collaboration to ensure USACE Buffalo District FUSRAP sites are cleaned up and transferred to LM.
- Melendez presented the awards during a USACE Buffalo District-hosted executive discussion and on-site tour of the 191-acre NFSS and Vicinity Properties, located in Lewiston, New York.
- The Buffalo District is interested in utilizing DOE’s National Laboratory Network (NLN) expertise and LM contractor support services capacity to accelerate the remediation and transfer schedule at the Buffalo District FUSRAP sites.

In November, the U.S. General Services Administration (GSA) began pursuing the real property disposition process for the **Middlesex South, New Jersey, Site** — formerly known as the Middlesex Sampling Plant.

- DOE continues to collaborate with regulators, local communities, and other federal agencies to ensure that real property disposition is a success.
- Long-term stewardship responsibilities for the Middlesex South site are scheduled to transfer from the USACE to LM once groundwater remediation is complete.

Uranium Mill Tailings Radiation Control Act

LM obtained congressional authorization to extend the **Grand Junction, Colorado**, disposal cell's operation until 2031, averting more than \$2 million in FY 2021 costs and deferring more than \$20 million in closure costs.

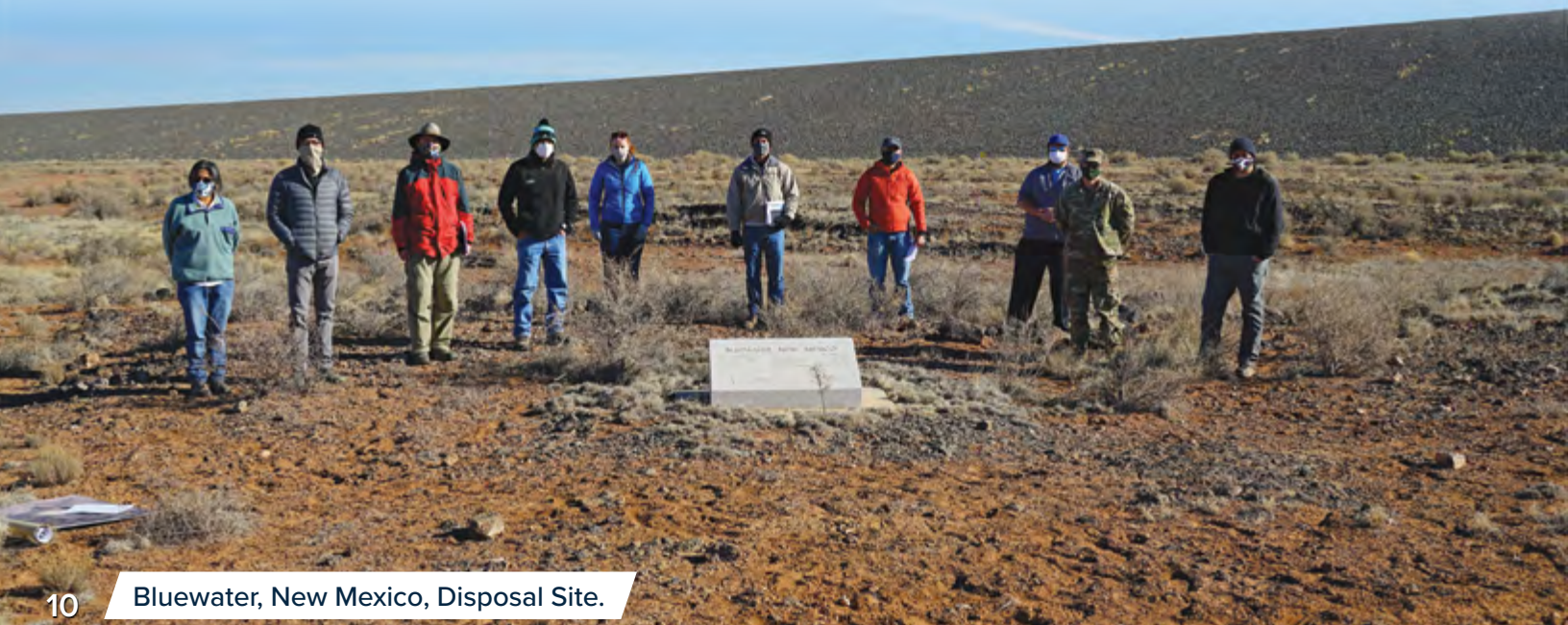
In March, LM and USACE Albuquerque senior managers toured the **Bluewater and L-Bar, New Mexico, sites** to gain a clear and shared understanding of the two agencies' upcoming collaborative erosion-repair projects.

- The deputy director of Site Operations and the UMTRCA team lead represented LM, while the Albuquerque district commander represented USACE. Project teams from both agencies supported the tour.
- Erosion repairs at both sites will include new drainage features, access-road repairs, and modification of cell covers to reduce subsidence and depressions.



L-Bar, New Mexico, Disposal Site.

In March, LM and USACE Albuquerque senior managers toured the Bluewater and L-Bar, New Mexico, sites.



Bluewater, New Mexico, Disposal Site.

In June, LM connected five domestic residences with private water wells to a municipal water supply in cooperation with Gunnison County, Colorado. The residences are within the groundwater contamination boundary at the **Gunnison, Colorado, Processing Site**.

- Remedial action at the site included providing municipal drinking water — supplied by a water-treatment plant, storage tank, and distribution system partially funded by DOE — to residences within the boundary.

In cooperation with the Northern Arapaho Tribe and Argonne National Laboratory, LM completed an independent, comprehensive, supplemental risk assessment to determine exposure risks at the **Riverton, Wyoming, Processing Site**, located on the Wind River Reservation in September.

- The assessment evaluated risks posed by using traditional native plants in the area. The results indicated the plants are safe for human consumption and traditional uses.

In October, LM conducted a baseline aerial survey of the **Mexican Hat, Utah, Disposal Site** cell using a small, unmanned aircraft — or drone — to capture high-quality images that will be used to detect physical changes and plan future work.

- Two weeks prior to the flights, LMSP and Navajo staff went door-to-door notifying residents of the aerial survey.
- A reception area outside of the Mexican Hat disposal cell provided information to interested parties who came to the site to ask questions during the flights.



A commercial aviation services operator prepares a drone to conduct an aerial survey of the Mexican Hat, Utah, Disposal Site in October.

In October, LM conducted an aerial survey of the **Sherwood, Washington, Disposal Site**, located on the Spokane Indian Reservation.

- The aerial survey used a drone to gather precise topographic data, consisting of lidar and RGB (color) imagery, as a baseline to monitor site stability in the future.
- LM conducted this survey in close coordination with the Spokane Tribe of Indians.

Applied Studies and Technology Program

The lead scientist studying uranium mobility at the **Riverton, Wyoming, Processing Site** published a paper on the study in the **Journal of Geosciences** in July. The study will guide future laboratory and field-scale efforts in determining long-term uranium release rates to groundwater.

- The paper, *Using Fission-Track Radiography Coupled with Scanning Electron Microscopy for Efficient Identification of Solid-Phase Uranium Mineralogy at a Former Uranium Pilot Mill (Grand Junction, Colorado)*, **Geosciences** 2021, 11, 29, is available at: www.mdpi.com/2076-3263/11/7/294.
- The study team combined fission-track radiography, scanning electron microscopy, and energy-dispersive X-ray spectroscopy to provide a uniquely efficient and quantitative way of determining mineralogical associations of uranium that can influence uranium mobility.

In May, AS&T scientists conducted virtual presentations for summer interns at the Navajo Nation's Diné College. Topics included contaminant plume delineation, soil changes on disposal cell covers, mine tailing geochemistry, and ecological remedies for uranium mill tailings.





Defense-Related Uranium Mines

The DRUM program is a partnership among DOE, federal land management agencies, state abandoned mine land programs, and tribal governments to verify, validate, and safeguard abandoned uranium mines that provided ore for the nation's nuclear weapons complex.

The **DRUM program completed 507 field visits** and verification and validation (V&V) activities at DRUM sites this season.

- Report writers completed 535 reports this year and reached the target of 1,000 V&V mine reports approved by LM.
- Despite ongoing pandemic-related complications, the DRUM team achieved a 22% increase in V&V visits, resulting in the most productive V&V year on record.

In the *Defense-Related Uranium Mines Report to Congress* (August 2014), LM identified 4,225 potential mines on federal, state, tribal, and private land. Of these, the report estimated that 2,500 mines were on public land.

- To date, the DRUM team removed 1,142 duplicate records from the database, resulting in the actual number of existing mines on public lands to 2,257. This number will fluctuate until the public land campaign is completed.

DRUM and its partners safeguarded 159 mine features at sites in Colorado, Utah, and New Mexico. The DRUM program assists land management agencies in safeguarding immediate hazards posed by physical mine features while honoring historical, cultural, and ecological values at individual mine sites.

- In addition to federal, state, and tribal land management agencies, the DRUM team partnered with Bat Conservation International (BCI) to reduce physical hazards at abandoned mines while maintaining important bat habitats.
- These hazards are primarily attributed to unprotected open mine entries, subsidence features, or dangerous high walls.
- DRUM identified approximately 4,958 hazardous mine features at 1,296 mines that may require safeguarding. The number of potential mine safeguards will likely change as the DRUM team collects more data. Since fall 2019, the DRUM team has safeguarded 351 features.



The Townsend's big-eared bat is one of several species of bats that roost inside abandoned mines. (Photo courtesy BCI.)

A BCI staffer passes cap and posttimbers en route to the mine portal. (Photo by Bill Hatcher/BCI.)

In January, the DRUM program met with the **U.S. Bureau of Land Management's (BLM) Uncompahgre Field Office** to begin project planning for future safeguarding projects.

In February, the DRUM program met with their counterparts at the U.S. Forest Service (USFS) Washington, D.C., Office under an interagency agreement to discuss inventorying, reporting, and safeguarding mines on USFS land.

- This discussion provided the framework for collecting mine data, reviewing mine-specific reports, obtaining Forest Supervisor concurrence, and planning for future safeguarding projects.

In February, the DRUM program published the **2020 Annual Stakeholder Report for the Abandoned Uranium Mines Working Group (AUMWG)**. The report communicates the AUMWG's collaborative efforts and accomplishments during the past year.

- AUMWG is a consortium of federal agencies working together to address the human health, safety, and environmental challenges posed by the nation's abandoned uranium mines.
- The working group is led by LM and comprises directors, managers, and senior technical abandoned mine leads from the U.S. Department of the Interior (DOI), U.S. Bureau of Indian Affairs, BLM, National Park Service (NPS), EPA, USFS, and DOE.
- AUMWG works with states and tribes by marshalling and leveraging the resources of multiple federal agencies to identify and address high-priority mines in an effective and coordinated manner.



In May, LM initiated discussions with several EPA regional offices regarding a future DRUM campaign to verify and validate **abandoned uranium mines on tribal lands**. LM will develop the campaign's specific methodologies in consultation with tribal abandoned mine land programs and the EPA. The tribal community, location, and number of mines are:

- | | |
|---|--|
| • Navajo Nation, New Mexico, Utah, and Arizona (340). | • Tohono O'odham Nation, Arizona (1). |
| • Pueblo of Laguna, New Mexico (6). | • Pueblo of Zuni, New Mexico (1). |
| • Spokane Indian Reservation, Washington (3). | • Uintah and Ouray Indian Reservation, Utah (1). |
| • Hualapai Indian Reservation, Arizona (1). | • Pueblo of Zia, New Mexico (1). |



In March, DRUM staff held an ecological field day at the Telluride 18 Mine in the Yellow Cat area of southwest Colorado. The field day gave newly hired ecologists the opportunity to go over information collected in the V&V process and familiarize themselves with the local flora and fauna.

In June, the DRUM program team discussed **abandoned uranium mines on Navajo Nation tribal land** with EPA Region 9.

- Both parties discussed the investigatory approach used by each agency, identified and reviewed the differences, and agreed on a path forward to modify the DRUM program's plans for inventorying and safeguarding hazardous mines on tribal land.

In July, the DRUM team met with EPA Region 6 to discuss the **Grants, New Mexico, Mining District Five-Year Plan**.

- Federal, state, and tribal agencies are partners to the plan, which addresses contamination caused by legacy uranium mining and milling operations.
- The state of New Mexico identified nearly 100 uranium mines that require assessment and possible cleanup.

In August, LM and NNSA collaborated to complete an aerial survey over **large DRUM sites in Wyoming**. To assess the risk in the Crooks Gap, Gas Hills East and West, and Shirley Basin areas, the survey team flew a helicopter outfitted with 12 thallium-doped sodium iodide crystal detectors, which measure gamma energies to determine radiological exposure levels, to assess.

- Due to the nearby wildlife, scale of the large open pit mines, and strict timeframe, LM determined a helicopter survey would be the best noninvasive and nondestructive option for collecting radiological information.
- The survey results helped LM focus the DRUM program's ground-based sampling efforts in a time-effective and cost-efficient manner.

In October, DRUM program representatives attended the multiday, in-person **Colorado Advisory Council Meeting**, hosted by the Colorado Division of Reclamation, Mining, and Safety (CO-DRMS). The advisory council comprises representatives from Colorado local governments and industry, CO-DRMS, and Colorado offices of BLM, USFS, and LM.

- LM provided a brief, highlighting accomplishments in 2021 and future project planning for 2022.
- Participants prioritized CO-DRMS's use of funding, annually allocated by the DOI Office of Surface Mining and Enforcement, for 2022 mine-reclamation projects.

In 2021, DRUM achieved a major milestone by reconciling all the ore production records to identify and confirm the location of legacy mines across the U.S. The **DRUM Reconciliation Team** completed an **exhaustive record review of more than 15,000 records** and their detailed research has **reduced the government's perceived environmental liability by over \$300 million**.



Decontamination and Decommissioning

In May, LM replaced two weathered monuments at the **Site A/Plot M, Illinois, Decommissioned Reactor Site**, which mark the former location of two of the nation's first nuclear reactors.

- The Site A/Plot M site, located outside Chicago, is in the Forest Preserve District of Cook County in Red Gate Woods. In 1956, the federal government decommissioned the reactors, which were built for the Manhattan Project during World War II, and buried the residual waste in two locations (Site A and Plot M).
- The monuments support public safety by informing the public of the two burial sites, history, and restrictions.



Site A/Plot M, Illinois, Decommissioned Reactor Site.

Program Accomplishments and Achievements

In May, LM established a **fire-watch procedure** to respond to wildfires within 10 miles of field activity locations, including unoccupied sites.

- LM performs fieldwork at a significant number of unoccupied sites in the region, including sites regulated by the Uranium Mill Tailings Radiation Control Act (UMTRCA), Nevada Offsites test areas, the ULP tracts, and DRUM sites.
- Elevated fire risks, primarily due to ongoing drought conditions in the western U.S., prompted the need for this procedure.

In November, LM supported a visit to the Grand Junction Regional Airport **radiometric calibration pads** by the EPA's National Center for Radiation Field Operations.

- The EPA team tested several types of spectral gamma ray instruments and collected exposure rate data with a pressurized ionization chamber.
- As the site is located within the Transportation Security Administration (TSA) security fence, LMSP's TSA-badged staff provided access to the pads and were required to escort the team while on-site.





RECORDS AND INFORMATION TECHNOLOGY MANAGEMENT

The Archives and Information Management (AIM) team continued to ensure **LM records** are properly maintained and protected.

- This includes 5 million electronic records and finding aids in the Content Manager record-keeping system as well as 112,000 boxes of physical records stored at the LMBC and at federal records facilities around the country.

AIM employed its automated process in **Content Manager** to disposition paper and electronic records as part of **LM's annual disposition activity**.

- Data-cleanup activities identified and deleted more than 50,000 orphan finding aids.
- AIM identified 447 boxes located at the LMBC for destruction and 3,065 electronic records securely deleted from Content Manager.
- Reviewed and secured approval to disposition more than 3,500 boxes of Rocky Flats physical records at the Denver Federal Records Center
- A judge lifted the nearly 20-year hold on all Rocky Flats records, which resulted in the backlog of records due for disposition.

AIM received **1,175 total record inquiries**, including nine requests carried over from 2020. Of that total, **AIM completed 1,156**. Most of the inquiries, 972, were for records used to resolve Energy Employee Occupational Illness Compensation Program Act claims.

In August, **LM completed a technically challenging transition of its Microsoft Exchange mail service to the Cloud** and simultaneously migrated from Skype for Business to Teams.

- These system enhancements reduced cost while boosting connectivity and cybersecurity.

In September, the AIM team completed the annual assessment of **LM's total cyber security posture**. Weighing the residual risks against operational requirements (in accordance with DOE's Risk Management program), the LM authorizing official determined that the LM Cyber Security program was and continues to be effective in protecting the system.



AIM decommissioned the **LMBC cold-storage facility**.

- AIM dispositioned most of the microforms in February.

The remaining microforms don't require environmental controls.

AIM implemented procedures to effectively store email in **Content Manager** after the transition of Microsoft Outlook to the Cloud.

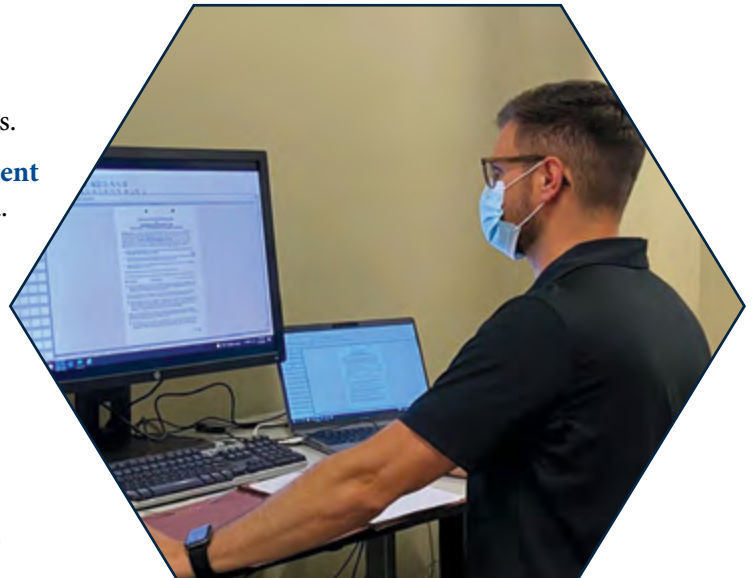
- A policy was established to store email and attachments for no longer than five years and prohibit encrypted email in Content Manager.

AIM deployed **Control Point**, a records crawler, to targeted file shares and identified redundant, obsolete, and trivial information.

- AIM also worked with the file-share owners to develop a plan to either delete the contents or move files to Content Manager or SharePoint.

AIM identified, reviewed, assessed, and determined a path forward for two pallets of records from the **LM Operations Center in Westminster, Colorado**, including photographic negatives originally submitted to the National Archives and Records Administration.

- The team identified technical reports for the Rocky Flats Site that should be retained by the DOE Office of Science and Technology Information database.



LM began digitizing collections of physical records to be stored in Content Manager for easier retrieval for stakeholder requests.



GOAL 3 Safeguard Former Contractor Workers' Retirement Benefits



BENEFITS

The **Legacy Management Post-Closure Benefits Program** includes the development, implementation, and oversight of the Department's policy concerning the continuation of contractor pension and medical benefits after the closure of applicable DOE sites and facilities. This includes oversight of the administration and management of legacy contractor benefits in a fiscally responsible and effective manner. The primary program objective is to ensure a seamless transition of benefits administration after closure. This program is handled by the Office of Business Operations within LM.

As of 2021, DOE provided health and life insurance for 9,300 former DOE workers.

The primary program objective is to ensure a seamless transition of benefits administration after closure.



GOAL 4 Sustainably Manage and Optimize the Use of Land and Assets



Accomplishments

In response to the COVID-19 pandemic, **LM demonstrated that its work could be sustained and completed outside the traditional workspace model.**

- LM revised its approach to its workspace requirements throughout its owned and leased occupied offices to incorporate the new realities resulting from the pandemic.
- LM identified and articulated the mission need for office space and “rightsized” each space accordingly.

LM implemented a phased reduction in its **current occupied leased footprint**, which resulted in a total reduction of 6,500 square feet at four locations.

- LM continued to work toward this goal by developing a more effective and efficient office space strategy for LMSP staff near the Fernald Preserve, Ohio, Site and at the outreach office in Window Rock, Arizona.

In January, LM collaborated with the LMBC’s landlord to replace and optimize its generator.

- The older generator, obtained by LM in 2009, was oversized and had maintenance issues.
- The new generator provides backup power to the LMBC servers.

The LM Asset Management team continued to grow **LM’s Aviation Management Program**, established in 2020.

- Manned flights conducted at the **Weldon Spring Site** in Missouri, the **Mound and Fernald sites** in Ohio, and the **Rocky Flats Site** in Colorado.
- Inaugural unmanned Baseline Aerial Survey project flights at the **Bear Creek and Spook, Wyoming; Edgemont, South Dakota; Mexican Hat and Green River, Utah; Lakeview, Oregon; and Sherwood, Washington,** sites provided LM with better and more timely data.



Beneficial Reuse

In the spring of 2021, LM launched a three-year study at the **Shirley Basin South/North, Wyoming, Disposal Site** designed to explore an agricultural practice of building soil health by managing livestock called “**regenerative grazing**.”

- The study supports the partnership between LM, the grazing lessee, the University of Wyoming, and the Medicine Bow Conservation District.
- The site’s unique ecological characteristics, which include a mix of native and revegetated rangeland with grazed and non-grazed areas, allowed a comparison of historic and current land use as well as the effects of livestock practices on plant diversity, soil carbon, and overall rangeland health conditions.
- Regenerative grazing allows soils to capture and store more carbon than land in poor condition, thus promoting healthier vegetation and ecological systems.

In May, LM participated in an official **ribbon-cutting ceremony for Las Colonias Park** on the Colorado River, just south of downtown Grand Junction. The park is adjacent to LM’s former Grand Junction uranium-processing site.

- Following remediation, the state of Colorado transferred property ownership to the city of Grand Junction through a quitclaim deed in March 1997; the city of Grand Junction has since developed the area to include public parks and trails, an amphitheater, and a river park.
- The ceremony included speakers from the local, state, and federal agencies that partnered in creating the vision for the riverfront park, followed by a traditional ribbon-cutting, a river float parade, and reception.



The official ribbon-cutting ceremony for Las Colonias Park in Grand Junction, Colorado.

In December 2021, a **Finding of No Significant Impact (FONSI)** was issued for the **Environmental Assessment (EA) for the proposed demolition of the Piqua, Ohio, Decommissioned Reactor Site**.

- The EA considered six alternatives associated with long-term stewardship of the site, with the proposed action being full site demolition.
- Under the preferred alternative, the entombment of low-level radioactive waste will remain on-site in a protective state.
- The FONSI allows for beneficial reuse of the site once the city of Piqua takes ownership of the property with land use restrictions.

In September, the city of Rifle began construction of a **new solar array on the New Rifle, Colorado, Processing Site**. LM’s risk-based review of the city’s plans ensured that, despite potential site disturbance, the project complies with institutional controls and does not pose a health risk to the community or the environment.

- The new array will join two existing arrays, which the city of Rifle constructed at the site between 2008 and 2010 to provide 3.7 megawatts of power to its wastewater-treatment plant, other municipal facilities, and residential subscribers.



New solar array on the New Rifle, Colorado, Processing Site.

Uranium Leasing Program

In January, LM received the **first payment under recently renewed ULP leases**.

- Uranium-mining companies with leases under ULP are required to pay annual lease royalty payments to the federal government.
- Due to an injunction, the federal government could not collect royalties for a decade, and the leases had expired. With a lifting of the injunction, ULP resumed activities and renegotiated the leases in 2020.

LM continued its partnership with the **Dolores River Restoration Partnership** to reduce tamarisk and other nonnative vegetation along the river while also restoring native plant species, improving riparian habitat, and creating a healthier ecosystem.

- LM also worked with the **Southwest Conservation Corps** crews who spend one to two weeks per year at the LM lease tracts applying herbicide; manually removing tamarisk, Russian knapweed, and Canada thistle; and seeding native species.
- About 4 miles of the Dolores River runs through LM lease tracts in the Uravan Mineral Belt of southwest Colorado.
- The partners are a coalition of 28 public and private organizations, including federal land management agencies, local governments, landowners, and other interests.

In October, LM **completed a reclamation project at the Burro Mines Complex** in southwest Colorado. The project, which began in June, protected the Dolores River from sediment load running off legacy waste rock at the Burro Mines Complex. The waste rock did not pose a radiological or chemical hazard; however, sediment eroding from the waste rock pile during periods of high rainfall impacted the adjacent river.

- The Burro Mines Complex includes four separate and distinct uranium mine sites: the Burro Tunnel Mine and Burro Mines Nos. 3, 5, and 7. The Burro No. 7 Mine was previously reclaimed and was not part of this project.
- In addition to relocating over 70,000 cubic yards of waste rock from the Burro Tunnel Mine, LM constructed engineered drainage features beneath Burro Mine Nos. 3 and 5 and improved other areas in Burro Canyon to further protect the Dolores River.
- In consultation with the State Historic Preservation Office, the waste rock piles were restored to their 1970s look and feel.



Dolores River in southwest Colorado.



Burro Mines Complex in southwest Colorado.



Scan the QR code with a mobile phone or visit www.energy.gov/sites/default/files/styles/full_article_width/public/2019/10/f68/ULP%20Lease%20Tract%20Overview%20Map_10-19%20%28002%29.png?itok=z4HwfUH to view the ULP Lease Tract Overview Map.

GOAL 5 Sustain Management Excellence



In February, Mesa County Public Health and the Grand Junction Area Chamber of Commerce **formally recognized the LM Field Support Center (LMFSC) in Grand Junction, Colorado, for its COVID-19 response.**

- These local agencies designated LM's office as a Variance Protection Program business — a designation that honors local businesses for their efforts implementing safe practices related to the pandemic and keeping the community safe and open.

At the end of March, **DOE completed contract transition to the new LMSP support contractor, RSI EnTech.** The period of performance for the new contract is five years, from 2020 through 2025.

- With consideration to the proposed approaches (i.e., technical, capacity, management, teaming) and overall price, LM determined the proposal submitted by RSI provided the best value to the government.



LM Field Support Center in Grand Junction, Colorado.

Strategic Planning

LM developed a **systematic screening process for its 101 sites** to better prioritize resources for efficient management and reduce long-term stewardship costs.

- The screening process evaluates key elements that help protect human health, influences how the sites are managed, and directly impacts final outcomes.
- LM placed these elements into weighted categories, based on relative importance, and followed specific guidelines to generate a composite score for each site that represents a Long-Term Stewardship Index to display the comparative rankings. LM updates the index data annually and publishes a report on its findings every two years.

Program Awards and Recognition

In March, LM and LMSP achieved **3 million safe work hours** without a lost-time incident and surpassed 1 million hours without a recordable work injury.

- This included field work, office work, and travel, as well as major maintenance projects, such as the **Interim Cover Protection Project at Mexican Hat, Utah, Disposal Site and the Original Landfill Project at the Rocky Flats Site, Colorado.**

For the seventh consecutive year, the Green Electronics Council awarded its **Electronic Product Environmental Assessment Tool (EPEAT) Purchaser Award** to LM in May.

- The EPEAT Purchaser Award recognizes organizations for excellence in sustainable procurement of electronic equipment.
- LM successfully implemented a policy for environmentally preferable procurement of electronic equipment, including vendor contract specifications requiring that all equipment (e.g., computers, monitors, copiers) achieve bronze registration or better in the EPEAT system.
- LM received the award for making purchases within four EPEAT categories.



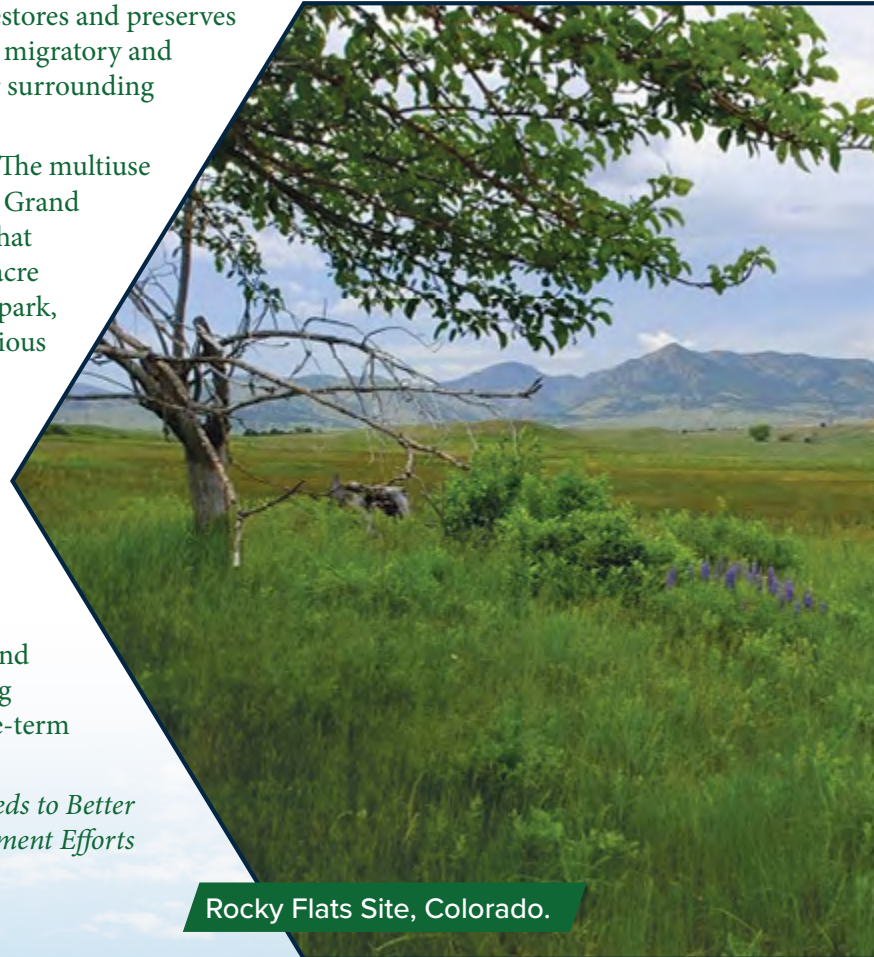
In May, the EPA recognized both LM's **Rocky Flats Site** and **Las Colonias Park** with a **National Federal Facility Excellence in Site Reuse Award**. The award highlights the significant accomplishments of federal agencies, states, tribes, local partners, and developers in restoring and reusing contaminated land at federal facilities.



- **Rocky Flats**, which won in the Superfund National Priorities List (NPL) category, was originally a nuclear weapons-production facility during the Cold War. In 2001, Congress created the Rocky Flats National Wildlife Refuge, a federally protected refuge that is managed by the U.S. Fish and Wildlife Service. The refuge restores and preserves native ecosystems, while also providing habitat for migratory and resident wildlife and recreational opportunities for surrounding communities.
- **Las Colonias Park** won in the non-NPL category. The multiuse park, which is located along the Colorado River in Grand Junction, is a former uranium-processing facility that was transformed for public use and includes a 15-acre business zone, 5,000-seat amphitheater, riverfront park, boat ramp, trail system, and arboretum. The ambitious project, which provides a destination for walking and biking along the river, has become a catalyst for redevelopment in the surrounding area.

In October, the **U.S. Government Accountability Office** published a report that recognized LM's risk-based decision-making as an example for other agencies to follow.

- LM weighs factors, such as potential cost savings and efficiency gains over time, as the basis for balancing long-term resource considerations with immediate-term constraints.
- The report, titled *Nuclear Waste Cleanup: DOE Needs to Better Coordinate and Prioritize Its Research and Development Efforts* GAO-22-104490, is available at: www.gao.gov/products/gao-22-104490.



Rocky Flats Site, Colorado.



International Collaboration

LM continued participating virtually in an **international work group on nuclear reactor in situ decommissioning (ISD)** in the United States, the United Kingdom, and Canada.

- The work group demonstrates the three countries' commitment to ISD-like remediation as a safe, cost-effective, and regulatory-acceptable decommissioning strategy, while acknowledging that its precise implementation will vary, depending on each site's unique circumstances and each country's regulatory framework.
- Of particular interest to the international community is how LM manages and monitors institutional controls at its sites.

In September, LM Director Carmelo Melendez and a senior DOE public affairs representative participated in the virtual **Nuclear Energy Agency (NEA) Forum on Stakeholder Confidence (FSC)** subcommittee meeting on Stakeholder Involvement in Decommissioning and Legacy Management (SIDLM). NEA is the intergovernmental agency responsible for assisting member countries maintain and develop nuclear energy. As early generation reactors will be undergoing D&D over the next decade, the NEA invited LM to join SIDLM.

- As a follow-up to the first meeting, LM submitted a questionnaire on important stakeholder engagement topics and identified potential case studies for best practices or issues in stakeholder involvement in decommissioning and legacy site management. During the virtual SIDLM meeting, participants discussed the questionnaire results and case studies.
- In 2000, the NEA Radioactive Waste Management Committee established FSC to foster stakeholder dialogue and develop shared confidence, informed consent, and acceptance of radioactive interest, in the process of developing radioactive waste-management solutions.

In November, LM staff presented on the DRUM program and risk ranking as a long-term stewardship prioritization tool at the **International Atomic Energy Agency's** technical meeting of the International Forum for Regulatory Supervision of Legacy Sites on the Identification and Prioritization of Sites for Remediation.

In November, LM participated in the virtual **Global Summit on Environmental Remediation**, hosted by DOE's Pacific Northwest National Laboratory's Center for the Remediation of Complex Sites.

- The virtual summit provided an international forum to discuss the challenges, barriers, and innovation for successful remediation and long-term stewardship at contaminated sites. Participants shared lessons learned to better understand remediation needs worldwide.
- LM presented their collaboration with NLN on the Tuba City, Arizona, Disposal Site.

In December, LM participated in a virtual workshop on Licensing Remediation Projects hosted by the International Atomic Energy Agency.

- The workshop identified best practices for remediation and post-closure management of uranium-mining and milling sites in Central Asia that were abandoned following the collapse of the Soviet Union.
- LM presented case studies on transferring UMTRCA sites from private operators to LM for LTS&M.



National Laboratory Network

In September, the **Fernald NLN Work Group issued a final report** with actionable recommendations for improving treatment system operations. LM federal and contractor technical staff, NLN staff from four labs, and site regulators formed the work group to address the regulatory risk of the pump-and-treat remedy potentially not achieving groundwater cleanup goals within the model-predicted timeframe.

- The work group consisted of two focus groups: one for optimizing existing infrastructure to improve pump-and-treat system operation and the other for evaluating emerging technologies that may improve the existing remedy.
- Fernald personnel are currently conducting a small-scale pilot test on site extraction wells and exploring opportunities to conduct all the short-term actionable recommendations in the report over the next five years, pending budget availability.

Intra-Agency Collaboration

In January, LM, NNSA, and the DOE Office of Environmental Management (EM) established a **Long-Term Stewardship Working Group (LTSWG)** to foster a collaborative, consistent approach to stewardship planning and execution across DOE.

- The working group shared information, identified best management practices, and disseminated lessons learned.
- The Communications and Education Committee drafted a Communications Plan. The document identified and summarized LTSWG's key messages, outlined the organization and operations of LTSWG, and provided a foundation to effectively communicate the identified key messages to organizations internal and external to DOE.
- The Site Transfer Best Practices Committee reviewed documents and agreements from across the complex to develop recommendations and draft new policies and guidance documents.
- The Knowledge Management/Geographic Information System group conducted a survey across the Department to develop recommendations.

The draft **DOE Office of the Associate Under Secretary for Environment, Health, Safety and Security (AU) Conservation Action Plan** referenced eight LM-managed projects that showcased the principles outlined in the White House's "America the Beautiful" initiative. AU submitted the plan to the White House Council on Environmental Quality.

In December, LM and EM presented at a public meeting of the National Academy of Science Nuclear and Radiation Studies Board and discussed the **potential impacts of climate change on environmental cleanup strategies**.

- LM focused on the work conducted by the Lawrence Berkeley National Laboratory to evaluate the climate change vulnerabilities of LM sites.

LM Director's Travel

Travel by LM Director Carmelo Melendez was limited due to continued pandemic guidance. Melendez visited the following:

- Maxey Flats site in Kentucky, the Weldon Spring Site in Missouri, and the USACE FUSRAP Iowa Army Ammunition Plant (IAAAP) near Middletown, Iowa, in September.
- Lowman disposal and Pre-Schooner II sites in Idaho, in September.
- USACE FUSRAP DuPont site in Deepwater, New Jersey, and the Staten Island Warehouse site in New York, in October.
- NFSS and Vicinity Properties, in Lewiston, New York, in November.



An IAAAP project manager explains the soil-sorting process to Carmelo Melendez and Gwen Hooten at IAAAP in Middletown, Iowa.

Philip C. Leahy Award Winners

In September, LM honored 13 LM employees with **Philip C. Leahy awards**.

- Established in 2017, Leahy awards recognize LM employees who demonstrate qualities of outstanding team players.
- Philip C. Leahy set up what is now the LM Field Support Center in Grand Junction, Colorado, while working on the Manhattan Project, and later served as the site's manager under the U.S. Atomic Energy Commission.
- LM employees selected for Leahy awards:
 - Bruce Akers.
 - Deborah Barr.
 - Kyle Brown.
 - Joyce Chavez.
 - Angelita Denny.
 - Bill Frazier.
 - Michael Garrett.
 - Andy Keim.
 - Laterri Martin.
 - Shawn Montgomery.
 - Brian Stewart.
 - Dante Tan.
 - Brian Zimmerman.



Philip C. Leahy



LM recognized Safety and Health Program Manager Brian Stewart as the **LM Employee of the Year** for his steadfast commitment to ensuring the entire LM organization recognized and internalized the importance of safety, especially during a worldwide pandemic, and for his dedication in helping LMSP meet the requirements for the DOE Voluntary Protection Program (VPP) Star award. (VPP Star is the highest level of recognition in safety and health programs.)

New Employees

Charlee Boger joined LM with the UMTRCA/Nevada Offsites team as a site manager. She was born in Grand Junction, Colorado, and graduated from Colorado Mesa University with a Bachelor of Science in environmental science and technology. Prior to joining the DOE team, she was an LMSP site lead, supporting eight UMTRCA sites.

Rebecca Roberts joined LM as site manager at the Weldon Spring Site in Missouri. Roberts previously worked as the LMSP FUSRAP task assignment manager and as a USACE contractor for FUSRAP sites in the St. Louis, Missouri, area. She spent six years in the Navy, supporting the U.S. Navy Nuclear Power Program.

Tiffany Drake joined LM as a site manager. She is located at the Weldon Spring Site, working on the CERCLA/RCRA/FUSRAP team. She previously worked for the Missouri Department of Natural Resources for 16 years.

Meghann Hurt joined the LM UMTRCA and Nevada Offsites/Plowshare/Vela Uniform teams as a site manager. She previously worked as a contractor for DOE's Fossil Energy program and as a staff geologist, managing and conducting well installations and groundwater assessments under a ConocoPhillips contract in the greater Bay Area in northern California.

Nicole Keller joined the LM UMTRCA team as a site manager. Prior to joining LM, Keller was an LMSP site lead, supporting UMTRCA sites in Wyoming. She previously served as a process engineer in the semiconductor industry and as an environmental engineer for the Utah Department of Environmental Quality and Colorado Department of Public Health and Environment. She also managed capital-improvement and hazard-mitigation projects funded by the Federal Emergency Management Agency.

Alison Kuhlman joined the LM CERCLA/RCRA/FUSRAP team as a site manager. She began her career working for Denver Water and the Colorado Department of Public Health and Environment, developing regulation and leading compliance and enforcement. She worked as an LMSP site lead for eight years, most recently as a site lead for UMTRCA sites, before joining LM.

Melissa Lutz joined the LM CERCLA/RCRA/FUSRAP team as a site manager. She started her career as a contractor with EM on the Weldon Spring Site cleanup project in Missouri. There, she transitioned as an LM contractor and continued to develop her knowledge and experience in environmental protection, safety and health, site operations, and project and site management.

Angela Sigala joined the LM Financial, Audits, and Contracts Services team as a budget analyst. She previously worked with the DOE Western Area Power Administration.

David Von Behren joined the LM Education, Communication, History, and Outreach team as the team supervisor. He previously served with the U.S. Department of Agriculture (USDA) Food and Nutrition Service for more than 11 years. He was the regional public affairs director for the Denver office, leading communications and partnerships across an eight-state region. Prior to that, he served in a variety of leadership roles in public affairs for the National School Lunch program, University of Arizona College of Pharmacy, and Arizona Poison and Drug Information Center and as a producer for NBC.

LM Interns and Fellows

LM welcomed two summer interns through the Mentorship for Environmental Scholars (MES) Program, a collaborative effort between Pre-College University and DOE to increase minority awareness and participation in the environmental science disciplines.



Kayla Brown

A senior at Morgan State University in Baltimore, Maryland, completed her internship on an earth system science project.



Jordan Manlove

A senior at Hampton University in Hampton, Virginia, completed his internship developing a manual to help future MES interns.

In July, **Florida International University LM Fellows Olivia Bustillo** and **Eduardo Rojas** presented capstone reports to LM senior leadership, detailing their summer internships at LM's LMFSC in Grand Junction, Colorado.

- Bustillo, an environmental engineering student, studied the reliability of apatite, a naturally occurring mineral in soils, to sequester uranium in groundwater.
- Rojas, a mechanical engineering student, studied how different remote sensing technologies can benefit LTS&M at LM sites.

OLD LM ORGANIZATIONAL CHART

**As of
Jan. 1,
2021**

LM 1

C. Melendez, Director

LM 2

P. O'Konski, Deputy Director
T. Atkins, Program Manager
M. Downing, Environmental Justice Program Manager
P. Poole-Shirriel, Management Analyst

Executive Operations Team - LM 4

C. Johnson-Freeman, Program Analyst
Q. Clyburn, Program Analyst

Communication, Education, and Outreach Team - LM 3

K. Holmes, Supervisor
P. Benson, Program Analyst
D. Freeman, Communications Liaison
S. Montgomery, Public Participation Specialist
G. Kuntz, Public Participation Specialist
E. Boyle, Historian

Office of Business Operations - LM 10

T. Smith-Taylor, Director
T. Collins, Business Operations Specialist

Archives and Information Management Team - LM 11

E. Parks, Supervisor

R. Walker, IT Specialist	K. Brown, IT Specialist
R. King, Correspondence Specialist	C. Rozycki, IT Specialist
M. Garrett, Program Analyst	G. Deguia, Records/Information Management Specialist
J. Linard, Program Analyst	

Financial, Audits, and Contracts Services Team - LM 12

I. Colbert, Supervisor

J. Chinkhota, Financial Analyst	E. Jackson, Staff Assistant
R. Rogers, Budget Analyst	J. Murl, Project Controls Analyst
L. Martin, Budget Analyst	J. Austin, Project Controls Analyst
J. Gueretta, Management Analyst	

Asset Management Team - LM 13

B. Sokolovich, Supervisor

E. Holland, Property Management Specialist	D. McNeil, Realty Specialist
J. Chavez, Physical Scientist	O. Akers, Industrial Property Management Specialist
P. Robinson, Realty Specialist	D. Steckley, Physical Scientist
G. Cummings, Facilities Manager	N. Olin, Physical Scientist and Environmental Planner

Office of Site Operations - LM 20

D. Shafer, Director
D. Tan, EPS Site Operations

ESHQ Group

J. Damiano, Quality Assurance Specialist
T. Ribeiro, Environmental Protection Specialist
B. Stewart, Industrial Hygienist

UMTRCA/NVOS Team - LM 21

P. Kerl, Supervisor

A. Kleinrath, General Engineer	W. Frazier, General Engineer
M. Kautsky, Hydrologist	B. Tsosie, General Engineer
J. Dayvault, Hydrologist	K. Kreie, Physical Scientist
J. Nguyen, Physical Scientist	T. Jasso, Physical Scientist
A. Denny, Physical Scientist	S. Woods, Physical Scientist

RCRA/CERCLA/FUSRAP Team - LM 22

G. Hooten, Supervisor

C. Carpenter, General Engineer	A. Keim, Physical Scientist
K. Starr, General Engineer	B. Zimmerman, Physical Scientist
D. Castillo, General Engineer	K. Whysner, Physical Scientist

Uranium Mine Team - LM 23

J. Glascock, Supervisor

D. Barr, Physical Scientist	M. Young, Physical Scientist
B. Lewis, Physical Scientist	I. Shafer, Physical Scientist
C. Denton, Physical Scientist	

CURRENT LM ORGANIZATIONAL CHART

**As of
Dec. 31,
2021**

LM 1

C. Melendez, Director

LM 2

P. O'Konski, Deputy Director
T. Atkins, Program Manager
M. Downing, Environmental Justice Program Manager
P. Poole-Shirriel, Management Analyst
D. Shafer, Senior Advisor

Education, Communication, History, and Outreach Team - LM 3

D. Von Behren, Supervisor
K. Holmes, Program Analyst
P. Benson, Program Analyst
D. Freeman, Communication Liaison
S. Montgomery, Public Participation Specialist
G. Kuntz, Public Participation Specialist
E. Boyle, Historian

Office of Business Operations - LM 10

T. Smith-Taylor, Deputy Director
T. Collins, Business Operations Specialist
C. Johnson-Freeman, Program Analyst
Q. Clyburn, Program Analyst

Archives and Information Management Team - LM 11

E. Parks, Supervisor
R. Walker, IT Specialist
K. Brown, IT Specialist
R. King, Correspondence Specialist
G. Deguia, Records/Information Management Specialist
J. Linard, Program Analyst

Financial, Audits, and Contracts Services Team - LM 12

I. Colbert, Supervisor
J. Chinkhota, Financial Analyst
J. Murl, Project Controls Analyst
R. Rodgers, Budget Analyst
J. Austin, Project Controls Analyst
L. Martin, Budget Analyst
J. Gueretta, Management Analyst
A. Sigala, Budget Analyst
E. Jackson, Staff Assistant

Asset Management Team - LM 13

B. Sokolovich, Supervisor
E. Holland, Property Management Specialist
D. McNeil, Realty Specialist
O. Akers, Industrial Property Management Specialist
J. Chavez, Physical Scientist
D. Steckley, Physical Scientist
P. Robinson, Realty Specialist
K. Starr, General Engineer
G. Cummings, Emergency Management Specialist

Office of Site Operations - LM 20

J. Glascock, Deputy Director
D. Tan, EPS Site Operations

ESHQ Group

T. Ribeiro, Supervisor
J. Damiano, Quality Assurance Specialist
B. Stewart, Industrial Hygienist
N. Olin, Physical Scientist and Environmental Planner

UMTRCA/NVOS Team - LM 21

P. Kerl, Supervisor
M. Kautsky, Hydrologist
K. Kreie, Physical Scientist
J. Dayvault, General Engineer
S. Woods, Physical Scientist
J. Nguyen, Physical Scientist
C. Boger Physical Scientist
A. Denny, Physical Scientist
M. Hurt, Physical Scientist
W. Frazier, General Engineer
N. Keller, General Engineer
B. Tsosie, General Engineer

RCRA/CERCLA/FUSRAP Team - LM 22

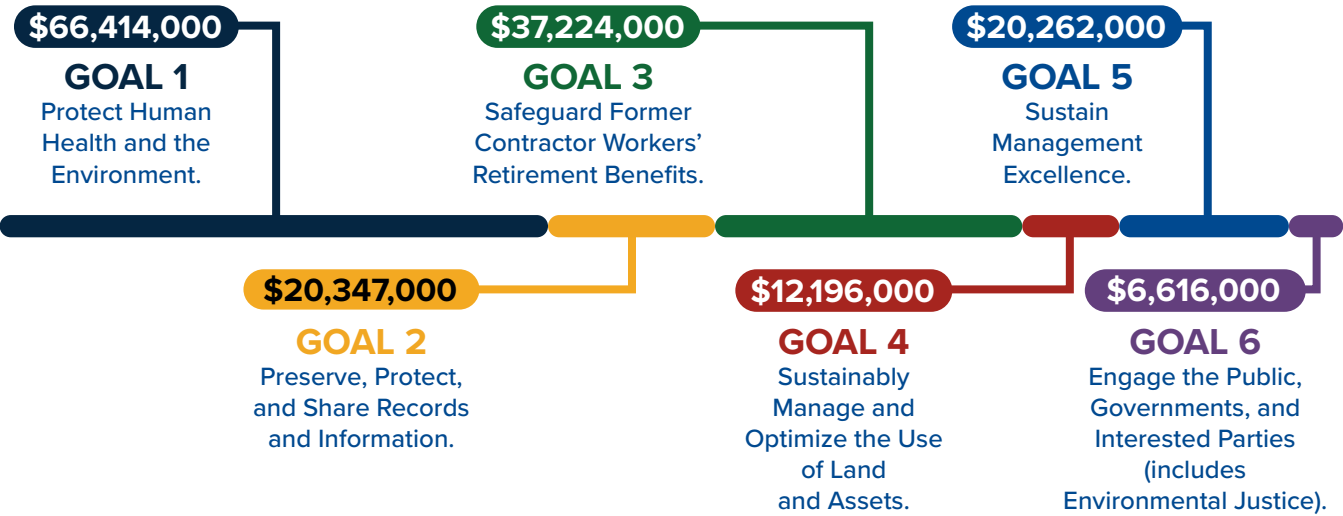
G. Hooten, Supervisor
C. Carpenter, General Engineer
R. Roberts, Physical Scientist
D. Castillo, General Engineer
M Lutz, Physical Scientist
A. Keim, Physical Scientist
T. Drake, General Engineer
B. Zimmerman, Physical Scientist
A. Kuhlman, General Engineer
K. Whysner, Physical Scientist

Uranium Mine Team - LM 23

Brent Lewis, Acting Supervisor
D. Barr, Physical Scientist
M. Young, Physical Scientist
B. Lewis, Physical Scientist
I. Shafer, Physical Scientist
C. Denton, Physical Scientist

2021 Program Budget

TOTAL LEGACY MANAGEMENT BUDGET - \$163,059,000



Fiscal Year 2022 LM Budget Request

In May, LM rolled out its FY 2022 budget request of approximately \$429 million. This request was approximately \$266 million above the FY 2021 enacted. The increase included nearly \$16 million in work toward LM's long-term stewardship activities in historically disadvantaged communities as well as \$250 million to support the administrative transfer of FUSRAP from USACE.



DEPARTMENTAL PROGRAMS

LM is assigned three key Departmental programs: the DOE History Program, the Environmental Justice Program, and the Manhattan Project National Historical Park.

DOE History Program

As the source of the Department's institutional memory, the History Program provides historical information and services, supports the DOE Federal Preservation Officer, and offers subject-matter expertise for DOE's historical records and reference material.

The program supported **program elements across DOE**, including:

- Conducting litigation research for the Office of the General Counsel.
- Reviewing front office records for the Office of the Executive Secretariat.
- Reviewing Freedom of Information Act/Privacy Act requests for the Office of Management.
- Conducting mandatory document reviews for the Office of Classification.
- Developing content for the Office of Public Affairs.
- Supporting historical preservation efforts by the Department's Federal Preservation Officer.
- Responding to more than 70 requests for historical services from more than 25 additional DOE programs and offices.

The program also provided **historical services** in response to more than 75 requests from consulting firms, science organizations, academia, authors, filmmakers, utility managers, museums, archaeological programs, historical preservation partners, students, and members of the public. The program also provided historical preservation material in response to more than 65 requests from sources across the DOE complex and several state governments.

LM's historian developed and delivered presentations for the **DOE White House Liaison and Deputy**, a community of DOE's new political appointees, LM staff, and Intergovernmental External Affairs Regional Specialists.

LM's historian served as membership coordinator for the **Society for History in the Federal Government** and attended monthly meetings of the Executive Council.

In March, LM's historian moderated the **National Council on Public History conference** panel "COVID-19 Stories from and of Federal Historians."

- The panel explored how COVID-19 altered the nature of historical work within government, such as protocols that restricted historians' ability to access archives and workplaces and conduct in-person interviews.

In May, LM's historian represented DOE at the **Federal Preservation Officers Forum Preservation Month Meeting**.

- This session provided preservation officers with the opportunity to help each other solve Section 106 challenges.

In June, LM's historian represented DOE at the **Federal Chief Archaeologists Advisory Group Meeting**.

- Topics included the permit application process for the Archaeological Resources Protection Act of 1979, proposed revisions to the National Historic Preservation Act, impacts of the Great American Outdoors Act on federal agencies, and the federal archaeology strategy.

In October, LM's historian represented DOE at the Federal Preservation Officers Meeting during the **National Conference of State Historic Preservation Officers**.

- Agency representatives and State Historic Preservation Officers discussed the Infrastructure Investment and Jobs Act and its potential impacts.

Environmental Justice

In February, the DOE Environmental Justice (EJ) program manager participated as a panelist for the **Information Technology Industry Council's** “Using Innovation to Advance Environmental Justice and Racial Equity” webinar.

- DOE led a discussion that included more than 70 participants from state and federal agencies, in addition to the private and public sector, to address the role of technology and the ongoing global impact of environmental racism on the health and well-being of people of color, especially Black and Indigenous communities.

In April, the DOE EJ program manager presented ***Incorporating EJ at Federal Facility Cleanups*** during a panel discussion at the virtual Association of State and Territorial Solid Waste Management Officials midyear meeting.

- The DOE EJ strategy identified key priorities that will increase capacity building, public participation, and opportunities for minority and low-income populations, Native American tribes, and Alaska Natives.

In October, DOE co-sponsored the **2021 National Environmental Justice Conference and Training Program**. Leaders met virtually during the 13th National Conference on Health Disparities for this joint national gathering.

- More than 500 registrants, including representatives from federal, state, and local government agencies; public and private sector organizations; nonprofits; and academic institutions, came together to engage communities as full partners in collaborative solutions to the many issues and challenges affecting the nation.
- Speakers, including DOE Deputy Secretary David Turk, discussed the conference theme of “Addressing Health Disparities, Environmental Justice, and Shaping the Future of Healthcare.”

In July and November, about 60 middle and high school teachers came together at the University of South Carolina Aiken for the **Teaching Radiation, Energy and Technology (TREAT) Workshop**, an event for local educators conducted by the DOE Savannah River Operations Office and Savannah State University since 1995.

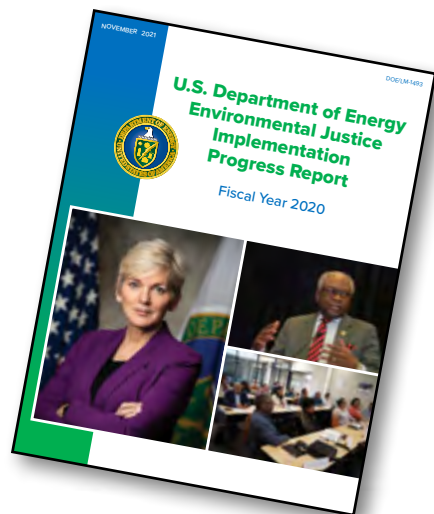
- The EJ manager welcomed the group and emphasized the importance of the workshop, during which participants learned about the history and missions of the Savannah River Site and attended sessions titled Radiation 101, Environmental Monitoring: Wildlife Surveillance Program, and Emergency Preparedness.
- Funded through an EJ grant, DOE partners with Savannah State University provided educational training to teachers and local community leaders in the Central Savannah River Area about radiation, sources of radiation, radioactive waste management, effects of radiation on environmental health, and the negative impact of environmental radiation exposure to humans.



High school teachers, students, and community came together at the University of South Carolina Aiken for the TREAT Workshop.

In November, EJ published the *Environmental Justice Implementation Progress Report for the 2020 fiscal year*. Although the COVID-19 pandemic presented many obstacles and challenges during the year, the EJ program continued to identify and address adverse human health and environmental effects of its programs, policies, and activities on minority and low-income populations, including American Indians and Alaska Natives.

- The report documents the activities achieved by various DOE programs and projects in 2020, across many different departments.
- The report documents LM's work with tribal partners; collaborative efforts with site inspections; environmental monitoring; document review; natural resource management; and facilitation of science, technology, engineering, math (STEM) education and career development.
- The report highlights the Tribal Intergovernmental Relations Group (TIGR), which focuses on strengthening tribal relationships and STEM programing, and the Mentors for Environmental Scholars Program, which highlights LM's STEM education and outreach to underserved communities.



Manhattan Project National Historical Park

The Manhattan Project National Historical Park (MAPR) is managed through a **collaborative partnership between NPS and DOE** to preserve, interpret, and facilitate access to key historical resources associated with the Manhattan Project. The park incorporates three of the most significant Manhattan Project sites: Oak Ridge, Tennessee; Los Alamos, New Mexico; and Hanford, Washington. The various interpretive centers and facilities associated with the park are managed by several different organizations.

As the Department's principal representative for MAPR, LM is responsible for coordinating with NPS and among DOE program offices spread across the three main locations.

In March, NPS began virtual meetings with stakeholders and consultation with tribes and pueblos to gather input for the **Comprehensive Interpretive Plan for MAPR**. The events engaged residents of nearby communities for each of the three MAPR locations as well as tribes and stakeholders who have ties to or interest in the park and its development.

- The events provided NPS with input on a wide array of experiences and perspectives that will inform the development of the interpretive plan and future programming, exhibits, and media for the park.



Highlights of LM's support of MAPR include the following:

Los Alamos

LM funded hazard reduction and roof repair on the Slotin Building. Los Alamos National Laboratory (LANL) executed the work.

LM partnered with NPS, the LANL, and Los Alamos County in a multiyear project to create and install six new interpretive panels along the Kwage Mesa Trail, a 4.3-mile stretch overlooking canyons and the Sangre de Cristo Mountains.

- Installed in the spring, the informational signs offer hikers context into the geography, history, and heritage of the area, from the site's prehistoric geographic formation to the spread of its first inhabitants, to its legacy as a testing site for the Manhattan Project's secret laboratory during World War II.



Unveiling of Kwage Mesa Trail panels. Inset: One of the six new interpretive panels along the Kwage Mesa Trail.



Oak Ridge

LM assisted in funding an Americans With Disabilities Act lavatory upgrade at the **X-10 Graphite Reactor**.

X-10 Graphite Reactor at Oak Ridge, Tennessee.

Selected Engagements and Outreach Events

On Jan. 20, 2021, the White House issued *Executive Order 13985 — Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, which calls on the federal government to administer consistent, systematic, fair, just, and impartial treatment of all individuals, especially those who belong to traditionally underrepresented and underserved communities.

- DOE established a steering committee to lead six working groups associated with the order.
- DOE assigned LM and the **Bonneville Power Administration** to lead the **Stakeholder Engagement Working Group**, which developed an outline for an assessment in June and delivered its assessment, along with a key findings report, in July.
- The working group also provided input to an action plan to begin addressing the issues identified in the DOE assessment. The Steering Committee provided DOE's draft action plan to the Office of Management and Budget in December.

In February, the LM Deputy Director of Site Operations virtually presented a radioactive waste management brief to an upper-level, undergraduate nuclear engineering class at the **University of California, Berkeley**.

In March, LM participated in the **Waste Management Symposium (WMS)** virtual conference. WMS is an annual event attended by government, academic, and industry leaders to share industry trends, updates, and best practices.

- LM presented on the use of aerial surveys for topography measurement and comparison as well as on various topics related to effective stakeholder outreach and promoting STEM education.

In October, LM hosted the virtual **Fernald Preserve Annual Community Meeting**. Site staff presented on the prior year's activities, including worker safety and health, the *Comprehensive Legacy Management and Institutional Controls Plan*, the annual Site Environmental Report, aquifer and ecological restoration, and community engagement.

- Staff also reported on the recently published **Fifth CERCLA Five-Year Review**.

In November, LM attended the USDA **Federal Mining Dialogue (FMD)** meeting, which focused on funding opportunities for federal agencies within the newly signed Infrastructure Investment and Jobs Act.

- FMD comprises federal environmental and land-management agencies and oversees the environmental, health, and safety impacts of abandoned mine lands all over the country.

LM supported four **Rocky Flats Stewardship Council** quarterly public meetings.

- Congress created the council to support and enhance DOE communication with the public about the Rocky Flats Site.
- LM staff presented on quarterly and annual maintenance and surveillance reports and other topics of interest as well as answered questions.
- Due to COVID-19 restrictions, the council hosted its meetings via WebEx.
- The council consists of elected officials from seven nearby communities, representatives of three advocacy organizations, and one individual.



Selected Tribal Engagement

LM, in cooperation with the Navajo Abandoned Mine Lands Reclamation/Uranium Mill Tailings Remedial Action (AML/UMTRA) Department, successfully re-engaged **TIGR**, which focuses on strengthening tribal relationships and STEM programming.

- Along with representation from the Hopi Tribe, the committee expanded participation to the U.S. Nuclear Regulatory Commission and USACE. The group, which focuses on coordinating participation in community outreach activities and materials, had not met since 2019.

LM followed the Energy Secretary's direction to reinvigorate DOE's federal trust responsibilities by updating the DOE plan for tribal consultation and reaching out to tribal nations. LM sent letters to **25 tribes and tribal and Alaska Native organizations**, asking to discuss how LM could strengthen their relationships.

- In response to follow-up requests, LM leadership met virtually with leadership and staff from the **Pueblo of Acoma**, the **Northern Arapaho Tribe**, the **Southern Ute Indian Tribe**, and the **Navajo Nation**.
- Requesting comments on the DOE Draft Tribal Consultation Plan, LM reached out to Navajo, Hopi, Northern Arapaho, and Laguna Pueblo tribes. The Hopi Tribe responded with comments.

In May, LM and the **Navajo Nation Heritage and Historic Preservation Department** agreed to pursue developing a draft Programmatic Agreement (PA) on routine maintenance and operations at four UMTRCA sites on the Navajo Nation: Shiprock, New Mexico; Mexican Hat, Utah; and Tuba City and Monument Valley, Arizona.

In July, DRUM assisted **Ute Mountain Ute Tribe** to assess the Cottonwood Wash watershed in Utah.

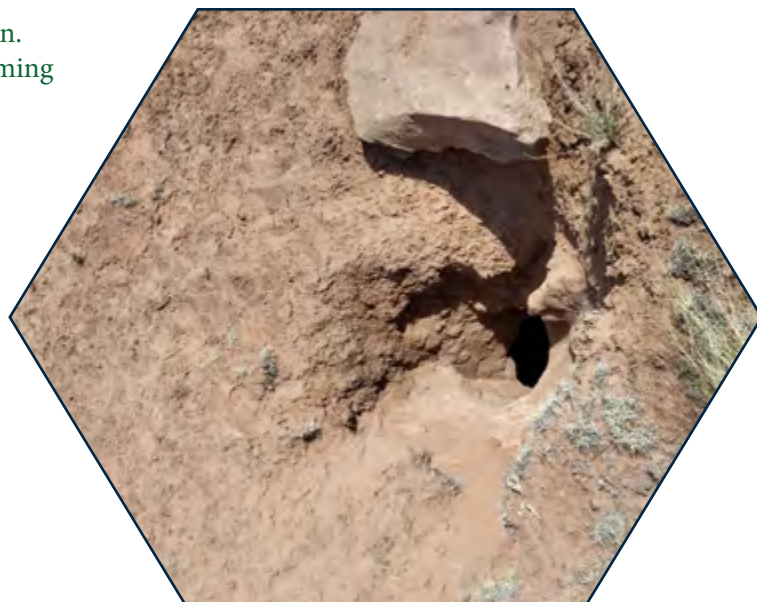
- Funded by the EPA's water program (under the Water Infrastructure Improvements for the Nation Act), this project also included resources for mine-restoration work.
- The study identified high-priority sites and restoration. The DRUM V&V reports were instrumental in informing and assisting the partner agency define their project study area and design.

In July, LM staff met with **Northern Arapaho Tribe** officials — including tribal offices for finance, natural resources, and engineering — at the Riverton, Wyoming, Processing/Disposal Site to share information on the site and upcoming site work.

In July, LM began collaborating with EPA, the **Navajo Nation**, and BCI on safeguarding hazardous DRUM sites on the Navajo Nation.



Navajo Nation EPA and AML/UMTRA staff, with assistance from LM and EPA, investigate the Haystack Hole on the Navajo Nation.



Haystack 2 Mine Closure vent hole before safeguarding.

In August, staff met with Northern Arapaho leadership to discuss the Riverton site and the DRUM program.

In August, staff met virtually with the **Pueblo of Acoma** governor and staff. Topics included updates on LM sites and uranium mine-related work near the pueblo. The meeting also provided an opportunity for the Pueblo of Acoma to share feedback on future topics and consultation.

In September, staff met with **Pueblo of Laguna technical staff and EPA Region 6 staff** to discuss the six abandoned uranium mines on the Laguna Pueblo. EPA is addressing three of the six sites under CERCLA. DRUM will inventory the remaining three mines.

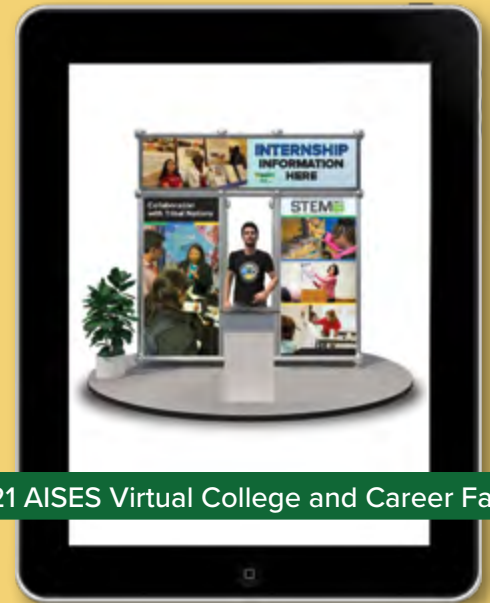
In September, LM, in cooperation with the **Northern Arapaho Tribe** and Argonne National Laboratory, completed an independent, comprehensive, supplemental risk assessment to determine exposure risks at the Riverton, Wyoming, Processing Site, located on the Wind River Reservation.

In September, DRUM team members met virtually with the **Pueblo of Laguna's** Environmental and Natural Resources Department, the Tribal Historical Preservation Officer, and EPA Region 6 to discuss the DRUM program and to identify logistical needs for accessing DRUM sites on tribal land.

In October, LM participated in the **2021 American Indian Science and Engineering Society (AISES) Virtual College and Career Fair**.

- The virtual career fair booth presented links to videos, downloadable brochures, and internship information. The LM team communicated with attendees via chat and video call during the fair.

LM virtual booth at the 2021 AISES Virtual College and Career Fair.

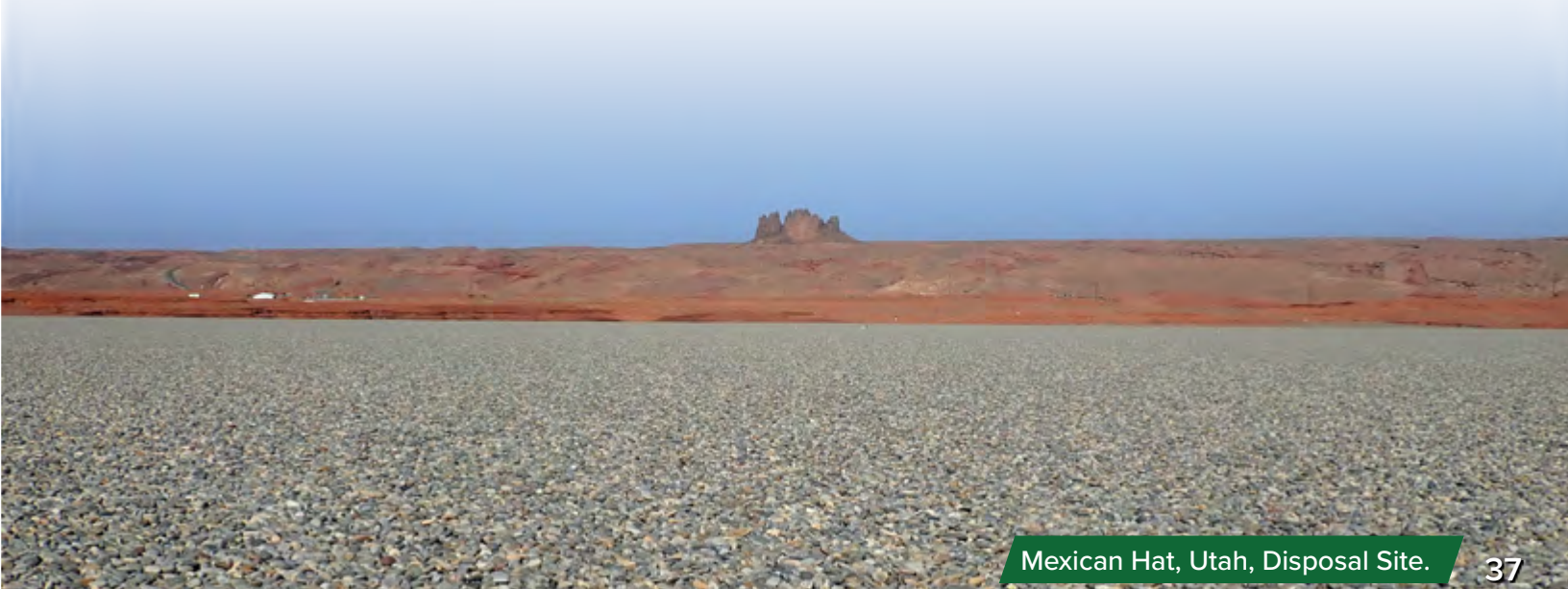


In October, LM Director Carmelo Melendez and technical staff **met virtually with the Southern Ute Indian Tribe Chairman** and technical staff.

- The meeting discussed the Durango, Colorado, UMTRCA sites; the DRUM program's campaign on tribal lands; and how the tribe would like to engage going forward.
- At the request of the tribe, LM will arrange a future visit to the Durango site.

In October, the LM Mexican Hat, Utah, Site team hosted a site tour for **Navajo AML/UMTRA and Navajo EPA** and attended an AML/UMTRA reclamation sites tour.

- The Mexican Hat tour was a continuation of prior collaborations to develop a long-term design solution to previously identified erosion issues.
- The Navajo AML/UMTRA tour, which included personnel from the Desert Research Institute, visited reclamation projects where they incorporated geomorphic designs that mimic natural topography.



In November, STEM with LM staff met with the **Southern Ute Indian Tribe's Director of STEM Education** to develop an ongoing relationship and discuss opportunities for collaboration and student engagement.

In December, the DRUM team met with the **Navajo Nation EPA and AML/UMTRA** and EPA Region 9 for their first monthly meeting regarding DRUM's proposal to inventory uranium mines on the Navajo Nation.

- The initial meeting collaboratively developed a strategy for DRUM program inventory and data-collection methods, risk-screening processes, public outreach efforts, and document reviews.

LM continued to meet virtually with the **State and Tribal Governments Working Group**.

- LM updated the group on the DOE Long-Term Stewardship Working Group, how LM's risk-ranking process works, and how LM is working to make sites more resilient.

STEM with LM

In response to the COVID-19 pandemic, STEM with LM leveraged online platforms to not only produce educational content but also develop new partnerships with school districts and nonprofit organizations.

In June, STEM with LM collaborated with **We Are R.I.S.E. Inc.**, a mentoring group for young girls of color, to provide online tutorials for at-home chemistry experiments for students based in Los Angeles.

- In June, an LM site manager presented a virtual program about the history, operations, cleanup, and ongoing mission at LM sites. The activity included a chemistry experiment with students making carbon dioxide from baking soda and vinegar.
- In July, the Weldon Spring Site team presented the virtual program "Mysterious Matter" and provided participants with instructional kits for 10 different experiments, including how to make quicksand, slime, and lava lamps.
- In July, the Fernald Preserve team presented the virtual program "Mammals of the Fernald Preserve." Beginning with a brief history about Fernald, staff discussed several wild animals found on-site via photos and video clips.
- In August, the Atomic Legacy Cabin (ALC) team hosted the "Energize the Yo-Yo" virtual program, which explained energy and its properties using yo-yos. Each participant received a yo-yo to use during the program and after.



STEM WITH LM



STEM with LM recently teamed up with We Are R.I.S.E. to hold a virtual science experiment for a group of young girls in South Los Angeles.

Interpretive Centers

In September, LM implemented an enterprise-wide museum collections program to ensure long-term stewardship for collections at LM's three interpretive centers.

- The collections policy follows standards outlined by the American Alliance of Museum's Code of Ethics for Museums and includes a museum database for cataloging the collection.
- LM maintains collections of historical objects, items, and materials that contributed to former Manhattan Project and Cold War-era production as well as objects related to cleanup and long-term stewardship.
- Interpretive staff inventoried more than 1,000 objects at the Fernald Preserve and ALC alone, and many are on display in exhibit halls and used in educational programming.

During the COVID-19 pandemic, the three LM interpretive centers made virtual programs and tours available for schools, community groups, and the public.

- LM presented 124 programs to 5,829 participants in four states: Ohio, Missouri, Colorado, and California.

Fernald Preserve Visitors Center

Fernald Preserve staff hosted the **Wild Reads Virtual Book Club**. Books read included: *Color: A Natural History of the Palette*, by Victoria Findlay; *A Feathered River Across the Sky*, by Joel Greenberg; *The Surprising Secret Life of Beavers & Why They Matter*, by Ben Goldfarb; *Pawpaw: In Search of America's Forgotten Fruit*, by Andrew Moore; and *Fuzz: When Nature Breaks the Law*, by Mary Roach.

Community meetings included:

- The Fernald Community Alliance stakeholders regular bimonthly group meeting, which supports cooperation, education, and long-term stewardship of the site.
- The Fernald Preserve Annual Community Meeting, a virtual stakeholder meeting focusing on LM's Fernald Preserve 2020 Site Environmental Report.

Educational program topics included:

- The Brood X 17-year periodical cicadas' regional emergence in May, including cicada natural history and "citizen science" opportunity.
- Mammals of the Fernald Preserve, which visitors learned by either participating in a public program or hiking the Weapons to Wetlands Trail.
- Site history, including the site's numerous stages of development (i.e., forest habitat, agricultural and industrial use, remediation, and nature preserve).
- Passenger pigeons and how this once prolific bird, with a population of billions, came close to extinction in fewer than 60 years and mobilized the conservation movement in the United States.
- Skunks and weasels, both Fernald residents.
- Whitetails, the Fernald Preserve's largest resident mammal.
- The self-guided "Gobble Gobble" scavenger hunt, in which participants searched for turkey decoys hiding in plain sight along the Single Oak Trail.



Fernald Preserve, Ohio, Visitors Center.

Weldon Spring Site Interpretive Center

In May, LM took ownership of the newly constructed **Weldon Spring Site Interpretive Center**. The interpretive center is part of the LTS&M requirements for the site and offers exhibits and programming for the public about site history, remediation, and monitoring activities.

- LM executed the construction contract for the facility through an interagency agreement with the USACE St. Louis District.
- The interpretive center provides the community with valuable information about the effectiveness of the cleanup and the controls implemented to minimize risk associated with stored materials.
- LM completed 75% of the interior exhibit installation and planned to complete the project in January 2022. While the interpretive center will remain closed to the public during the COVID-19 pandemic, virtual programming is ongoing and will now feature content from the newly installed exhibits. LM is planning an opening celebration for 2022.



Weldon Spring Site, Missouri, Interpretive Center.

The Weldon Spring Site staff modified their popular in-person, **grade-school programs** for live, digital audiences. Staff presented STEM- and history-based programming to hundreds of attendees. Program topics included:

- Site history, from the Cold War to the start of remediation and restoration of the prairie and what it looks like today.
- Site history, current conditions, and legacy, including information about radiation, regulations, and the new building.
- Geology, specifically geological testing and how to classify rocks and start a rock collection.
- The properties of solids, liquids, and gases with demonstrations of each.
- The states of matter and the importance of understanding the difference between chemical and physical changes in matter.
- Iconic scientist Marie Curie, in recognition for her passion, resiliency, and historic contributions to science.
- Interactive virtual programs about animal species found at the site, which includes a 150-acre, native prairie, planted by DOE during remediation, that provides habitat for a thriving community of wildlife.



WELDON SPRING SITE
A Legacy of Service



Atomic Legacy Cabin

In March, LM released the **Atomic Legacy Discovery Guide**. The interactive guide highlights the Colorado Plateau, which was critical to the Manhattan Project and LM's current work. The guide provides a wealth of information about the history, geology, and ecology of the region.

In May, the 2021 **Western Colorado Children's Water Festival**, hosted by Ute Water and conducted virtually, featured ALC. The festival educated more than 500 Grand Junction area fifth graders on the many different roles that water plays in their lives, communities, and the world.

During the summer, ALC formed a partnership with city of **Grand Junction Parks and Recreation**, offering a variety of virtual programs to nearly 300 children, ages 5 to 14. ALC adapted its programs to immerse summer campers into STEM and history.

- Programs, such as “Aquifer in a Cup” and “Energize the Yo-Yo,” provided children with hands-on engagement as a virtual interpreter guided them through activities addressing groundwater and energy.
- Special appearances by LM staff from the Weldon Spring Site Interpretive Center and the Fernald Preserve Visitors Center provided participating children with the opportunity to learn about other LM sites and their natural environments.

In October, the ALC staff celebrated **Nuclear Science Week** by providing free educational content for teachers to use in the classroom.

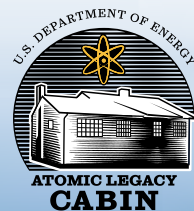
- Designed for upper elementary school students, the online program, “Radiation — Energy in Motion,” included a video and free downloadable activity packet.
- The program helped students learn about the types of radiation, where it comes from, and how LM protects human health and the environment through radiation control at its sites.
- The Grand Junction City Council issued a proclamation declaring Oct. 18-22 as Nuclear Science Week.

Additional **virtual programs** and tours available for schools, community groups, and the public included:

- “Groundwater: Protecting the Water We Can't See,” which included a “This is Groundwater” video and activity sheet.
- “History of Uranium on the Colorado Plateau.”



ALC formed a partnership with city of Grand Junction Parks and Recreation, offering a variety of virtual programs to nearly 300 children, ages 5 to 14.



Cultural Resources Management

Section 106 of NHPA requires federal agencies to consider the effects of their work on historic properties. Agencies must grant 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 (SHPO) or Tribal Historic Preservation Officer (THPO).

LM completed **Section 106 consultation** for the adverse effects of the proposed demolition at the Piqua, Ohio, Decommissioned Reactor Site. LM, the Ohio SHPO, and the city of Piqua signed a Memorandum of Agreement in December. The memorandum included stipulations like detailed photography and a scale model of the historic building.

LM also completed Section 106 consultation on the Burro Mine, Colorado, project in early 2021.

LM continued to **streamline tribal consultation** at four LM locations on the Navajo Nation (Shiprock, Tuba City, Monument Valley, and Mexican Hat) with completion of this consultation anticipated in early 2022.

When necessary, LM conducts **archaeological surveys** to identify if there are any prehistoric and historic archaeological resources that could be affected by an undertaking.

LM completed a 102-acre archaeological survey at the Shirley Basin South, Wyoming, Disposal Site in support of ongoing soil studies. The survey results were shared with the Wyoming SHPO and representatives of 15 federally recognized tribes:

- Comanche Nation (Oklahoma).
- Crow Creek Sioux Tribe of the Crow Creek Reservation (South Dakota).
- Santee Sioux Nation (Nebraska).
- Oglala Sioux Tribe (South Dakota).
- Cheyenne River Sioux Tribe of the Cheyenne River Reservation (South Dakota).
- Cheyenne and Arapaho Tribes (Oklahoma).
- Arapaho Tribe of the Wind River Reservation (Wyoming).
- Apache Tribe (Oklahoma).
- Lower Brule Sioux Tribe of the Lower Brule Reservation (South Dakota).
- Standing Rock Sioux Tribe (North and South Dakota).
- Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation (Montana).
- Santee Sioux Nation (Nebraska).
- Rosebud Sioux Tribe of the Rosebud Indian Reservation (South Dakota).
- Fort Belknap Indian Community of the Fort Belknap Reservation (Montana).
- Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation (Montana).

LM Site	Consulted Historic Preservation Officers and Tribes	# of Section 106 Consultations Initiated	# of Section 106 Consultations Completed
Tuba City, Arizona Shiprock, New Mexico Monument Valley, Arizona Mexican Hat, Utah	Navajo Nation Heritage and Historic Preservation Department (Navajo Nation THPO)	Ongoing from 2020	0
Tuba City, Arizona	Navajo Nation THPO	1	0
Shirley Basin South, Wyoming	Wyoming SHPO and 15 federally recognized tribes	1	1
Piqua, Ohio	Ohio SHPO Miami Tribe of Oklahoma THPO	Ongoing from 2109	0
Burro Mine, Colorado	Colorado SHPO	Ongoing from 2020	1

Traditional Media

Throughout the year, LM and LMSP produced a total of **47 LM News articles** pertaining to the agency, its sites, and programs — all of which appeared on the LM website.

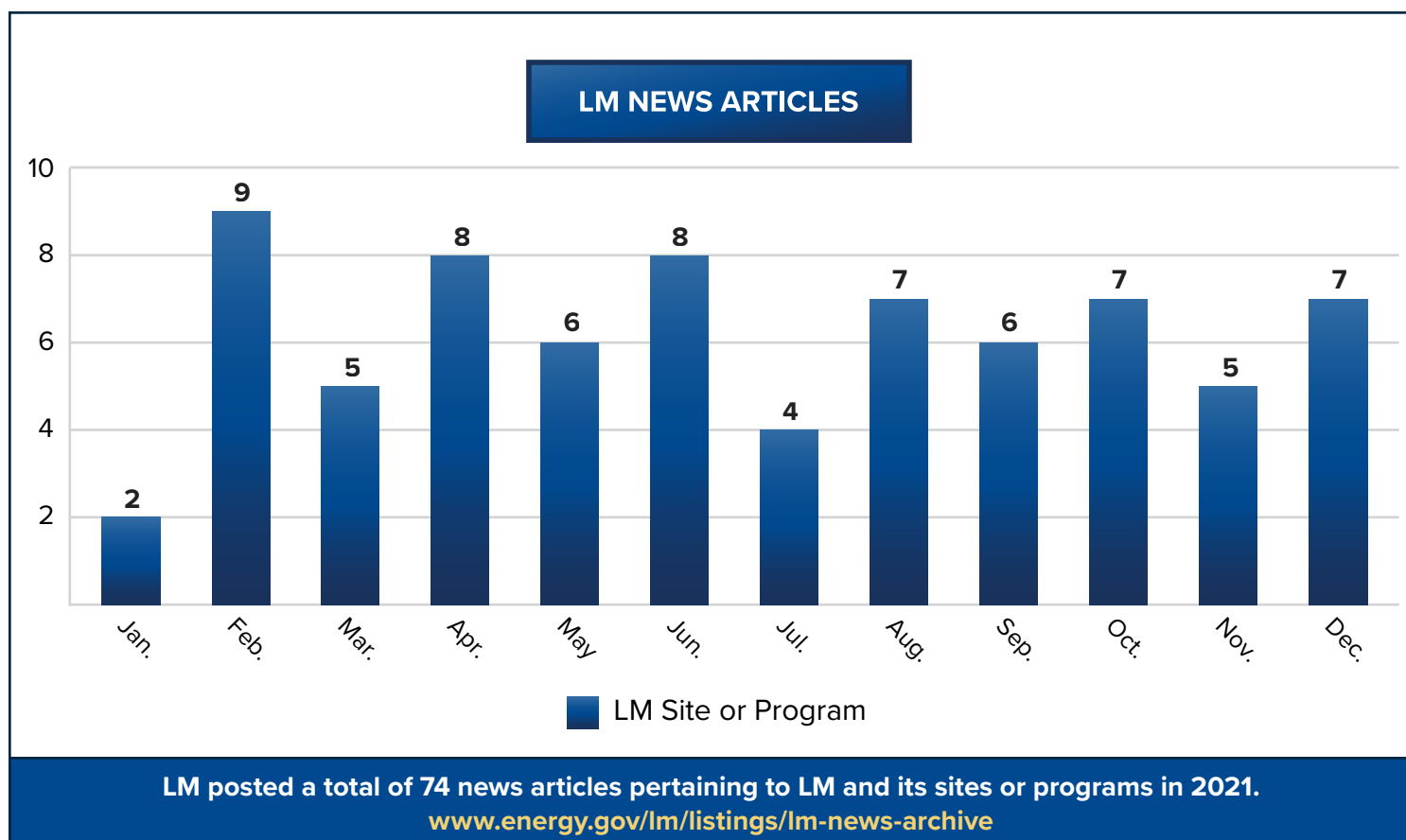
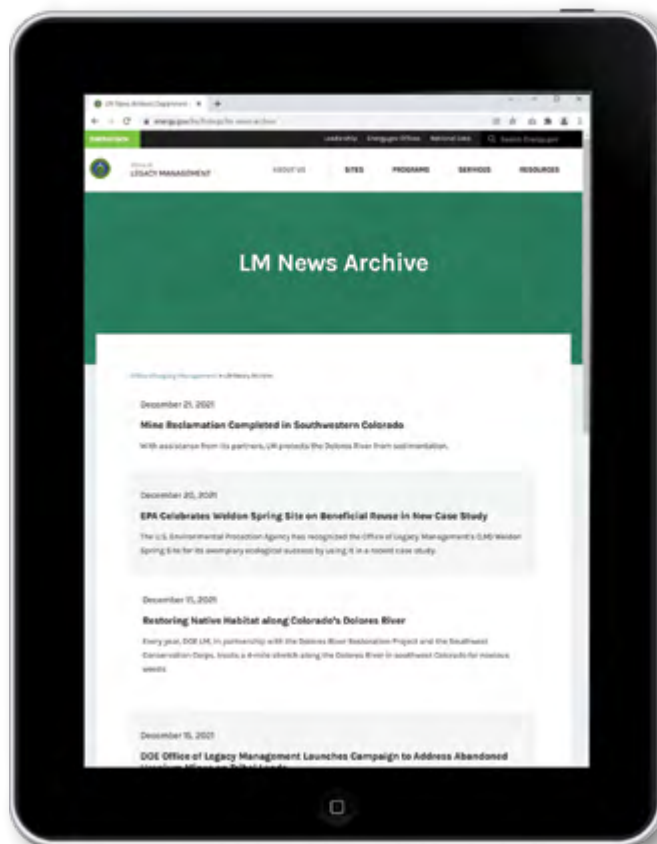
LM continued to monitor traditional media with Meltwater, a media intelligence platform. Media coverage of LM included:

- Issues related to the increased price of uranium.
- Issues related to uranium contamination.
- Articles related to Navajo Nation.
- Articles related to potential uranium mining.
- Articles related to various developments and beneficial reuse.

LM and LMSP participated in three interviews in 2021.

The topics were:

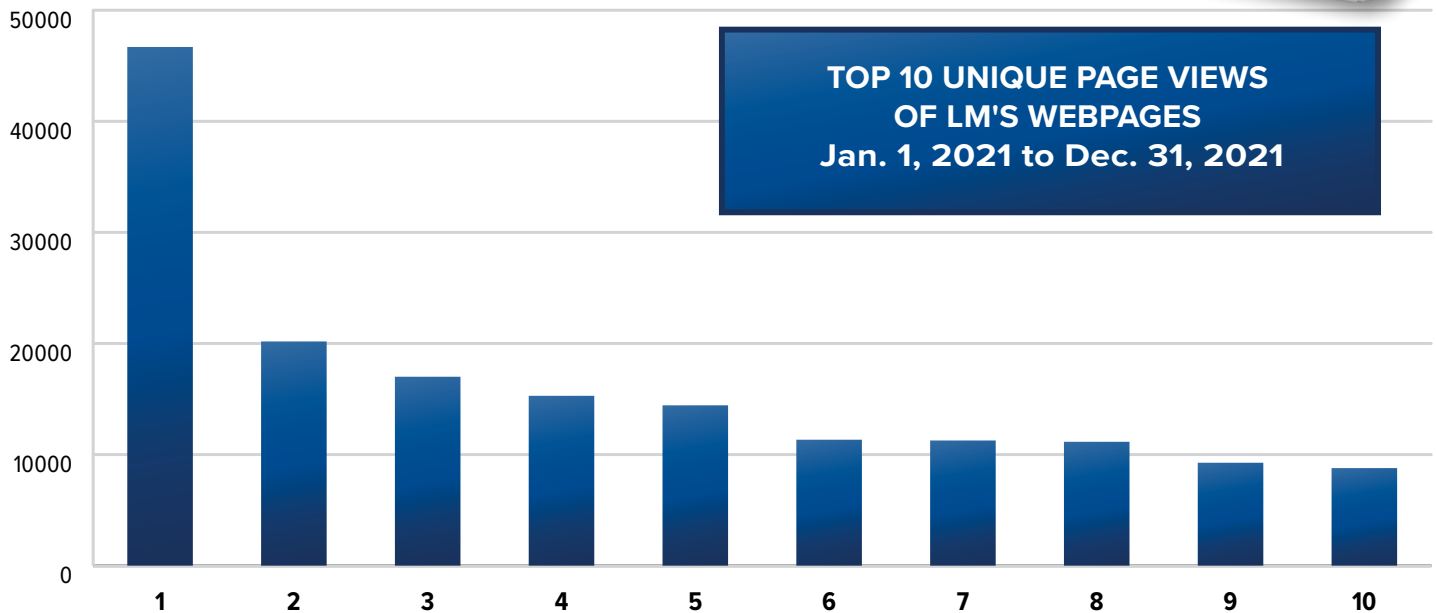
- The Las Colonias Park ribbon-cutting.
- The DRUM program.
- A profile of the new Community Outreach Network Coordinator.



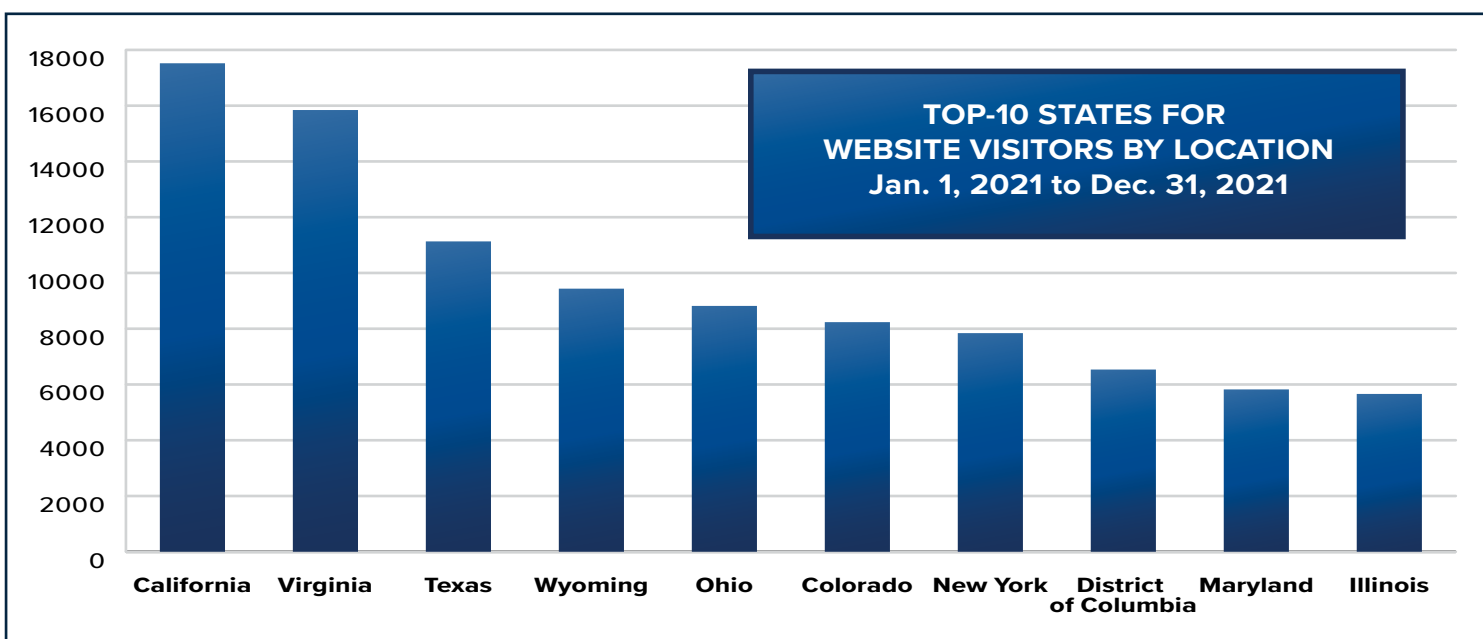
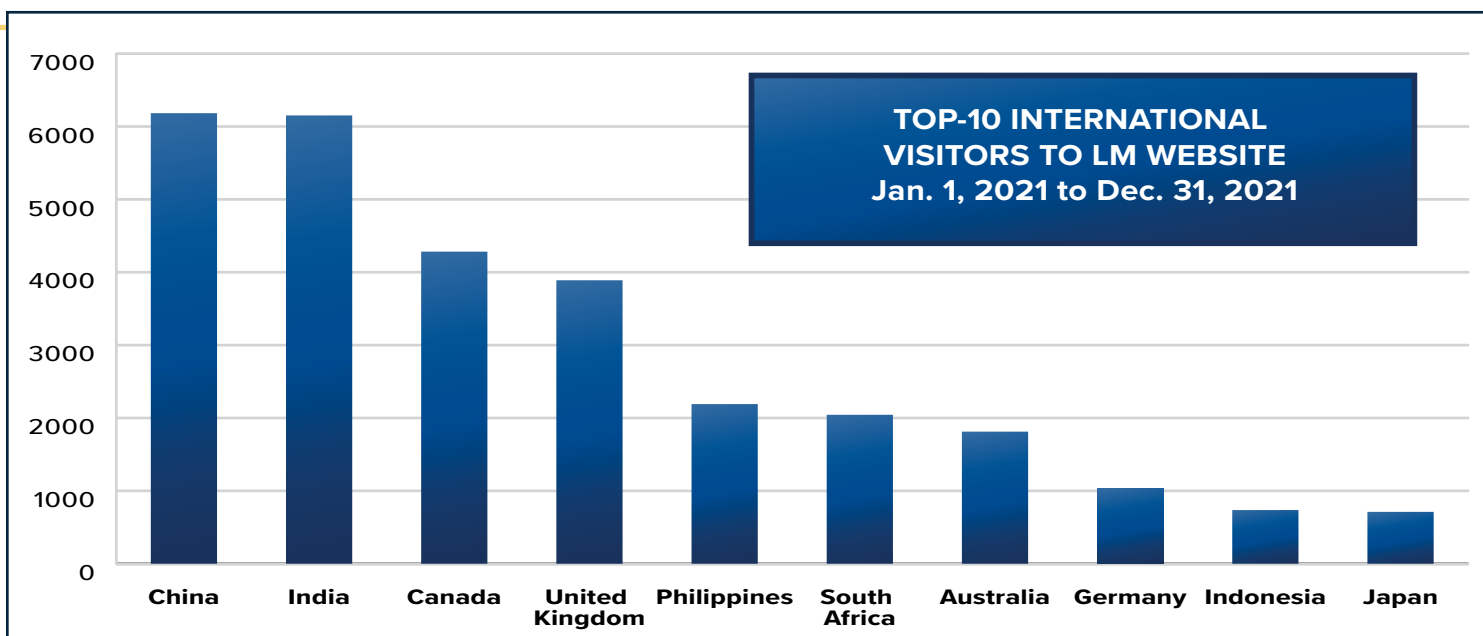
Digital Media

LM continued to use a variety of communications methods and strategies designed to engage internal and external audiences during the COVID-19 pandemic. LM and LMSP utilized the following platforms, tools, and strategies:

- LM website.
- Facebook.
- LinkedIn.
- Elements (monthly e-newsletter).
- Weekly Media Digest (weekly update on external media coverage).
- GovDelivery (email-distribution tool used to communicate with a variety of LM audiences).
- Monthly Media Report.
- LM Program Update (quarterly magazine).



PAGE RANK	UNIQUE PAGE VIEWS	PAGE NAME
1	46,693	Trinity Site - World's First Nuclear Explosion
2	20,184	What Is Environmental Justice?
3	17,008	DOE History
4	15,290	Office of Legacy Management Department of Energy
5	14,434	Environmental Justice History
6	11,338	Secretaries of Energy
7	11,269	A Brief History of the Department of Energy
8	11,152	Rocky Flats Site, Colorado
9	9,266	Manhattan Project Background Information and Preservation Work
10	8,784	LM Sites

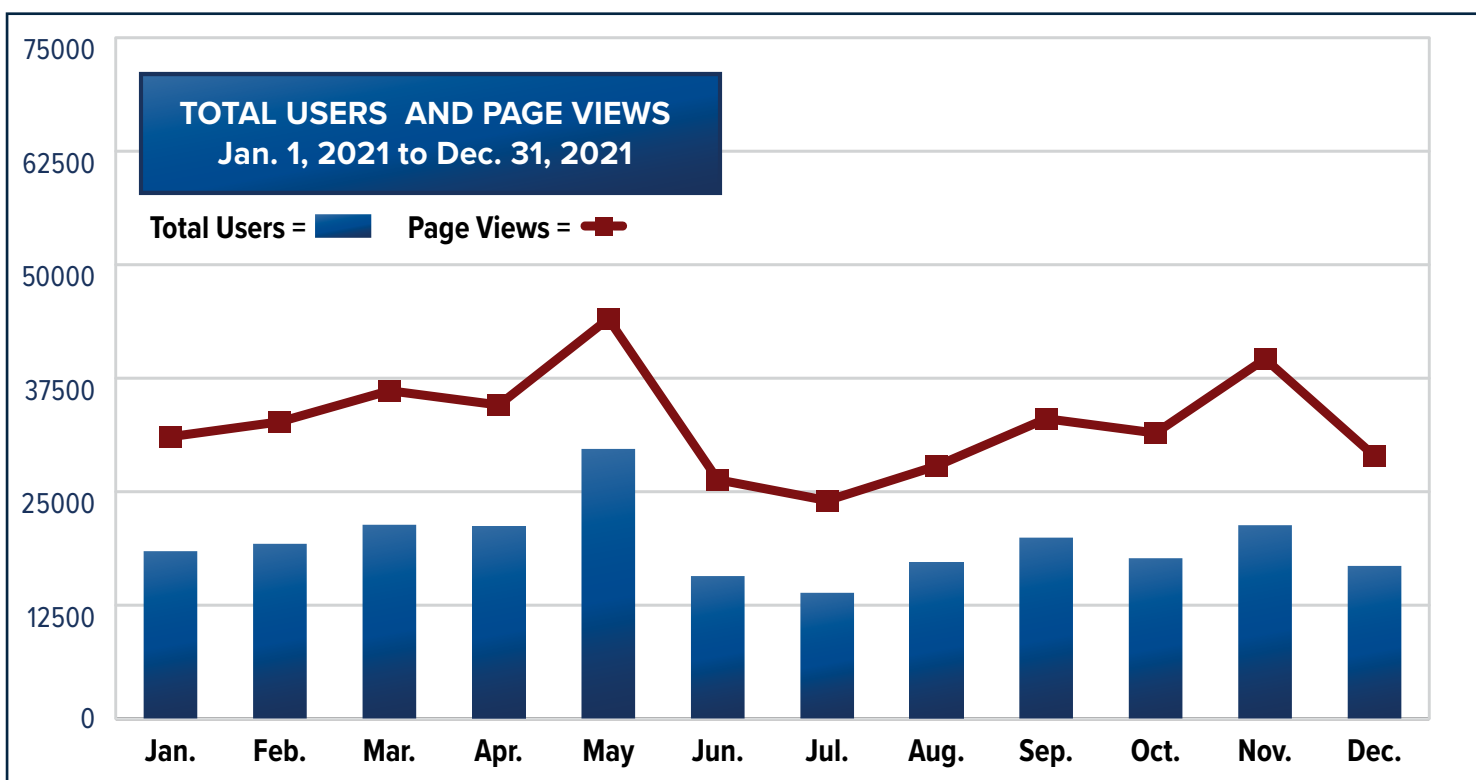
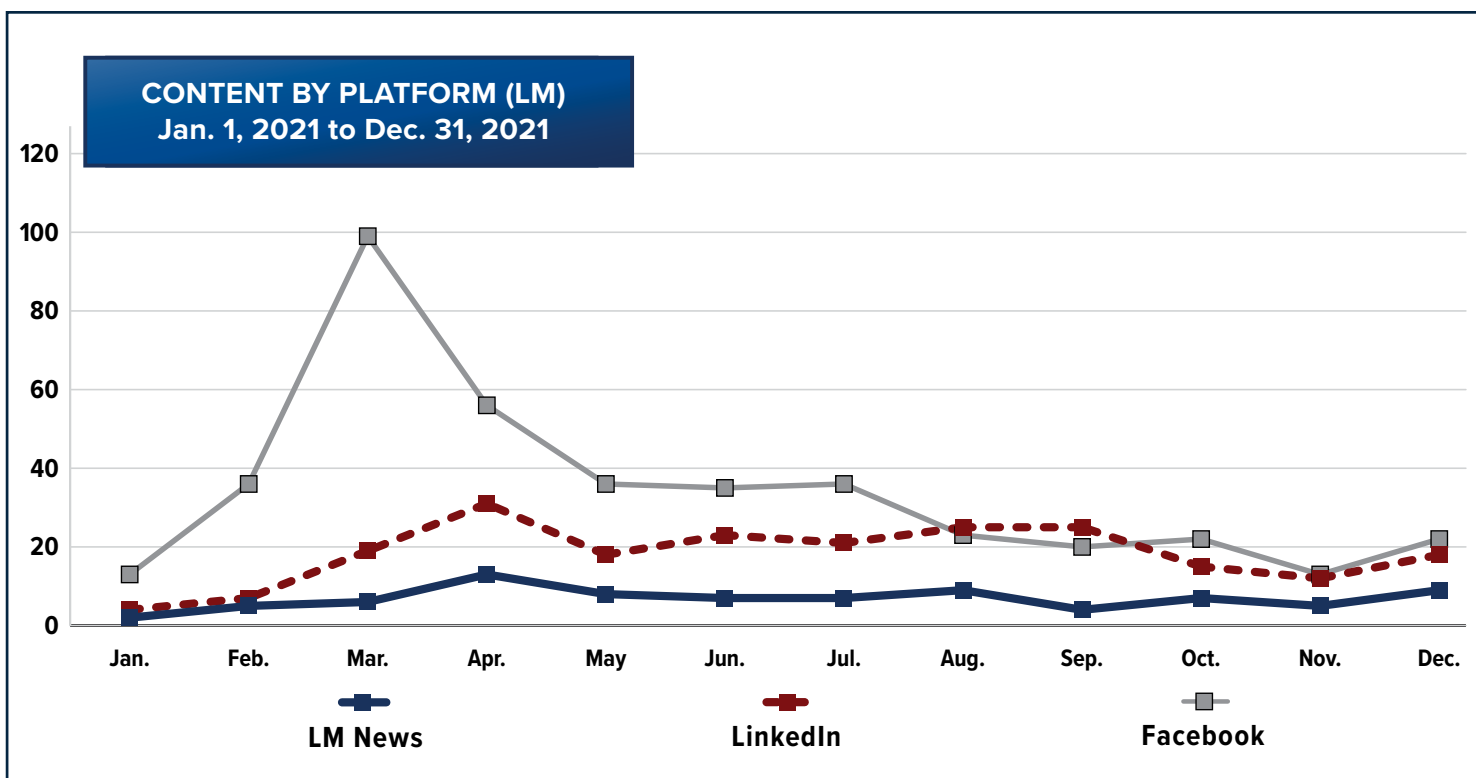


Visitors from the United States accounted for 179,495 visitors to the LM website.

Most Downloaded Documents from LM Website - Jan. 1, 2021 to Dec. 31, 2021*

DOCUMENT	DOWNLOADS	CONTENT
1	358	2020-2025 Strategic Plan
2	347	Department of Energy, 1977-1994, A Summary History
3	329	2019 Environmental Justice Second Five-Year Implementation Plan
4	326	Site Management Guide
5	320	Environmental Justice Strategy (January 2017)
6	291	Fernald Preserve, Ohio, Site Fact Sheet (July 2021)
7	283	Rocky Flats Site, Colorado, History
8	274	Fernald Preserve, Ohio, Site Fact Sheet (May 2020)
9	269	Rocky Flats Site, Colorado, Fact Sheet
10	251	DOE O 430.1C, Real Property Asset Management

*These numbers don't include metrics from the new file repository or Ektron.



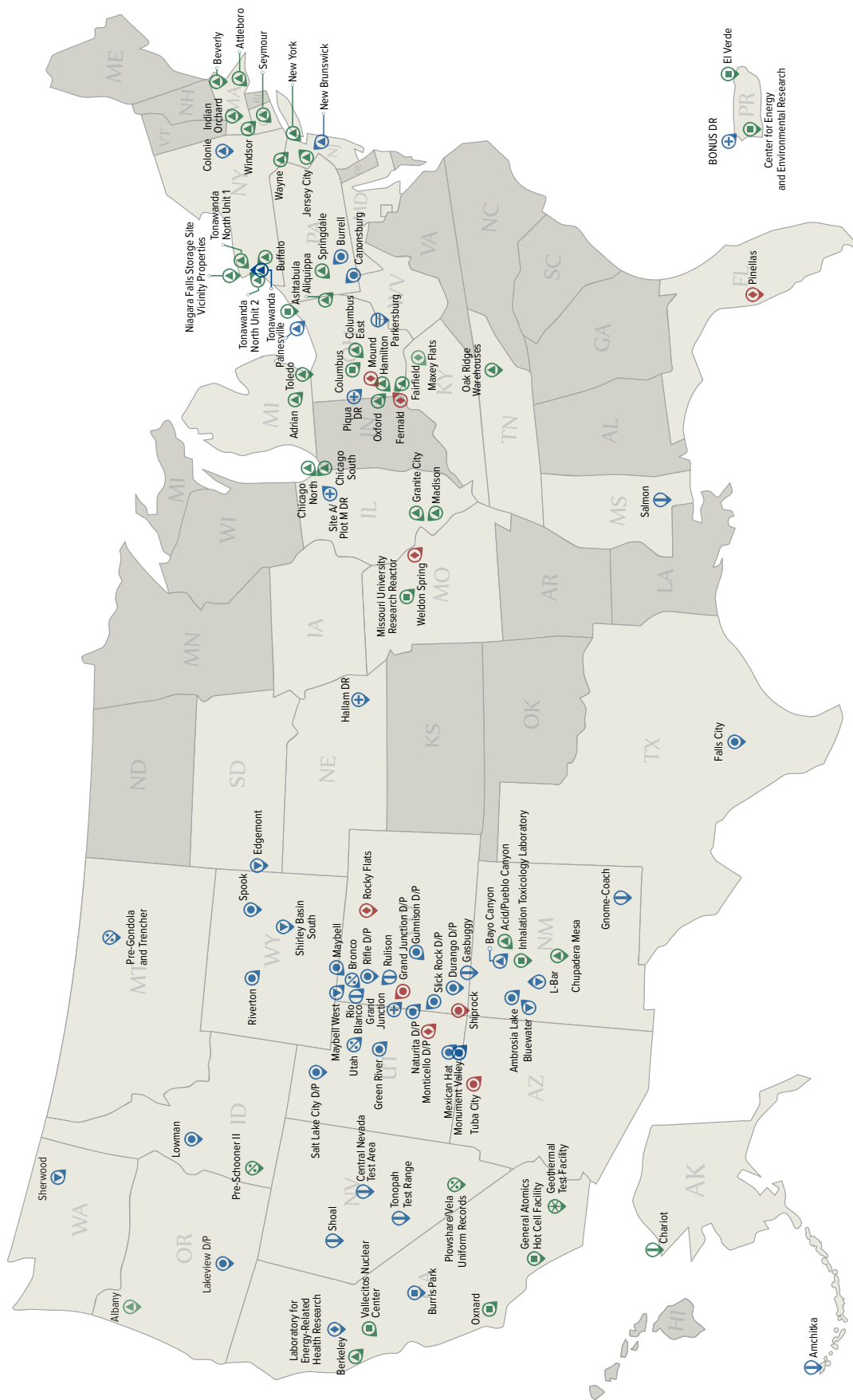
LM's social media presence included LinkedIn and Facebook, as well as videos on DOE's YouTube channel. At the end of 2021, LM had **1,563 followers on LinkedIn** and **442 followers on Facebook**. LM had **120 videos on DOE's YouTube channel** with more than **51,000 page views to date**.

Videos documenting all LM sites are available on LM's Facebook page and the LM playlist on the DOE YouTube channel. To date, these videos have received **2,860 views on Facebook** and **28,182 views on YouTube**.

As of Dec. 31, **10,553 people subscribed to the Elements newsletter**, with an average 20% open rate and 3% click rate.

- Open rate is the percentage of email subscribers who received this bulletin and opened it at least once.
- Click rate is the percentage of recipients who clicked at least one link in the bulletin.

2021 SITE MAP



Sites in LM Requiring LTS&M (as of September 30, 2021)		Site Category	
		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	
		DIP = Disposal/Processing DR = Decommissioned Reactor	
		09/2021	

PROGRAM UPDATE ARTICLES BY ISSUE

Quarter 1

- An Overview of LM's Natural Resources Management Plan.
- Observing the Secretive Inhabitants of LM Sites.
- Regenerative Grazing Benefits LM Site from the Ground Up.
- LM Battles Invasive Species on the River of Sorrows.
- LM Partners with Bat Conservation International to Safeguard Bat Habitat.
- Hiking, Biking, and Bats: Keeping Humans and Habitats Safe.
- Birders Flock to Two Midwestern LM Sites.
- LM Highlights 3 Accomplished Scientists in Honor of Black History Month.
- Superfund Turns 40.
- LM Provides Colorado Mesa University Students with STEM Opportunities.
- LM's Aviation Program Monitors Sites and Reduces Risk.
- DOE, FIU Welcome New Fellows into Program Shaping Cleanup Workforce.
- LM Evaluates Site Characteristics to More Efficiently Manage Public Funds.
- Coming Full Circle: Sue Smiley's 30 Years of Service to DOE.
- LM Program Manager Art Kleinrath Celebrates a Long Career at DOE.
- Annual Joint Meeting Strengthens LM and USACE Collaboration.



Quarter 2

- LM and Tribal Collaboration.
- State and Tribal Government Working Group Promotes Long-Term Stewardship.
- LM Professionals Value Early Career Importance of American Indian Science and Engineering Society.
- Tribal Intergovernmental Relations Group Reboots.
- On Earth Day: An Annual Reminder of a Daily Mission.
- "The Network" Builds a Community for Outreach on the Navajo Nation.
- LM Helps Nature Heal Itself: Bioremediation Is a Game Changer.
- Former Colorado Uranium Mill Site Transformed into Solar Power Farm.
- Reclamation Plan for Uranium Leases Moves Forward.
- Rocky Flats Site and Las Colonias Park Win EPA Site Reuse Awards.
- Reclamation of the Burro Mines Complex Ready to Begin in Southwest Colorado.
- Partnering to Protect Human Health and the Environment.
- LM Releases Guide to the Colorado Plateau.
- Historic Sign in Naturita, Colorado.



Quarter 3

- A Legacy of Education.
- Champion of Historic Preservation at Los Alamos National Laboratory Retires.
- Preparations Continue for Future Unveiling of Weldon Spring Facility.
- STEM with LM Inspires Young Audiences, Brings Learning to Life.
- Atomic Legacy Cabin.
- Two MES Students Complete LM Internships.
- A Legacy of Responsibility.
- LM Adopting Modern Information Governance Practices.
- A Legacy of Cooperation.
- DOE Remains Flexible During Changing COVID-19 Protocols.
- Navajo Code Talkers Day Now a State Holiday.
- Anticipated LM Sites Through Fiscal Year 2030.
- A Legacy of Progress.
- TREAT Workshops Designed to Assist Teachers.
- Workshops Explore Methods for Environmental Justice.
- Allen University Environmental Justice Institute 2021.
- A Legacy of Safety.
- LM Safety and Health Manager — Safety-Conscious Workforce is the Foundation.
- Site Inspections Front Line of Defense for Protecting Public, Environment.
- A Legacy of Dedication.
- A Front Row Seat to History.
- Ed Cotter: On Hometown History, a Career, and Retirement.
- No 'Planet B': At LM, the Mission is Personal.
- 'Atomic Doctors' Highlights Role of Physicians During Manhattan Project, Early Cold War.



Quarter 4

- A Look Back: Growing STEM with LM.
- Exhibits Installed at the New Weldon Spring Site Interpretive Center.
- Atomic Legacy Cabin Celebrates Nuclear Science Week with Local Fifth-Graders.
- An Added BONUS: Highlighting the Modesto Iriarte Technological Museum.
- Department of Energy Environmental Justice (EJ) Program Paves the Way for Employment.
- LM Makes Great Strides with Museum Collections Program.
- LM Attends AISES Virtual College and Career Fair.
- USACE hosts LM leadership at Iowa Army Ammunition Plant FUSRAP Site.
- Rocky Flats, Las Colonias win EPA awards for Excellence in Site Reuse.
- AS&T Collaborates with University of Arizona and National Ecological Observatory Network.
- Zooming Around and Zooming In: Aerial Capabilities at Mexican Hat.
- Anticipated LM Sites Through Fiscal Year 2030.
- Uncovering What Lies Beneath LM's Spookiest Sites.
- NEJC, Training Program, and the NCHD Addressed Health Impacts.
- EJ Partners with SSU to Organize Savannah River TREAT Workshop.
- Allen University EJI Outreach Events Impact Many.
- Brian Stewart Honored as LM Employee of the Year.



ADDITIONAL RESOURCES

LM Site Management Guide

An annually updated guide that provides:

- Site name and location (state).
- Pre-LM name.
- Transferring organization.
- Actual transfer date (FY).
- Planned transfer date (FY).
- Regulatory drivers and programmatic framework.
- Site category.

See the most recent version of the Site Management Guide:
www.energy.gov/lm/downloads/site-management-guide.

Annual Site Sustainability Plan

The annual Site Sustainability Plan (SSP) outlines LM's sustainability plans and summarizes LM's progress in meeting sustainability goals. SSPs are available at:
www.energy.gov/lm/ems-goalsprogressplansreports.

Annual Site Environmental Reports

In September, LM released the Annual Site Environmental Report (ASER), which provides another valuable overview of LM activities from the previous year. ASER, which documents site environmental conditions and reporting requirements, is submitted to the DOE Office of Environmental Protection and Environment, Safety, and Health Reporting and is available to the public at:
www.energy.gov/lm/ems-goalsprogressplansreports.

Site-Specific Information and Annual Reports

See site-specific webpages, accessible at: www.energy.gov/lm/sites/lm-sites.

DRUM and AUMWG

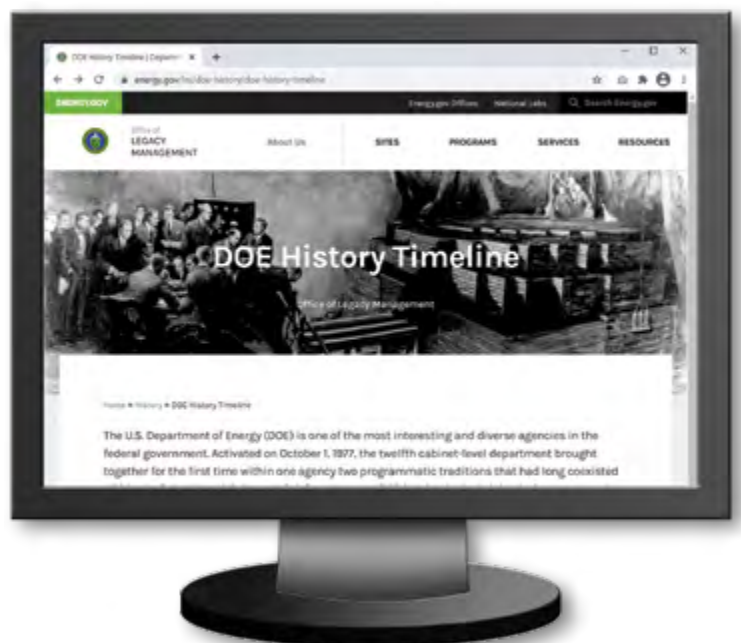
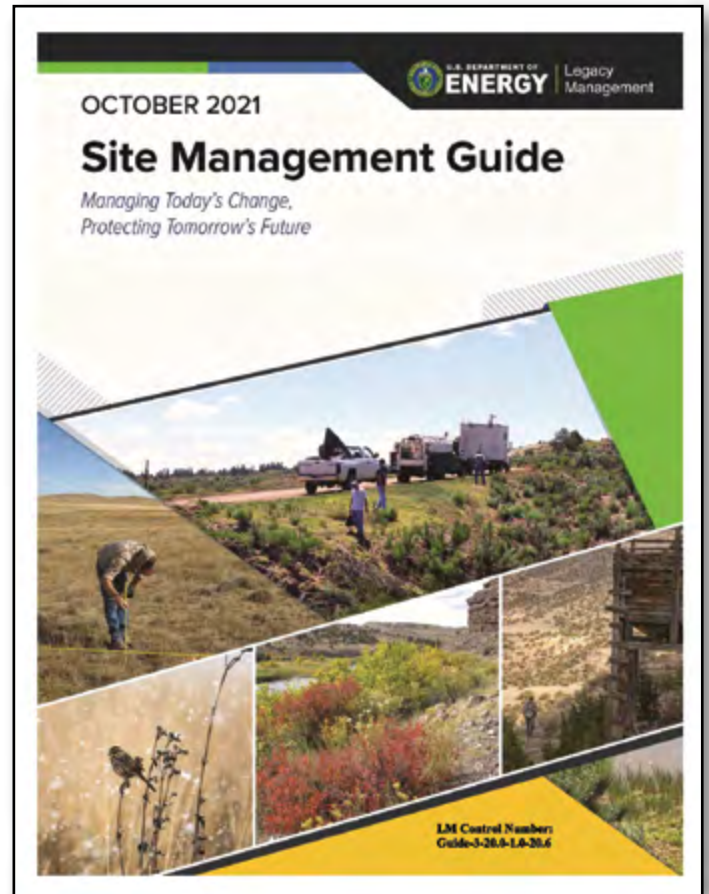
The latest annual reports for the DRUM program and the AUMWG are available at: www.energy.gov/lm/defense-related-uranium-mines-program.

NEPA Documents

NEPA documents for DOE, including LM, are available on the DOE Office of NEPA Policy and Compliance website at: www.energy.gov/nepa/nepa-documents.

DOE History Timeline

An online resource to provide the public with easy access to accurate information about the history of DOE and its predecessor agencies. The timeline includes links to reports, speeches, press releases, and other documentation. Available at: www.energy.gov/lm/doe-history/doe-history-timeline.



LM BY THE NUMBERS (12/31/2021)



18,237

acres of land with LTS&M
(not including Uranium Leasing
Program property).



47

LM properties available for reuse
with more than 95% of LM sites
in beneficial reuse.



580+

total employees: roughly 80 federal
employees and about 500 support
services contractor personnel.



9,300

retired contractor workers'
commitments managed by LM.



101

LM sites in 30 states and territories,
including Puerto Rico, creating a
national program with a wide
set of responsibilities.



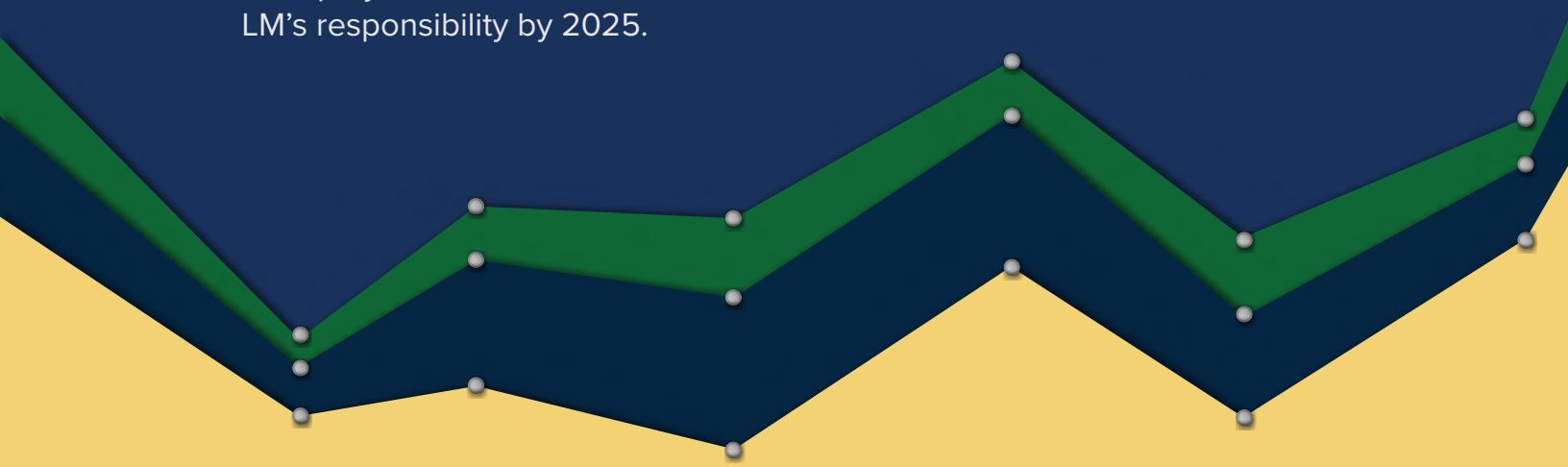
114,000+

cubic feet of storage at the
LM Business Center in
Morgantown, West Virginia,
to store non-classified records
related to the Cold War
nuclear legacy.



115

sites projected to be under
LM's responsibility by 2025.





U.S. DEPARTMENT OF
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www.energy.gov/lm



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