U.S. DEPARTMENT OF ENERGY | Legacy Management

Program Update

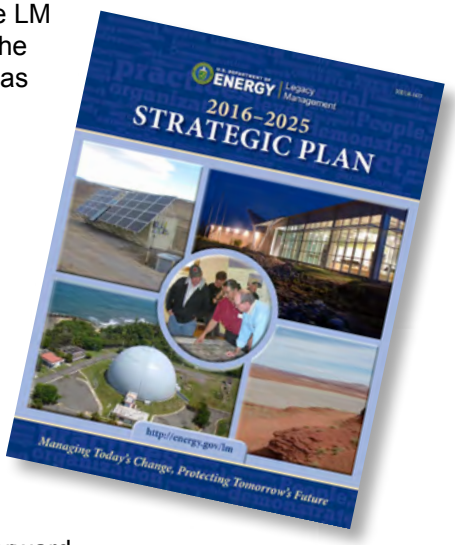
April–June 2016

Welcome to the April–June 2016 issue of the U.S. Department of Energy (DOE) Office of Legacy Management (LM) Program Update. *This publication is designed to provide a status of activities within LM. Please direct all comments and inquiries to lm@hq.doe.gov.*

Goal 6

LM *2016–2025 Strategic Plan* Released

The U.S. Department of Energy Office of Legacy Management (LM) is pleased to announce its newly released LM *2016–2025 Strategic Plan*. This is the fourth strategic plan since LM's inception in December 2003. Through the organization's continued growth and learning, LM has adopted more effective and efficient ways to carry out responsibilities to both people and the environment. While the LM *2016–2025 Strategic Plan* format remains the same as the 2011–2020 version, the plan has evolved to better accomplish LM's mission and goals, and allocate taxpayer monies.



During plan development, LM sought and incorporated stakeholder comments. The draft plan was shared with the public for comment last fall. Hundreds of recommendations, ideas, and suggestions were received from governmental agencies, tribal nations, industries, nonprofit organizations, and individuals (the comment period closed December 4, 2015). All input was sincerely appreciated and considered as revisions were made to the plan. Looking forward, LM will continue to engage with stakeholders to provide a long-term, sustainable solution to the legacy of the Cold War.

To learn more about LM and to access the full LM *2016–2025 Strategic Plan* please visit our website: http://energy.gov/lm. ❖

Goals 1 and 6

Little Wind River Floods at Riverton, Wyoming: Study to Determine Impacts on Soil Contaminants

Milling operations between 1958 and 1963, in Riverton, Wyoming, left a plume of contaminated groundwater in the surficial aquifer. The deep regional aquifer was not affected by the plume. In 1989, surface remediation occurred at the

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Inside this Update:

Goal 6

Monument Valley Open House

The U.S. Department of Energy Office of Legacy Management (LM) hosted the Uranium Issues Open House on Saturday, April 9, 2016, at Monument Valley High School in Monument Valley, Utah. Multiple federal agencies and their Navajo counterparts sponsored booths where they displayed a mix of exhibits and posters and offered refreshments, which encouraged community members to ask questions and participate in extended discussions.

The following organizations participated:

- U.S. Department of Energy Office of Legacy Management
- U.S. Environmental Protection Agency
- U.S. Nuclear Regulatory Commission
- Navajo Nation Abandoned Mine Lands/Uranium Mill Tailings Remedial Action
- Navajo Nation Abandoned Uranium Mines Environmental Response Trust
- Navajo Nation Department of Health
- Navajo Tribal Utility Authority
- Navajo Nation Environmental Protection Agency
- Agency for Toxic Substances and Disease Registry
- Bureau of Indian Affairs
- Indian Health Service
- Institute for Tribal Environmental Professionals at Northern Arizona University

Hosting the open house on the Navajo Nation helps LM meet the U.S. Congress mandate to work with other federal agencies to address the most imminent uranium-related risks on the Navajo Nation, under the Five-Year Plan to address uranium contamination. Visitors were provided handouts related to work occurring on the Navajo Nation. Each agency provided a resource list that contained contact information and outlined their individual uranium-related responsibilities.

The open house was well attended by Navajo Nation elected officials, including the Oljato Chapter President, James Adakai, who delivered the invocation in Navajo, and a member of the 23rd Navajo Nation Council. Miss Monument Valley High School also attended the Open House, using the opportunity to interact with the community.

An open house was held at Monument Valley High School in Utah.

LM support staff displayed posters on the status of studies on innovative groundwater cleanup methods, including the use of plants and bacteria to remove or stabilize contaminants at the Monument Valley, Arizona, Processing Site. LM has conducted these studies with the help of students from the University of Arizona and Diné College.

LM is responsible for long-term care of four sites on the Navajo Nation under the Uranium Mill Tailings Radiation Control Act. The four sites are the Mexican Hat, Utah, Disposal Site; Monument Valley, Arizona, Processing Site; Shiprock, New Mexico, Disposal Site; and the Tuba City, Arizona, Disposal Site.

"The open house gave the participating agencies a chance to interact with each other and the community," said Angelita Denny, LM Monument Valley Site Manager. LM plans to conduct additional outreach events on the Navajo Nation. ❖

A hands-on groundwater movement model was a popular display. Using water-soluble dyes, hydrologists demonstrated how contaminants move underground through rock and water.

Goal 5

Retiring LM Director Recognized with Exceptional Service Award

David Geiser

David Geiser retired from his position as Director of the U.S. Department of Energy (DOE) Office of Legacy Management (LM) May 31, 2016. Upon his retirement, Energy Secretary Ernest Moniz awarded Mr. Geiser the Secretary's Exceptional Service Award, the highest award given to federal employees.

Mr. Geiser began his LM career in 2003 as the Director of the Office of Policy and Site Transition and became the LM Deputy Director in 2005 and LM Director in 2008. He joined the DOE Office of Environmental Management in 1991 and served in several capacities, including international programs, high-level waste research and development, complex-wide planning and integration, deployment of new technology assistance, and development of policy and guidance for long-term environmental stewardship. ❖

Goal 5

New Acting LM Director Appointed

Thomas Pauling

Thomas Pauling is the new Acting Director for the U.S. Department of Energy (DOE) Office of Legacy Management (LM). He was previously appointed the LM Deputy Director in May 2016.

In addition to his appointment as Acting Director of the LM Office of Business Operations in June 2015, Mr. Pauling has also served LM as Director of Site Operations, Environmental Team leader, and staff-level Site Manager.

Prior to 2004 Mr. Pauling worked 11 years for the DOE Office of Environmental Management program at the Weldon Spring site in Missouri, managing projects and environmental compliance during the site's cleanup phase, while coordinating with regulatory agencies and providing project information to the public.

His professional career includes experience as an environmental engineer with the Missouri Department of Natural Resources and the U.S. Environmental Protection Agency Region VIII, developing and implementing regulations, writing permits, participating in national policy-making groups, and conducting inspections.

Mr. Pauling holds a bachelor of science degree in chemical engineering from Washington University in St. Louis, Missouri. ❖

LM is continually seeking opportunities to protect natural resources and the future. One simple step we can take toward improving environmental consciousness is to distribute the *Program Update* newsletter by email instead of sending a printed copy.

Please send your email address and your first and last names to lm@hq.doe.gov so that we can update our database.

Thank you for your assistance.

Goal 2

LM Business Center Hosts Office of Environment, Health, Safety and Security (AU-14) Representatives

Records Management (RM) personnel hosted Greg Lewis and Lokie Harmond of the U.S. Department of Energy (DOE) Office of Environment, Health, Safety and Security, Office of Worker Screening and Compensation Support (AU-14) during a visit to the DOE Office of Legacy Management Business Center (LMBC) in Morgantown, West Virginia, in early May.

AU-14 visited to tour the LMBC, collaborate with RM personnel, and view collections that are used to process Energy Employees Occupational Illness Compensation Program Act (EEOICPA) claims, which are of particular interest to AU-14. Lewis, AU-14 Director, also showed interest in a collection of records associated with the Formerly Utilized Sites Remedial Action Program (FUSRAP), maintained in the LMBC records storage facility. The collection includes personnel-related records from two Bechtel National, Inc., (BNI) contracts related to FUSRAP cleanup at 26 sites.

BNI contract records contained a limited index when received by LM and are currently being reindexed at the LMBC to improve searchability for various stakeholder requests.

The AU-14 visit also presented an opportunity for RM staff to share improved EEOICPA process changes that were recently implemented. Improvements include cost savings, which are beneficial as EEOICPA claims account for approximately 70 percent of record requests processed by LM over the past 5 years. Lewis was complimentary of LM's support for the EEOICPA program and appreciated the process improvements.

Jeanie Gueretta, LM Program Analyst, and Dr. Edwin Parks, LM Archives and Information Management Team Lead, facilitated the AU-14 visit. According to Parks, "this was once again an opportunity to not only showcase the LM Business Center but also demonstrate the commitment the Records Management team has to quality work for LM and its stakeholders." ❖

LM personnel and AU-14 representatives discussed collections that will aid EEOICPA responsiveness. From left: Tamara Wilson, LM contractor (Navarro); Greg Lewis, AU-14; Denise Pickett, LM contractor (Navarro); Jeanie Gueretta, LM; Dr. Parks, LM; Lokie Harmond, AU-14; and Jessica Lambert, LM contractor (Navarro).

Goal 1

Annual Assessment Shows Mound, Ohio, Site ICs Are Protective

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) completed its 2016 annual assessment on the effectiveness of institutional controls (ICs) at the Mound, Ohio, Site in Miamisburg.

Mound site ICs are part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedies for the site. They are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and protect the integrity of the site remedy. ICs are required because some land-use restrictions apply.

DOE remediated the property to U.S. Environmental Protection Agency (EPA) risk-based standards for industrial/commercial use only. The site has since transitioned to a business park and is owned/leased by the Mound Development Corporation (MDC). Because the site is not approved for unlimited use, ICs are utilized as part of the CERCLA remedy defined in each of the eight Records of Decision. Mound ICs were developed with input from the public, the City of Miamisburg, regulators, and MDC.

Mound site ICs run with the land in the form of restrictions and covenants in quitclaim, or limited-warranty deeds, or activity and use limitations in the environmental covenant and the DOE to MDC lease agreement.

Mound site ICs include:

1. Prohibiting the removal of soil from within the original DOE Mound site property boundaries without prior written approval from EPA, Ohio EPA, and Ohio Department of Health (ODH).
2. Prohibiting the extraction or consumption of, exposure to, or use in any way of the groundwater underlying the site without prior written approval from EPA and Ohio EPA.
3. Maintaining industrial or commercial land use and prohibiting residential land use, farming activities, or any activities that could result in the chronic exposure of children less than 18 years of age to soil or groundwater from the premises.
4. Prohibiting the removal of concrete floor material from specified rooms of T Building to offsite locations without prior written approval from EPA, Ohio EPA, and ODH.
5. Prohibiting the penetration of concrete floors in specified rooms of T Building without prior written approval from EPA, Ohio EPA, and ODH.
6. Allowing site access for federal and state agencies for sampling and monitoring.

The 2016 annual assessment looked for changed conditions that could indicate an IC violation. Part of the assessment was a walkdown with EPA, Ohio EPA, ODH, the City of Miamisburg, and MDC. Since DOE Office of Environmental Management (EM) still owns a portion of the site, an EM representative also participated.

This year's annual ICs assessment confirmed that Mound site ICs continue to function as designed, adequate oversight mechanisms are in place to identify possible violations of ICs, and adequate resources are available to correct or mitigate any problems if violations occur. ❖

IC inspectors outside T Building entrance at the Mound site.

Inspectors looking southwest toward the Mound Operable Unit 1 area.

Goal 1

LM Completes 2016 Monitoring at Amchitka Island, Alaska

On May 22, 2016, the U.S. Department of Energy (DOE) Office of Legacy Management (LM) completed long-term monitoring of Amchitka Island, Alaska, an event that occurs once every 5 years. "The 2016 sampling event was scaled back from what it was in 2011," said Mark Kautsky, LM Amchitka Site Manager. "But we accomplished a great deal and had a very successful mission."

Amchitka Island is near the far, western end of the Aleutian Islands, approximately 1,340 miles west-southwest of Anchorage. It is part of the Aleutian Islands Unit of the Alaska Maritime National Wildlife Refuge, which is administered by the U.S. Fish and Wildlife Service.

Three underground nuclear tests had been conducted on Amchitka Island. The first test, named "Long Shot," was conducted in 1965 to provide the United States with data that would improve its underground nuclear-explosion detection capability. The second test, "Milrow," was a weapons-related test conducted by the U.S. Atomic Energy Commission (AEC) in 1969 to study the feasibility of detonating a much larger device. "Cannikin," the third test on the island, and the largest underground nuclear test conducted in the United States, was a weapons-related test conducted November 6, 1971.

This year's sampling was a continuance of past sampling events performed by many AEC and DOE investigators, most recently, the LM 2011 event and the Consortium for Risk Evaluation with Stakeholder Participation 2006 event. The focus of earlier sampling events was to evaluate whether seafood in the area was safe to consume. Those study results found that radionuclide levels in marine resources were too low to put people or the environment at risk.

The latest sampling event objective was collecting water and biota tissue data to determine if test cavity leaks could be detected, specifically focusing on seawater from the Long Shot potential leakage area.

Biota sampling included catching non-migratory, resident fish species that spend their entire lives in the marine environment near Amchitka. "These species include rockfish, Irish lords, and greenling", said Kautsky. "We're also investigating the algae, also known as rockweed, in the intertidal zone, because the rockweed tissue may concentrate cesium."

As a result of the 2011 Fukushima-Daiichi power plant incident in Japan, LM has also been monitoring cesium-134, which is released from reactors. Cesium-134 data is used to understand potential sources of elevated cesium-137 concentrations that might be detected during this latest sampling project.

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LM contractor (Navarro), Stephen Pitton, (left) and Mark Kautsky, LM Amchitka Site Manager, (right) collecting rockweed samples along the Amchitka coast.

LM contractor (Navarro) personnel, Lauren Goodknight (left) and Paul Darr, (right) prepare samples for shipment to Lawrence Livermore National Laboratory.

Goal 2

Moab UMTRA Project/LM Technical Exchange

The first U.S. Department of Energy (DOE) Office of Environmental Management (EM) and DOE Office of Legacy Management (LM) technical exchange was hosted at the LM office in Grand Junction, Colorado, on March 2, 2016. The primary goal of the technical exchange was to increase collaboration and the exchange of information between the LM program and EM's Uranium Mill Tailings Remedial Action (UMTRA) project in Moab, Utah.

Technical exchange meeting attendees (from left) Don Metzler, EM; Ken Karp, LM contractor; Mark Kautsky, LM; and Scott Den Baars, LM contractor; mingle with past and present co-workers during the meet and greet.

"We thought it would be a good way to build synergy between the two groups and benefit both DOE and the contractors," said Mark Kautsky, LM Hydrologist and Site Manager.

The scope of the Moab UMTRA project is to relocate mill tailings and other contaminated materials from a former uranium-ore processing site, and offsite properties, to an engineered disposal cell in Crescent Junction, Utah. The scope also includes active groundwater remediation at the Moab site. The Crescent Junction disposal site and groundwater management will transition to LM when the Moab surface-contamination remediation is complete. DOE has completed approximately 50 percent of the project.

"LM has so much experience monitoring disposal cells. We want to tap into that experience and expertise and nurture the technical relationship. This was an obvious area for us to be able to collaborate," said Don Metzler, Moab Federal Project Director. "With LM and EM both being DOE, our proximity, and the way our missions align, it makes sense to have a close, working relationship."

The technical exchange reunited several LM and EM employees who previously worked together on the Moab UMTRA project, until 2007 when the Moab scope was separated into its own contract. Meeting attendees included employees from EM, the Moab Technical Assistance Contractor (TAC), the Moab Remedial Action Contractor (RAC), LM, and the LM support (LMS) contractor. Approximately 60 individuals attended the meeting.

The meeting agenda included a 30-minute meet-and-greet followed by introductions from LM Grand Junction Office Manager, Dr. April Gil, and Metzler.

The meeting's format consisted of four 10-minute technical presentations—two presentations by LMS employees and two by EM employees—with a 5-minute question-and-answer session following each presentation.

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Dr. April Gil provides an introduction to the first EM/LM technical exchange hosted at the LM office in Grand Junction.

Goal 2

UK/LM Information Exchange Focus: Importance of Records Management for Interim Safe Storage of Reactors

As part of a government-to-government agreement between the U.S. Department of Energy (DOE) and the United Kingdom (UK) Nuclear Decommissioning Authority (NDA), representatives of DOE Office of Legacy Management (LM), NDA, the UK Office for Nuclear Regulation, and the UK Environment Agency met via televideo in June 2016 to discuss records management best practices and lessons learned, as well as other aspects of knowledge management. This meeting and future information sharing will support the UK program to place their Magnox reactors into interim safe storage, pending decommissioning in 75 years.

The Magnox reactors used naturally occurring uranium as fuel and were the first reactors to provide commercial electricity in the UK—the last of the Magnox reactors ceased operating in 2015. The timing of the information exchange with LM coincides with the first Magnox reactor entering a care and maintenance (C&M) stage. C&M is designed to be a safe storage phase where reactor sites are monitored and maintained while radiation levels are allowed to decrease through natural decay. The lower radiation levels at the end of the C&M stage will result in less radioactive waste being generated and safer conditions for workers responsible for final site clearance.

However, because the C&M stage will last for 75 years, it is important to retain critical records and information for future generations who will be responsible for final closure of the sites; hence, the interest in records and other knowledge-management aspects.

During the June televideo meeting, LM shared its experiences and expertise in developing a records management program to support long-term stewardship of environmentally remediated sites, as well as lessons learned and challenges. LM is managing records and information for more than 90 sites across the United States and the territory of Puerto Rico, and has participated in site shutdown and custodian turnover phases for legacy sites. LM Records Manager Jeanie Gueretta stated, “LM has learned a lot over the years on what does and doesn’t work related to records management for long-term stewardship sites. We’re happy to share our knowledge with other organizations, as well as learn from them.”

LM Records Storage Facility in Morgantown, West Virginia.

Additional information will be shared on managing electronic records, identifying key records for post remediation use, records retention instructions and criteria, and how information within records has been used to create resources to support LM’s long-term surveillance and maintenance program.

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Goal 2

New Mound, Ohio, Exhibit at Dayton History Carillon Historical Park

Dayton History[1] opened a temporary exhibit at the Carillon Historical Park in downtown Dayton, Ohio, that illustrates the significant contribution the Mound, Ohio, Site made to the World War II Manhattan Project and to the United States during the Cold War. The exhibit was created by graduate students in the Wright State University Public History program, guided by Dayton History staff. Throughout the semester, students learned the process for creating an exhibit, including artifact and photograph selection, text research and writing, and exhibit design and installation.

As the exhibit explains, the Monsanto Mound Laboratory, which operated for over 50 years, was known locally as a mysterious, scientific site located on a hill in downtown Miamisburg. The exhibit builds on Mound Science and Energy Museum (MSEM) efforts to educate the public about the site's significant role in national security and space exploration from 1949 to 2003. The Mound site was the nation's first nuclear-weapons research facility opened by the Atomic Energy Commission after the war. At its peak, it grew to employ 2,500 people in its 116 buildings on 306 acres of land. Mound research projects, along with those of other national laboratories, kept the United States at the lead during the nuclear arms race.

Under Dayton History leadership, MSEM will transform into the Mound Cold War Discovery Center over the next 16 months. The new center will be located in the current MSEM building, serving a mission to preserve the history of the Mound site by increasing awareness and educating the public about the site's significant contributions toward protecting our nation.

The new center is scheduled to open in October 2017. ❖

Display at the Mound Laboratory exhibit at the Carillon Historical Park in Dayton, Ohio.

Padraic Benson, LM Historian, and Gwen Hooten, Environmental Team 2, Team Leader, view the Mound Laboratory exhibit at the Carillon Historical Park.

[1]The nonprofit Dayton History organization was created to collect, preserve, interpret, present, and promote the region's historic legacy. The organization maintains and preserves the buildings and structures managed or owned by Dayton History and nearly 3 million artifacts. In addition to the Carillon Historical Park, Dayton History owns and/or operates many other sites, including Hawthorn Hill, Patterson Homestead, the Old Court House, and the National Aviation hall of Fame. Visit http://www.daytonhistory.org/ to learn more about the organization.

Goal 6

LM Earth Day Activities Include USPS BlueEarth Recycling Event

In recognition of Earth Day 2016, the U.S. Department of Energy Office of Legacy Management (LM) and its support contractor (LMS) included U.S. Postal Service (USPS) BlueEarth recycling and Federal Recycling Program (www.Fedrecycling.com) events at the Grand Junction and Westminster, Colorado, offices; the LM Business Center in Morgantown, West Virginia; the Weldon Spring, Missouri, Site; and the Fernald Preserve in Ohio. The objective of the BlueEarth Federal Recycling Program is to keep electronic waste, or e-waste, out of landfills and promote recycling of the waste. LM's 2016 Earth Day activities brought awareness to this year-round USPS program that is available to both federal employees and government contractors.

The U.S. Environmental Protection Agency report, *Advancing Sustainable Materials Management: Facts and Figures* (EPA 2013) (https://www.epa.gov/smm/advancing-sustainable-materials-management-facts-and-figures-report), summarizes electronic waste statistics captured over 30 years. The report estimated that in 2000 the United States generated 1.9 million tons of e-waste and only recycled 10 percent (190,000 tons). In 2013, 3.1 million tons of e-waste was generated and 40.4 percent (1.3 million tons) was recycled.

LM and LMS contractors did a great job keeping these materials out of the landfills. During this event, 130 pounds of personal electronic waste, 40 pounds of batteries, and 8 pounds of compact fluorescent bulbs were collected. Employees who brought in materials for recycling were given wildflower seed packets that can be planted to help improve and revitalize the environment. The seed packets, and the flowers that grow from them, are reminders that everyone can contribute to improving the environment and the sustainability of our communities.

DOE Headquarters sponsored an Earth Day photo contest and invited all DOE and contractor employees to share images of ways they help to save the planet. One winner was selected from each of the following five categories: Conservation, Community, Alternative Power, Energy Efficiency, and Climate Change Adaption and Resilience. Two LM employees submitted photographs. One (shown center) featured LM's Fernald Preserve. Fernald, the former location of a uranium processing facility was remediated and is now managed by LM as a nature preserve that supports a diversity of wildlife, including a large number of nesting and migrating birds, and locally rare species. The winning photographs are featured on the DOE website.

More information and details about the USPS BlueEarth recycling program can be found at www.BlueEarth.USPS.gov. ❖

Goal 6

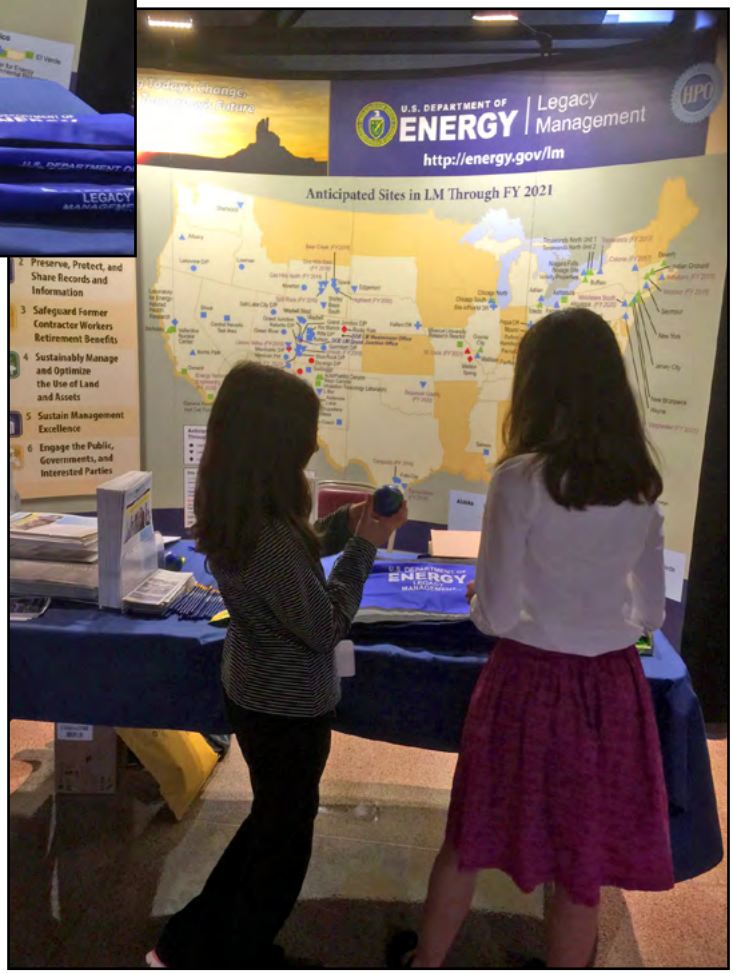
Earth Day at DOE Headquarters

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) display presentation was well received at DOE's Earth Week observance in April.

LM Acting Director and employees made pledges to change one of their behaviors in order to "Make Every Day Earth Day"—this year's event theme.

Some pledged to for 2016:

- Only buy bottled water to stock up for weather emergencies.
- Clean it and green it!
- Continue to minimize household waste.
- Buy locally whenever possible.
- Print double-sided as much as possible.
- Reduce, reuse, and recycle. ❖

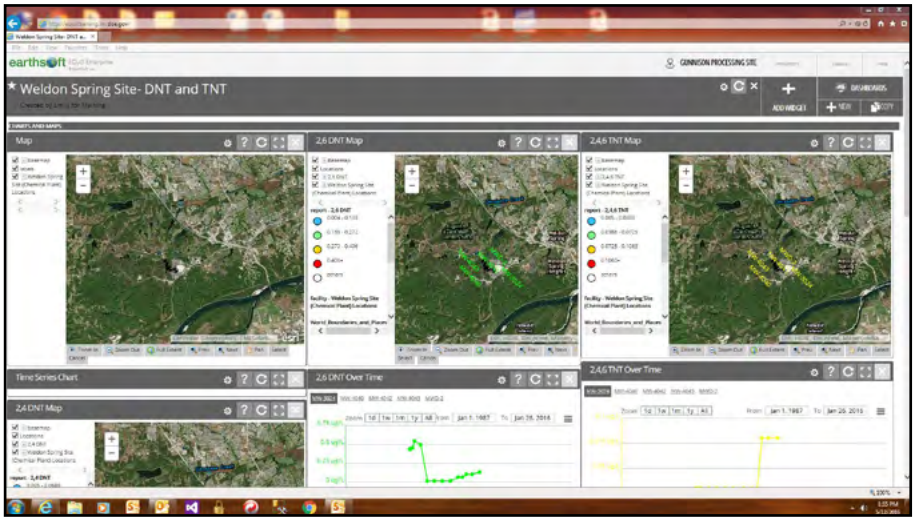


Young visitors from the "Take Your Daughters and Sons to Work" Day event visited the LM display and were given interesting and age-appropriate materials regarding LM's sites and its mission.

Goal 2

LM Environmental Database Modernization Is Off and Running

The U.S. Department of Energy Office of Legacy Management (LM) manages Cold War legacy site environmental records spanning nearly 40 years. These records are key LM assets and require efficient and effective management. LM uses multiple technologies to manage and maintain these environmental records. To sustain LM's Goal 2 commitment to preserve, protect, and share records and information, the current systems have been undergoing significant next-generation modernizations.



The main EQuIS dashboard displaying Weldon Spring data.

LM is implementing a new environmental database called Environmental Quality Information System (EQuIS). This program will replace LM's previous Site Environmental Evaluation for Projects system. The EQuIS project has been underway since spring 2015 and, as of April 29, is operating for more than half of LM's legacy sites. EQuIS improves the efficiency data collection, management, and dissemination while also decreasing the burden of those site activities on IT. The 16 individually maintained pieces of software needed to support site activities were oriented around an Oracle database structure, which does not conform to the target architecture of IT. The Earthsoft EQuIS suite of tools conforms to the target architecture and consist of 7 tools maintained by the one developer.

Larger LM sites are targeted to go live over the next 6 months, beginning with the Weldon Spring, Missouri, Site in July 2016; Rocky Flats, Colorado, Site in October 2016; and the Fernald and Mound, Ohio, sites in January 2017. LM expects final data migration and full operational capability in April 2017.

When completed, the EQuIS Database will contain approximately 4.7 million analytical results and 232,000 water-level measurements. This data was

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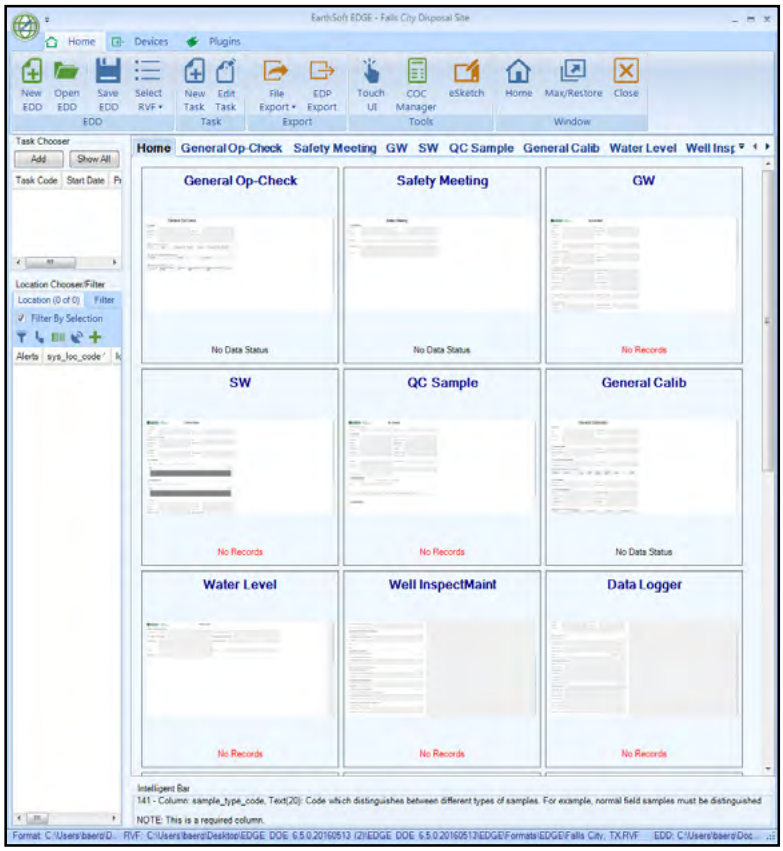

The EQuIS Data Gathering Engine, or EDGE, is a suite of tools used by samplers.

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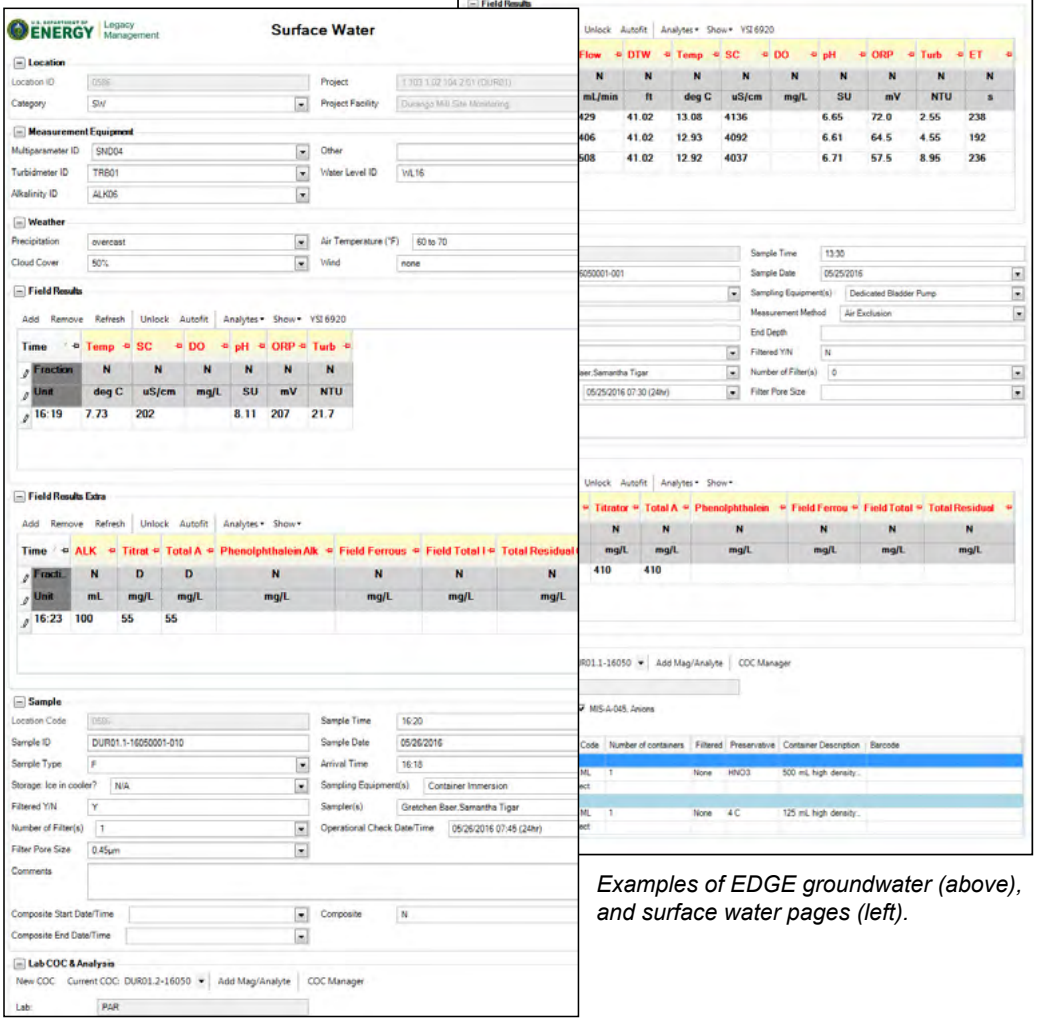
LM Environmental Database Modernization Is Off and Running

collected over a period of 40 years for 91 LM long-term surveillance and maintenance sites. The database will be used to capture and store historical environmental information such as analytical chemistry, groundwater depths and elevations, well logs, well construction data, geo-referenced boundaries, site physical features, and sampling locations. LM staff can chose to use the web-based EQuIS Enterprise application or a PC-based power-user application (EQuIS Professional) to display data and information in many forms such as interactive tabular reports, graphs, and geospatial displays, with data labeled or highlighted in map views.

LM plans to expand EQuIS by integrating with other processing and data sources, refining EQuIS Enterprise reports and custom dashboards, and enhancing the common platform to provide support for cross-functional areas and new collaboration functionality. Implementing EQuIS helps LM meet its goals, preserve and protect environmental data, and use taxpayer funds efficiently.

Users can access EQuIS data though the Geospatial Environmental Mapping System (GEMS) via the LM website (http://energy.gov/lm) by selecting the MAPPING AND MONITORING (GEMS) link in the third column of the screen, or by typing http://gems.lm.doe.gov directly into a web browser.

Comments and suggestions can be submitted through the GEMS "Contact Us" or "About" menus. ❖



Examples of EDGE groundwater (above), and surface water pages (left).

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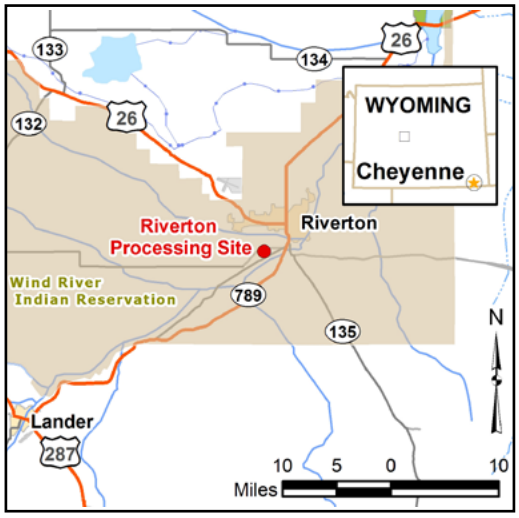
Little Wind River Floods at Riverton, Wyoming: Study to Determine Impacts on Soil Contaminants

Riverton site, and the uranium mill tailings were transferred to the Gas Hills East, Wyoming, Disposal Site.

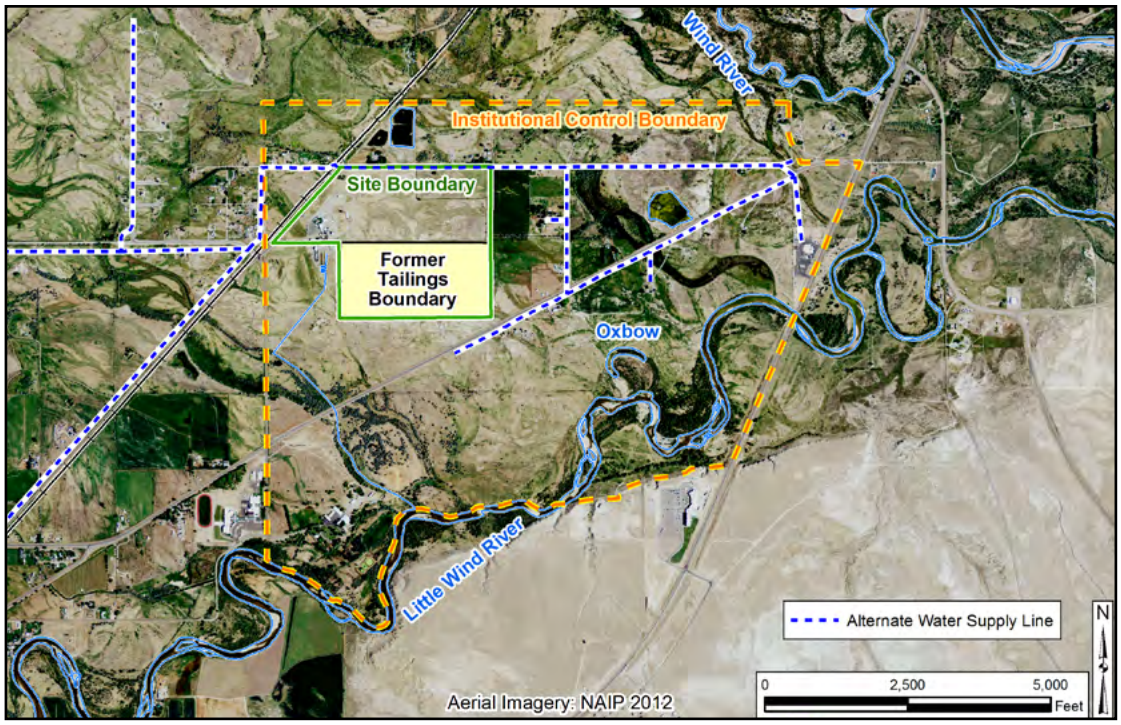
In recent history, the U.S. Department of Energy (DOE) Office of Legacy Management (LM) Riverton site, which is adjacent to the Little Wind River, has been affected by two floods. One, which occurred in 2010, was considered a 75-year event. Prior to that flood, groundwater concentrations were steadily declining, as forecasted by predictive models. This supported LM's natural flushing compliance strategy.

After the 2010 flood, routine groundwater monitoring at the site showed significant increases in uranium levels. In response, LM began an enhanced characterization study to determine how flushing from the flood mobilized uranium contamination remaining in the soil. The ongoing study seeks to understand how dilute snowmelt or rainfall that causes river flooding could result in rising groundwater-contaminant levels.



The former Riverton uranium processing site is located in central Wyoming within the Wind River Indian Reservation.

In 2015, soil samples collected from backhoe-excavated trenches provided soil-chemistry data and an opportunity to see the subsurface geology. This helped LM locate sites for nine new monitoring wells. The new wells are designed to collect groundwater at four horizons in both the typically dry, shallow soil, which is saturated during high water, and in the deeper, saturated sediments that typically contain groundwater.



LM monitors the Riverton site, assisted by the Northern Arapaho Environment and Natural Resources Office. Monitoring includes institutional controls (e.g., alternate water supply system, excavation and well drilling restrictions, and domestic well sampling), groundwater and surface water monitoring, and extreme events, including floods.

This past May, heavy spring rainfall caused the Little Wind River to flood again. Groundwater samples were collected within days of the flood. Preliminary results indicated secondary sources of contamination coming from the typically dry, shallow soil and aquifer sediments,

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Little Wind River Floods at Riverton, Wyoming: Study to Determine Impacts on Soil Contaminants

contributing to uranium and other elements in the groundwater plume. These findings will be provided in annual reports, as well as published articles and conference proceedings.

LM is testing several theories on how the shallow soil near the river originally became contaminated and how to effect interaction between the shallow soil and groundwater. LM has partnered with the Northern Arapaho Environment and Natural Resources Office; DOE National Laboratories at Argonne, Los Alamos, and Savannah River; SLAC National Accelerator Laboratory; Stanford University; and the U.S. Geological Survey. LM is conducting this work under its Applied Studies and Technology program and will apply the findings to additional LM sites. ❖

The Little Wind River overflowed its banks and flooded the area being monitored by a new multi-level monitoring well (the Wind River Casino is shown in background).

A northern view from the Wind River Casino with the ChemTrade Logistics Inc., sulfur refinery plant and former uranium processing site in the background. The foreground shows the May 2016 flooding of the Little Wind River.

Flooding along Little Wind River, downstream of the Riverton site, shows USGS stream gauge and property damage.

Goal 6

Environmental Justice Activities

Community Leaders' Institute in Orangeburg, South Carolina

A Community Leaders' Institute (CLI) was held in Orangeburg, South Carolina April 10 and 11, 2016, at the Orangeburg-Calhoun Technical College.

CLI sponsors included:

- Allen University
- City and County of Orangeburg
- U.S. Department of Defense
- U.S. Department of Energy
- Medical University of South Carolina (MUSC)
- Orangeburg-Calhoun Technical College
- Regional Medical Center of Orangeburg and Calhoun Counties
- Southeastern Virtual Institute for Health Equity and Wellness

The purpose of the CLI is to help leaders know how to access and obtain information necessary for making good decisions and communicating that information publicly. The CLI focus is on the unique relationship between environmental protection, human health, environmental justice, and economic development.

Sessions for this CLI included:

- The role of government, focusing on intergovernmental relationships between federal, state, and local governments
- Issues and challenges experienced by community youth and development of resources needed to meet the challenges
- Economic development
- Housing
- Health disparities issues, especially the combined effects of diabetes, hypertension and obesity—known as Metabolic Syndrome

The keynote address was made by the Honorable James E. Clyburn, Assistant Democratic Leader, U.S. House of Representatives, South Carolina.

CLI's continue to build on the theme *Building and Sustaining Healthy Communities*. A critical factor in the success of community development programs is a well-informed community. Action occurs when those with authority assume an informed and active leadership role. ❖

Climate Change: A Global Reality

A made for television dialogue on *Climate Change: A Global Reality*, was held May 14, 2016, at St. Helena Island, South Carolina, and sponsored by the Medical University of South Carolina (MUSC); Allen University in Columbia, South Carolina; and the U.S. Department of Energy (DOE). While climate change is a global phenomenon, its localized impacts require community-level action. Many of the most effective climate change initiatives are conceived and enacted at the local level.

The science on climate change is clear. The fact that the United Nations Climate Change Conference (Paris 2015) yielded a historic agreement, signed by representatives of 196 nations, is testament to international consensus that climate change and its impacts must be addressed in a timely fashion to assure a habitable planet for generations to come.

Six months prior to the U.N. conference, MUSC, DOE, and South Carolina Educational Television (ETV) produced and distributed a made-for-television dialogue on climate change and its impacts. Moderated by CNN Chief National Correspondent, John King, and featuring a diverse panel of experts on climate change and its impacts, *Climate Change: A Global Reality* first aired on ETV in July 2015. It has since appeared on public and educational television affiliates nationwide, bringing attention to the many impacts of climate change.

While the televised dialogue was a significant milestone in raising climate change awareness, the reality is that many actions addressing climate change and its impacts must be made locally. Complex and potentially costly issues such

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Climate Change: A Global Reality

as water and sewer, infrastructure enhancement, wetlands protection, human health and safety, reduced greenhouse gas emissions, and the impact of residential and commercial development require significant community commitment and buy-in. Future made-for-television dialogs will be held in coastal communities and will be used to introduce climate change issues to local audiences.

Following the program, a group of experts discussed the dialog and encouraged a broad-based discussion, which included audience members. These sessions and individual interviews were recorded by ETV and will be packaged as part of a larger, made-for-television program to be broadcast statewide in South Carolina and neighboring cities in Georgia and North Carolina in 2017. ❖

http://energy.gov/lm/downloads/climate-change-press-release

Working Effectively With Tribal Governments and Communities; DOE Environmental Justice and Tribal Training

The U.S. Department of Energy (DOE) Environmental Justice Program launched its fifth *Environmental Justice and Tribal Consultation Training* on April 19, 2016, at the Hanford site federal building in Richland, Washington. The training theme, *Working Effectively With Tribal Governments and Communities: DOE's Tribal and Environmental Justice Policies*, was based on two training drivers: 1) The Department's *American Indian Tribal Government Interactions and Policy*, DOE Order 144.1, for federal and contractor employees; and 2) the *Environmental Justice Five-Year Implementation Plan* and its commitment to Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

The welcome and introductions were given by Hanford Deputy Manager, Doug Shoop, and Jill Conrad, Hanford Communications Manager. Training session attendees included over 50 federal and contractor personnel, as well as participants from the U.S. Environmental Protection Agency and the U.S. Department of the Interior.

This environmental justice training supports the agencies' responsibilities with respect to the Memorandum on Tribal Consultation, signed by President Obama, directing executive agencies to develop and implement tribal consultation policies. DOE engages in tribal consultation with American Indian and Alaska Native governments and communities on energy development, sustainability, and cleanup activities related to DOE facilities.

Milton Bluehouse, Jr., Tribal Consultation Resources, LLC, provided training expertise that advances DOE's policy to respect tribal nations and support positive and productive tribal government and community relations by providing training that focuses on building credibility and trust through:

- Understanding federal Indian laws and policies, tribal government, and community protocols;
- Enhancing cultural communication skills; and
- Utilizing best practices for tribal consultation.

Through a better understanding of government-to-government principles, best practices, and cultural sensitivities, DOE personnel will be better positioned to work effectively with tribal governments and communities. ❖

Goal 5

LM Announces New Employees

Karen Edson joined the U.S. Department of Energy (DOE) Office of Legacy Management (LM) in June as a Public Participation Specialist for the Public and Intergovernmental Engagement Team.

Previously, Karen worked for the U.S. Environmental Protection Agency (EPA) in Denver, Colorado, as a senior Public Affairs Specialist for the Community Involvement Program. She led public relations and community involvement for six Comprehensive Environmental Response, Compensation, and Liability Act, or Superfund, sites. She conducted site investigations; developed community involvement plans, communication strategies, and internal and external outreach materials; and engaged with federal, state, and local stakeholders. Her responsibilities included managing public affairs for the Libby Asbestos Superfund site in Libby, Montana, and a Wyoming groundwater site assessment in Pavillion, Wyoming. She also served as a Public Information Officer on the EPA Emergency Response Incident Management Team.

Karen began her federal career in EPA's prestigious 2-year professional development program where she completed details in regional, field, and headquarters' offices; executive-level mentorship; and extensive leadership training. Her detail assignments included communications roles with the Office of International Affairs, U.S.–Mexico Border Program, in both Region 9 and Headquarters, and work with the EPA Headquarters Climate Change Division.

Karen served in the Peace Corps in Nicaragua as a community environmental educator, teaching environmental classes to primary students, developing reforestation projects, and starting a community library and literary initiative. She speaks Spanish and holds a bachelor's degree in environmental studies from the University of California, Santa Barbara. ❖

Sue Smiley joined the U.S. Department of Energy (DOE) Office of Legacy Management (LM) in May 2016, based at the Fernald, Ohio, Site as a Site Manager. She is part of the Resource Conservation and Recovery Act (RCRA)/ Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Formerly Utilized Sites Remedial Action Program team.

Sue began her DOE career over 25 years ago at the Mound, Ohio, laboratory with the Office of Defense Programs. She worked as the Environmental Compliance Manager, responsible for oversight of Clean Air Act, Clean Water Act, Safe Drinking Water Act, National Environmental Policy Act, RCRA, and other environmental programs at the site. In the early 1990s, Sue managed the DOE Self-Assessment Program at the Fernald Field Office and then returned to the Mound laboratory, as Senior Regulatory Compliance Specialist at the newly-formed DOE Ohio Field Office (OH).

In the late 1990s, Sue served as the Mound Site Transition Manager. She was responsible for managing an integrated schedule to support economic development activities and complete CERCLA and other activities (e.g., infrastructure, real and personal property) to make buildings available for lease, and land parcels available for eventual sale.

From 2001 through 2003, Sue was the Mound post-closure Stewardship Manager, working closely with the DOE Office of Environmental Management (EM) Office of Long-Term Stewardship (an LM predecessor organization). She led the first annual review of Mound's institutional controls and the first OU-1 pump and treat remedy five-year review. Sue lead a Regulatory Strategy Team at the OH. She was responsible for identifying uncertainties in regulatory closure strategies at Ohio closure sites and developing a groundwater exit strategy for the Fernald site.

In 2004 and 2005, Sue managed the Mound environmental restoration project, then transferred to the newly-formed EM Consolidated Business Center (CBC) as Records Management and LM interface Team Leader. In this capacity, Sue and her team assisted the four Ohio sites and the Rocky Flats, Colorado, Site with site transition planning and execution, working closely with the LM project manager for each site. Sue's team also coordinated transition activities at several ongoing-mission sites across the DOE complex, including the Inhalation Toxicology Laboratory and several other national laboratories.

Sue has a master of environmental science degree from the Institute of Environmental Science at Miami University, with an area of concentration in applied ecology. She also holds a bachelor of science degree in zoology from Miami University. ❖

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LM Completes 2016 Monitoring at Amchitka Island, Alaska

"We're also looking at tritium activities in seawater near Amchitka to see if we can't detect seepage of contaminated groundwater into the marine environment," said Kautsky. LM worked closely with University of Alaska scientists to develop a sampling strategy known as "hot spot" sampling to develop an offshore grid from the Longshot detonation, because that is where past modeling predictions showed that test-related radionuclides were most likely to first appear.

LM also conducted sampling in a reference area around Adak Island. Adak is similar to Amchitka but not impacted by nuclear testing and is used as a comparison location.

"The LM team was a cohesive group of top-notch scientists who came together and accomplished our mission in about half the scheduled time," said Kautsky. "We had fair weather and calm seas, which greatly facilitated accomplishing our mission."

Laboratory analyses, which are being conducted at Lawrence Livermore National Laboratory under the direction of Dr. Terry Hamilton, will comprise the next phase of work. Results from the 2016 sampling will be available in 2017. ❖

Sampling technicians collect seawater samples for cesium and tritium analyses.

Goal 4

Site Reuse – A Dog's Delight

One U.S. Department of Energy (DOE) Office of Legacy Management (LM) goal is to place its legacy sites and properties into the most beneficial, environmentally sound uses, consistent with the LM mission. Where possible, LM makes land and facilities available for government, public, and private use. Reuse options are evaluated and established on a site-specific basis with protectiveness as the primary objective.

The former Durango, Colorado, uranium processing site was transitioned to a dog park and recreation area after DOE completed the surface clean up in 1991.

Beneficial reuse opportunities include disposition, renewable energy, conservation, and community and educational outreach. ❖

Drake happily assists his owner, Jalena Dayvault, LM Durango Site Manager, with inspecting several site features at the dog park.

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Moab UMTRA Project/LM Technical Exchange

Presentation topics and presenters were as follows:

- "Assessing Degradation of Erosion Control Rock at Lakeview, Oregon, UMTRCA Title I Disposal Site," Ann Houska, LMS Site Manager
- "Groundwater Challenges on the Moab Remediation Project," Ken Pill, TAC Groundwater Manager
- "Persistent Secondary Contaminant Sources, Riverton Processing Site, Riverton, Wyoming," Dr. Ray Johnson, LMS, Senior Geochemist
- "Moab UMTRA Project Safety Management," Jeff Biagini, RAC Project Manager

Considering the eventual transfer of the Moab UMTRA project site to LM, information sharing between the two organizations has several benefits for DOE and its contractors, such as discussing lessons learned from previous challenges, and potential solutions. Kautsky feels that technical exchange meetings provide a vision of the new project transition aspect while the work is still in progress. "We [LM] are getting a real, living example of what they [EM] have to go through to construct the cell safely and successfully."

Tentative plans are to hold technical exchanges twice yearly with the next one occurring this fall. Details of that event are in the planning stage. ❖

Don Metzler shares background information on the purpose and intent of the first technical exchange meeting.

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UK/LM Information Exchange Focus: Importance of Records Management for Interim Safe Storage of Reactors

The technical exchange between UK NDA and LM follows information exchanges between NDA, its regulators, and the DOE Environmental Management program.

In November 2015, NDA and Magnox Ltd visited the Hanford site in Washington state to see and enter two of the "cocooned" reactors at DOE's largest cleanup project. The Hanford reactors were cocooned for many of the same reasons as the Magnox reactor C&M phase: to keep the reactors in a passively safe stage and allow radiation levels to decrease through natural decay. Inspection regimes for the Hanford reactors, while they are in interim closure, were also discussed. ❖

Reactor units 1 and 2 at Wylfa in Wales (United Kingdom). The Magnox Unit 1 reactor at Wylfa operated until 2015. When Wylfa began operating in 1971, it provided 40 percent of Wales' electrical power needs.

Anticipated LM Sites Through Fiscal Year (FY) 2025

Anticipated Sites in LM Through FY 2025 Requiring LTS&M

- ● UMTRCA Title I
- ▲ FUSRAP
- ▼ UMTRCA Title II
- ✚ D&D
- ◆ CERCLA/RCRA
- ■ Other

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

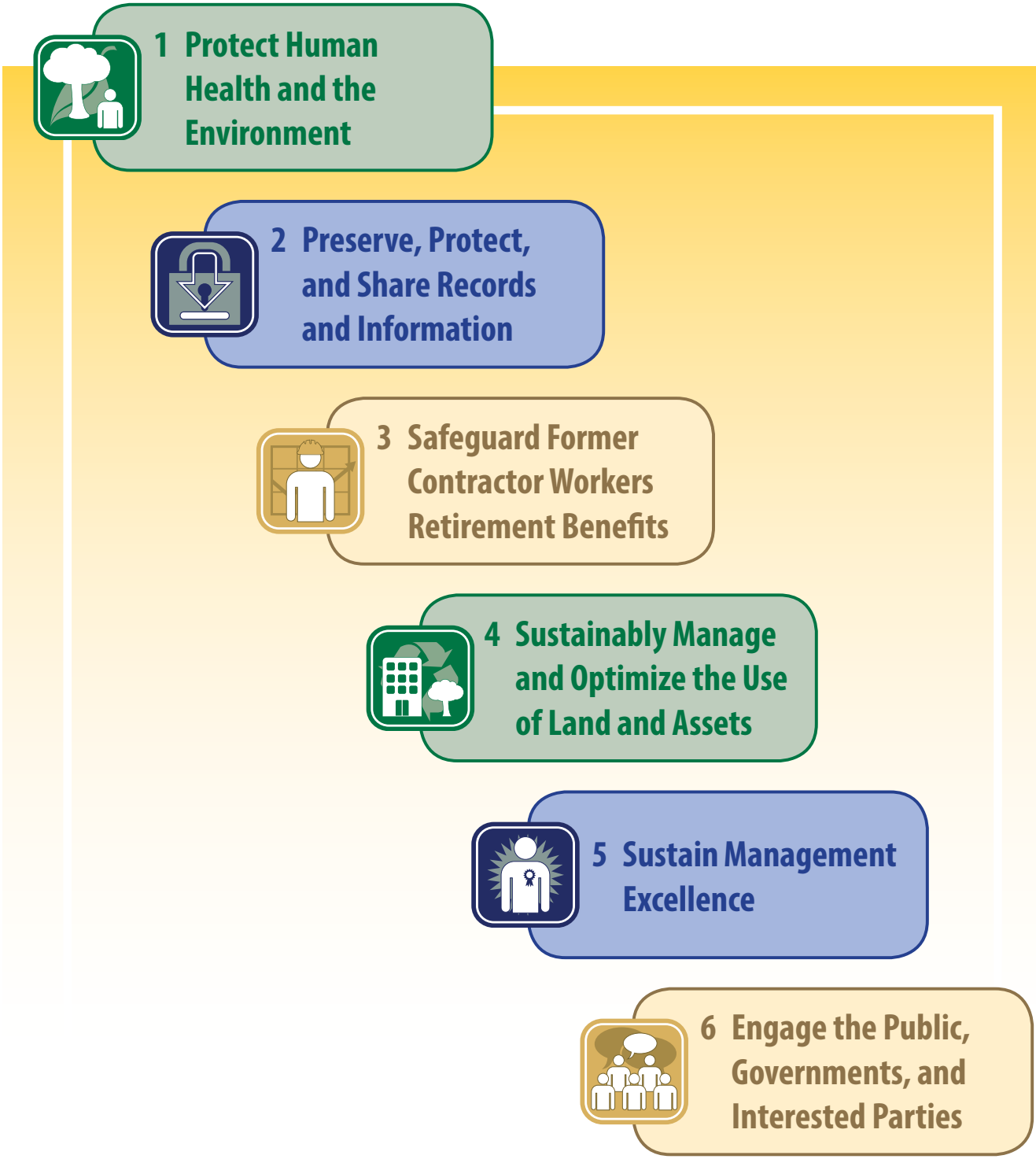
Category 3 activities typically include operation and maintenance of active remedial action systems, routine inspection (any site visit needed to verify the integrity of engineered or institutional barriers) and monitoring/maintenance, records-related activities, and stakeholder support

D/P = Disposal/Processing

DR = Decommissioned Reactor

Planned transfer dates are subject to change.

LM Goals


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

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