U.S. DEPARTMENT OF ENERGY | Legacy Management

Program Update

January–March 2014

Welcome to the January–March 2014 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 1

DOE Celebrates 20-Year Anniversary of Executive Order 12898 on Environmental Justice

DOE Secretary Moniz (fifth from left) and members of the DOE EJ Task Force celebrate E0 12898 20-year anniversary.

February 11, 2014, marked the 20-year anniversary of Executive Order (EO) 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations." EO 12898 focused federal attention on the environmental and human health conditions of minority populations and low-income populations. It required each federal agency to "make achieving environmental justice (EJ) part of its mission by identifying and addressing, as appropriate, disproportionally high and adverse human health or environmental effects of its programs, policies, and activities." The order further states that "each federal agency responsibility set forth under this order shall apply equally to Native American programs."

Since signing EO 12898, the U.S. Department of Energy (DOE) has remained committed to the principles of EJ and has ensured that these principles are fully integrated throughout its programs. To further demonstrate this ongoing commitment, DOE sponsored a series of anniversary-related activities during the month of February, including:

- Hosting the EJ exhibit at DOE headquarters;
- Publishing a new EJ brochure;
- Posting a video entitled "A Review of the Department of Energy's Implementation of Executive Order 12898 and Recommendations for A Second Five-Year Implementation Plan," and accompanying report on DOE's EJ website; and
- U.S. Secretary of Energy, Dr. Ernest Moniz, met with the EJ Task Force to convey his appreciation for their dedication and hard work.

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Inside this Update:

Goal 4

LM Updates the Public on Defense-Related Uranium Mines Report to Congress

The U.S. Congress directed the U.S. Department of Energy (DOE), in consultation with the U.S. Environmental Protection Agency and the U.S. Department of the Interior, to undertake a review of, and prepare a report on, abandoned uranium mines in the United States that provided uranium ore for U.S. atomic energy defense activities. In February 2014, the DOE Office of Legacy Management (LM) updated the public about its progress on the data and technical information developed to inform the Report to Congress on defense-related uranium mines.

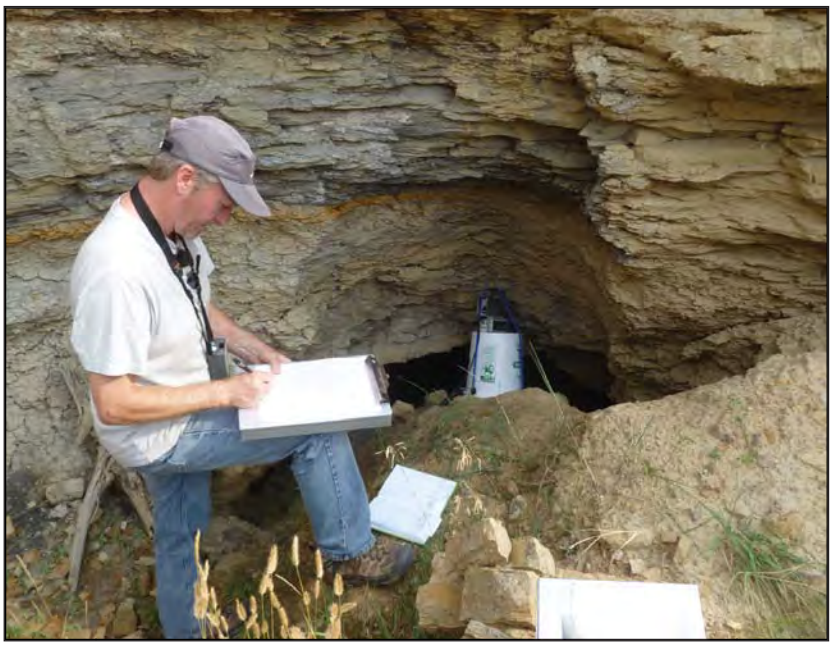
To inform the public of what LM has learned so far, four draft technical topic reports that provide the foundation of the Report to Congress have been posted to the LM website. The draft topic reports address defense-related uranium mine location and status, the potential impacts of these mines on human health and the environment, estimated cost and feasibility of reclamation and remediation efforts, and priority ranking for reclamation and remediation.

A public webinar was hosted by LM on February 25 to update the interested public on the progress of the Report to Congress. The webinar provided an overview of the four topic reports and answered questions. The presentation from that webinar is available on the LM website.

LM is progressing toward completing the draft Report to Congress, which will undergo an interagency review in March and April 2014. A final review will be made in conjunction with the Office of Management and Budget in April and May 2014. The report will be revised and finalized in June and submittal is expected to happen in July.

Additional information about the Abandoned Uranium Mines Report to Congress is available at http://www.lm.doe.gov/aum/. If you have any questions or would like to send us additional information, please e-mail AUM@lm.doe.gov. ❖

This small mine in the Yellow Cat mining District of Utah is an example of the majority of the mines that LM identified. Of the 4,225 defense-related uranium mines identified, nearly 3,000 fall into the small and small to medium categories that provided 1,000 tons of ore or less.



An LM contractor collects radon measurements at the mouth of an adit in the Little Ann Mine in the Edgemont District in South Dakota during a field visit.

Goal 4

LM Issues Final Programmatic Environmental Impact Statement on the Uranium Leasing Program

The U.S. Department of Energy (DOE) has released the *Final Uranium Leasing Program Programmatic Environmental Impact Statement* (PEIS) to the public. The document can be found on the DOE Office of Legacy Management (LM) website at http://www.lm.doe.gov/default.aspx?id=119, and on the DOE National Environmental Policy Act (NEPA) website at www.energy.gov/nepa.

Under the Uranium Leasing Program (ULP), LM manages 31 tracts of land in Mesa, Montrose, and San Miguel counties in Colorado—approximately 25,000 acres—that are leased to private entities for uranium and vanadium mining. There have been three previous leasing periods on the tracts since the program was established in 1948. No mining operations are active on these lands.

DOE prepared the PEIS to analyze the reasonably foreseeable potential environmental impacts, including the site-specific and cumulative impacts, of a range of selected alternatives for managing the program. DOE evaluated five alternatives ranging from canceling the program to the no-action alternative of continuing the program for the remainder of the 10-year period. The PEIS will inform DOE's decision on the future course of the ULP.

DOE identified the preferred alternative of continued management of the program with exploration, mine development and operations, and reclamation at the 31 lease tracts for the next 10-year period or for another reasonable period of time.

In 2007, DOE prepared a programmatic environmental assessment and subsequent Finding of No Significant Impact that determined that the ULP should continue by extending the 13 existing leases, and execute new leases for the remaining inactive lease tracts for a 10-year period.

Early in 2011, DOE determined that a PEIS should be prepared to further assess the potential environmental impacts, including site-specific impacts, associated with program activities that were defined under a reasonable range of alternatives.

On October 18, 2011, the U.S. District Court for the District of Colorado ruled that DOE had violated NEPA by issuing its July 2007 programmatic environmental assessment instead of issuing a PEIS. The court invalidated the July 2007 evaluation and finding, stayed the 29 leases in existence under the program, and prohibited DOE from issuing any new leases or approving any activities on lands governed by the program.

Top: New Verde Mine site (on Lease Tract C-G-26), near Naturita, Colorado, being reclaimed in September 2004; and (bottom) New Verde in June 2010, 4 years after reclamation activities were completed.

The court later granted part of DOE's motion for reconsideration of that order and amended its injunction to allow DOE; other federal, state, or local governmental agencies; and the current lessees to conduct activities on program lands that are necessary. Activities allowed include conducting environmental analyses; complying with regulatory orders; responding to dangers to public health, safety, and the environment; and maintaining the lease tracts and their existing facilities.

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Goal 1

Tracking Uranium Atoms

Uranium fissions

Fission tracking affords a sensitive way to map the distribution of uranium in rocks and minerals and is more sensitive than standard techniques using electron microscopy. Electron microscopic methods are limited to relatively high uranium concentrations and large mineral grains. Uranium concentrations of interest to the U.S. Department of Energy Office of Legacy Management (LM) are often too low, and particle sizes too small, to be effectively interrogated by microscopic methods. But, because uranium fissions, individual atoms of uranium can be located in a rock sample—it doesn't get more sensitive than that.

Scientist working in the fission-tracking facility at LM's Environmental Sciences Laboratory.

Why do we care? Commercial production of uranium since the 1940s left mines and mills abandoned across the United States. Uranium from the abandoned properties seeped into groundwater aquifers and became a key contaminant addressed by LM.

LM's management of contaminated groundwater depends on accurate predictions of groundwater uranium concentrations. Predictions are made using numerical groundwater flow models. Modern groundwater models require an understanding of the interactions between groundwater and minerals in the aquifer. Knowing the mineral associations of the uranium is basic to understanding the uptake of uranium by minerals.

Although fairly simple, several steps are involved in the fission-track mapping method. A sediment sample is collected from a contaminated aquifer drill core. The sample is dried and mounted in an epoxy cube. The cube is glued to a microscope slide, sliced thin (less than a millimeter), and polished. A mica detector plate is placed on the polished surface and the mica/rock "sandwich" is exposed to a neutron flux. Fission products from uranium atoms in the rock fly into the mica plate, drilling a small hole. The hole in the mica plate is then enlarged for microscopic viewing.

LM developed a state-of-the-art fission-tracking facility in the Environmental Sciences Laboratory at its Grand Junction, Colorado, office. A pair of microscopes display the fission-track image next to a standard petrographic image. Identification of mineral phases is enhanced using both reflected and transmitted light sources. Identical areas on

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LM is continually seeking opportunities to protect tomorrow's future. One simple step we can take toward improving environmental consciousness is to distribute the *Program Update* newsletter via e-mail instead of sending a printed copy.

Please send your e-mail 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 1

LM and Mound Science and Energy Museum Provide Public Education

The U.S. Department of Energy Office of Legacy Management (LM) continues its strong partnership with the Mound Science and Energy Museum (MSEM). The two groups work together to educate and inform the public on topics as diverse as past Mound, Ohio, Site operations, current science related to the site's past and LM's institutional controls, and ongoing groundwater monitoring at the site.

The MSEM open house in December 2013 was attended by 180 members of the public, who were treated to updated displays on former Mound site activities, mini-lectures, demonstrations, refreshments, and tours of former polonium areas in the Technical (T) Building. T Building is a unique, underground, former nuclear facility that was remediated for industrial reuse and is leased to the Mound Development Corporation (MDC). An MSEM volunteer and an MDC representative led the tours, and LM contractor employees provided logistic support.

An MSEM volunteer leads one of the many small groups that toured the T Building as part of the MSEM open house.

MSEM presents scientific/technical lectures the fourth Wednesday of every month. The lectures are popular with the public, and average more than 50 attendees at each event. The January and February topics were Hydrogen Storage for Fuel Cell Powered Vehicles and the story of a Russian submarine officer during the Cuban missile crisis. The presenters and the audiences share information at these monthly meetings and both gain from their attendance. For additional information on the MSEM, go to http://www.moundmuseum.com.

Gwen Hooten, LM Mound Site Manager, updates the public on Mound site activities at the January MSEM monthly meeting.

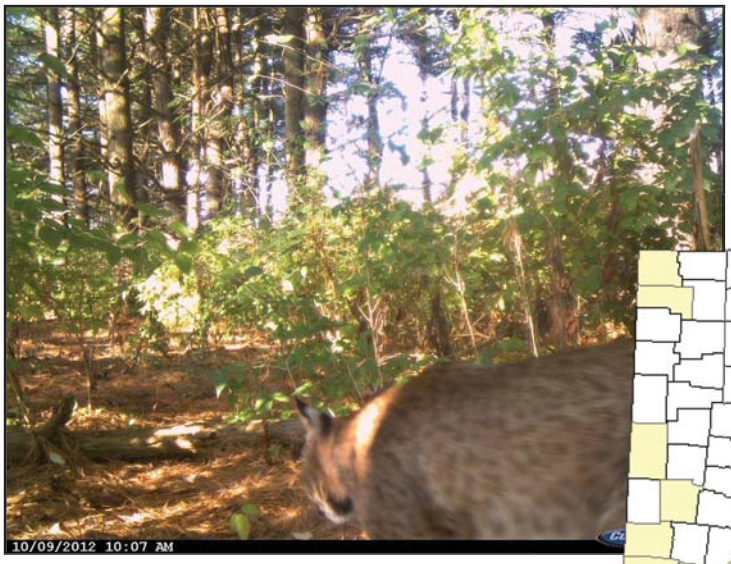
LM provides brief updates on Mound site long-term surveillance and maintenance activities at the monthly meetings. These updates provide LM an open forum to educate and inform the attendees about site remedies including groundwater monitoring, pump and treatment, and institutional controls. ❖

Goal 4

Bobcats at the Fernald Preserve

The Fernald Preserve boasts over 10,000 visitors each year. Lately, many of the visitors to the site have been on the lookout for the elusive bobcat (*Lynx rufus*). Bobcats were found throughout the state of Ohio in early settlement times, primarily concentrated in the large, lowland areas of the southeastern portion of the state. As swamps and lowlands were drained and forests cleared to make way for settlements, the bobcat population declined. By 1850, they were considered absent from the state. From 1850 through the 1960s there were occasional reports of bobcats, mainly in eastern Ohio. Today, however, the re-established bobcat is officially classified as a threatened species in the state and provided full protection under the law.

Seeing a bobcat in the wild is a rare occurrence. They are reclusive, nocturnal animals that avoid developed areas. Sightings in southwest Ohio, where the Fernald Preserve is located, are especially rare. In fall 2012, a site security guard reported seeing a bobcat. Knowing their status in Ohio and thinking that no one would believe him, the guard was reluctant to report the sighting, but site personnel did believe him and placed motion-sensitive trail cameras in areas thought to be favorable habitat for bobcats.



First bobcat photo taken October 9, 2012, by a Fernald Preserve trail camera.

On October 9, 2012, one of those trail cameras snapped a picture of a bobcat (see photo below left). Since then, numerous sightings have been reported by eyewitnesses and trail cameras have taken additional photos and videos of the elusive animal. The reports were the first live, verified sightings of bobcats in Butler County, Ohio.

Since 1970, Ohio Department of Natural Resources Division of Wildlife (DOW) officials have tracked the state's bobcat recovery. The increasing population has resulted in 796 verified bobcat sightings, with most reports made from 2000 to present (see Figure 1); the majority in southeast Ohio (see Figure 2). Reports from 2012 document

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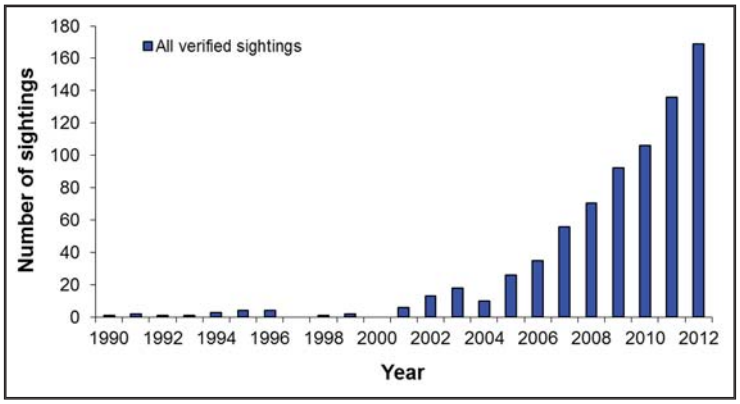

Figure 1. Number of verified bobcat sightings in Ohio from 1990 to 2012. Statistics from Ohio DOW.

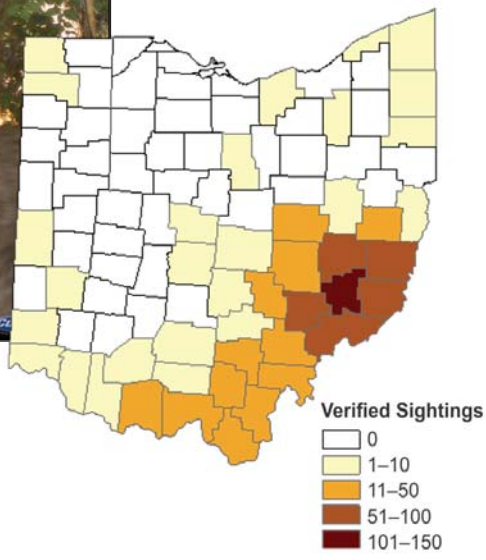

Figure 2. Ohio DOW–verified bobcat sightings in Ohio by county, from 1970 to 2012.

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Bobcats at the Fernald Preserve

90 photographs, 50 roadkills, 11 sightings by Ohio DOW staff or other qualified personnel, 14 incidentally trapped bobcats, 2 observations of tracks, and 2 bobcats that died of unknown causes.

Suzanne Prange, PhD, Ohio DOW Wildlife Research Biologist stated that sightings at the Fernald Preserve are a positive indication of bobcat population recovery in Ohio, "the Fernald videos are wonderful and provide evidence of reproduction, which is very valuable. Yes, bobcats once occurred throughout the state when it was largely forested. I hope they will occur throughout the state again one day, although their distribution will likely be patchy and coincide with patches of forest and good corridors."

Ecological restoration at the Fernald Preserve has established a system of wetland and open-water habitats with supporting woodlands and grasslands. Site restoration was integrated into remediation and final land use, and a series of projects were completed on over 900 acres of the 1,050-acre site. While none of the projects were initiated specifically to promote bobcat habitat at the site, many did improve conditions for the species. Developing native prairies and removing invasive vegetation from woodland areas supported an increase in rodent, small mammal, and bird populations on site. This increase in the bobcat food source, an abundant water supply (ponds, vernal pools, and streams), and denning sites (downed trees, overhangs, constructed brush piles, and abandoned holes) have made the Fernald Preserve an attractive area for bobcats.

Planting projects have expanded site woodland and edge shrubland habitat, increasing the available cover for bobcats. The removal of honeysuckle and other invasive shrubs has improved mobility within these areas. Much of the area is isolated from human activity and adjacent green-space land acts as an extension of the site. It's no wonder that these felines are finding the Fernald Preserve a welcoming habitat, and the site is helping to support more than one bobcat.

Bobcat photo taken November 28, 2013, by a Fernald Preserve trail camera.

Valuable information about the bobcats' preferred habitats and den sites will continue to be gathered using trail cameras and tracking. Collected data is evaluated and used to determine where more habitat improvements can be made to support the maximum number of bobcats. Photos and videos also provide insight into the habits and interrelationships of bobcat families.

Fernald Preserve staff will continue to monitor and maintain crucial habitat at the site. Field personnel balance protection of habitat while providing access to the public. Dr. Prange expressed that "bobcats are not a threat to humans and will avoid dogs, so I don't think hikers have anything to worry about in regard to bobcats and safety," assuring us that their presence does not pose any danger to visitors who walk the site trails. ❖

Goal 1

LM Meets with Native Village of Point Hope, Alaska

U.S. Department of Energy (DOE) Office of Legacy Management (LM) federal and contractor staff traveled to Point Hope, Alaska, on March 3, 2014, to consult with officials from the Native Village of Point Hope Tribal Council. They also conducted a public meeting with the residents of Point Hope about cleanup of five test holes that were drilled in the 1960s by the U.S. Geological Survey (USGS) at the Project Chariot site near Cape Thompson, Alaska.

The Plowshare Program was created in 1957 by the U.S. Atomic Energy Commission (AEC), a DOE predecessor agency, to study peaceful uses for atomic energy. As part of that program, Project Chariot began in 1958 when a science team chose Cape Thompson as a potential site to excavate a harbor using a series of nuclear explosions. AEC, with assistance from other state and federal agencies, conducted more than 40 pretest bioenvironmental studies of the Cape Thompson area between 1959 and 1962. Plowshare Program work at the Project Chariot site was canceled because of strong public opposition. No nuclear devices were brought to the Chariot site, and nuclear tests were not conducted at the site.

During the exploratory phase of the project, conducted from 1959 to 1961, USGS drilled four test holes to depths ranging from 600 to 1,200 feet below ground surface. The holes were drilled to conduct studies that would help researchers learn more about subsurface geotechnical conditions, including the depth of permafrost, which extended to approximately 1,000 feet beneath the surface. "Scaling tests" were conducted using high explosives. USGS intended to conduct at least one other test within an additional drill hole. However, the scaling test didn't take place and the hole remains at the site to this day.

Point Hope, Alaska, Town Hall.

LM Site Manager, Mark Kautsky, explains the planned remediation to residents of the Village of Point Hope.

All that is left of the test holes are the steel casings that protrude from the ground and areas of diesel-contaminated soil. "Back in those days, the USGS used refrigerated diesel to improve borehole stability when drilling in arctic regions; consequently, the soil around some of the drill pads contains residual diesel that exceeds the Alaska State standards, and that is what we plan to remediate this summer," said Mark Kautsky, LM Site Manager for the project.

LM is teaming with the U.S. Army Corps of Engineers (USACE)–Alaska District to conduct remediation of the Project Chariot drill-hole sites. An important part of the work process is informing the local village of the intended action and understanding their concerns, in order for the work to flow smoothly. LM federal and contractor staff and two representatives from USACE conducted a community-outreach meeting. The community expressed concerns about whether they would be able to hunt caribou at the site during the planned remediation, and about being able to observe the remediation. The community also has concerns with cancer rates in their village.

Remediation of the site is projected to occur between mid-July and mid-September 2014. ❖

Goal 2

2014 Waste Management Conference

When you hear about the U.S. Department of Energy (DOE) Office of Legacy Management (LM), what comes to mind? Is it long-term surveillance and maintenance (LTS&M) activities such as conducting environmental monitoring, performing annual inspections, or maintaining protective remedies? Is it managing records and making them available to requesters? Is it managing legacy land and assets or emphasizing safety, reuse, and disposition?

If any of those activities come to mind, you are probably familiar with LM's role in fulfilling DOE's post-closure responsibilities and ensuring the future protection of human health and the environment. However, the depth of LM's involvement may surprise you.

LM is responsible for more than just the routine collection of samples, inspections, and records management for over 80 sites. Recent LTS&M activities have involved procuring the services of two oceangoing research vessels, including divers, for environmental monitoring at the Amchitka site in Alaska; installing a new, 1,000-foot deep monitoring well at the Central Nevada Test Area site; and injecting emulsified soybean oil at the Pinellas County, Florida, Site, to enhance biodegradation of chlorinated volatile organic compounds, or CVOCs.

As part of their Archive Information and Records Management responsibilities, LM completed a project that digitized close to 400,000 medical x-rays of former DOE contractor employees. The project involved scanning x-ray images and converting them to an acceptable digital format. The digitization of records ensures their long-term preservation and assists with expedient retrieval of information when requests for LM records are received.

At the 2014 Waste Management Conference held in Phoenix, Arizona, March 2 through 6, members of the LM management team presented a panel on the above responsibilities, and more. Day two of the conference was set aside for presentations on the past, present, and future of LM. Technical papers on Site Transitions, the Formerly Utilized Sites Remedial Action Program Strategy, Managing Public Concern about Health Risks, the Defense-Related Abandoned Uranium Mines Report to Congress, Next Generation GEMS, and Remediating Groundwater at Uranium Mill Tailings Radiation Control Act Sites were given by LM management. Both the panel and the technical papers sessions were attended by approximately 50 people. ❖

Goal 5

FY 2015 Budget Request

On March 4, 2014, the President of the United States submitted the fiscal year (FY) 2015 budget request to the U.S. Congress. That same day, the U.S. Department of Energy (DOE) briefed the press and the public; and the Office of Legacy Management (LM), in conjunction with its Office of Environmental Management, briefed their stakeholders about their requested budgets.

LM's total request was $172 million, $5 million below the amount put into effect for FY 2014. The requested budget supports LM's mission to fulfill DOE's post-closure responsibilities and ensure the future protection of human health and the environment.

FY 2015 funding will begin on October 1, 2014, and support LM's five goals as follows:

Goal 1: Protect Human Health and the Environment .....$48 million
(includes $1.3 million for Environmental Justice program activities)

Goal 2: Preserve, Protect, and Share Records and Information.....$14 million

Goal 3: Meet Commitments to the Contractor Workforce .....$88 million

Goal 4: Optimize the Use of Land and Assets.....$9 million

Goal 5: Sustain Management Excellence.....$13 million

LM staff presented information related to its goals and responsibilities at the 2014 Waste Management Conference.

SAVE THE DATE

Mound Reindustrialization Workshop

U.S. DEPARTMENT OF ENERGY | Legacy Management

WHEN: **Tuesday, May 20, 2014**
8:30 a.m. to 4:30 p.m.
Wednesday, May 21, 2014
8:30 a.m. to noon

WHERE: Mound Development Corporation
Mound Advanced Technology Center
480 Vantage Point, Miamisburg, Ohio

You are invited to the Mound Reindustrialization Workshop at the Mound Advanced Technology Center in Miamisburg. A full day of presentations will take place May 20 and a half-day tour of the Mound site will be offered on May 21.

The challenges of reindustrialization will be explored through topics such as the Energy Park and redevelopment at Mound, updates to asset revitalization initiatives, the Title 10 *Code of Federal Regulations*, Part 770 final rule, and other topics pertaining to redevelopment.

Mound Development Corporation also invites you to attend a dinner event on May 20 to celebrate their accomplishments and usher in their marketing strategies for the future.

RSVP to Mound@lm.doe.gov by Wednesday, April 30.

For more information about the workshop, please contact Gwen Hooten by e-mail at gwen.hooten@lm.doe.gov, or by phone at (720) 880-4349.

Co-hosted by U.S. Department of Energy Office of Legacy Management and the Mound Development Corporation

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DOE Celebrates 20-Year Anniversary of Executive Order 12898 on Environmental Justice

A reception on the evening of March 27, during the 2014 National Environmental Justice Conference and Training Program, was held to celebrate this notable anniversary. More than 380 conference participants attended. DOE will also conduct a special program later this year to commemorate the anniversary.

In keeping with President Obama's Proclamation of February 11, 2014, and the 20-year anniversary of EO 12898, DOE is committed to the charge for all Americans to move forward with the same unity, energy, and passion to live up to the promise that in America, no matter who you are or where you come from, you can pursue your dreams in a safe and just environment.

For more information on any of the activities contact Melinda Downing at melinda.downing@hq.doe.gov. ❖

Goal 2

Morgantown Records and IT Personnel Coordinate for Disaster Exercise

U.S. Department of Energy Office of Legacy Management (LM) Records and Information Technology (IT) personnel participated in a simulated Records Emergency Recovery Exercise at the LM Business Center (LMBC) in Morgantown, West Virginia, in early February 2014. The intent of the tabletop exercise was to challenge participants with out-of-the-ordinary situations and assess their reactions. The goal was to improve cross-functional communications, enhance employee understanding of requirements and capabilities, and fine-tune records management and IT procedures.

Part of the exercise tasked Records and IT staff with developing alternate methods for responding to records requests during an extended computer network outage that severed LM's connectivity to the Internet. Evaluation and support team members developed a scenario involving unanticipated Internet disruptions that affected all incoming and outgoing Internet-based communication to the LMBC. Participants were then tasked with coordinating solutions for responding and transmitting requests for information to various LM stakeholders.

The exercise was designed to determine the degree to which a network service outage would adversely affect LM's ability to respond to litigation claims, Freedom of Information Act requests, and other related tasks. Records personnel acknowledged that an outage like that being simulated would affect their normal request processing activities. However, they were able to propose alternate methods of completing tasks and meeting statutory requirements.

According to Doc Parks, LM Program Analyst at the LMBC, one of the primary goals of the exercise was to measure how effectively Records and IT communicated the issues faced by each department and how well they problem-solved and coordinated to find acceptable workarounds until network service was restored.

In previous years, the Records Emergency Recovery Exercise was focused on scenarios where records were lost, damaged, or endangered due to a disaster, culminating in the need for compliance with LM's disaster plans. The current exercise was structured around the IT staff's ability to alert affected LM users of the network outages and the Records staff's ability to find alternate solutions for responding to requests during the outage, while fielding new requests from stakeholders.

Mr. Parks said he believed the experience would result in measures LM can take to further ensure efficient and effective records processing, even during unpredictable, stressful, and demanding situations. ❖

LM contractor and federal staff discuss IT considerations during the recent exercise.

Doc Parks (right) speaks with participants of the Records Emergency Recovery Exercise at the LMBC.

Goal 1

2014 National Environmental Justice Conference and Training Program

The Board of Directors for the National Environmental Justice Conference, Inc. held the 2014 National Environmental Justice Conference and Training Program in Washington, DC, March 26 through 28, 2014. The U.S. Department of Energy (DOE); along with the U.S. Forest Service, the U.S. Environmental Protection Agency (EPA), the Fish and Wildlife Service, and Howard University School of Law; sponsored the event that brought together members of government, academia, Tribal Nations, community, and business leaders to share ideas and discuss common, environmental-related issues.

The Grand Opening Plenary Session and the Welcome Reception were held on day one at Howard University School of Law. The opening plenary addressed the implementation of Executive Order 13650, "Improving Chemical Facility Safety and Security," signed by President Obama in August 2013. Mathy Stanislaus, Assistant Administrator for Solid Waste and Emergency Response at EPA, provided the keynote address. He was followed by a panel comprised of members from environmental advocacy groups, the American Chemical Council, and United Steelworkers.

Honorable Congressman James E. Clyburn (Democrat, South Carolina) was the Keynote Speaker on day two of the conference. He was joined by Honorable Congresswoman Donna Christensen, M.D. (U.S. Virgin Islands); DOE Deputy Under Secretary David Klaus; and U.S. Department of Agriculture Deputy Under Secretary Arthur Blazer.

Conference attendees could participate in a 2-day Training and Technical Assistance Workshop track that offered face-to-face EJ training, grant writing, and technical assistance. In addition, the track included training titled "Developing the Framework for Leadership and Change in Communities with Environmental Justice Concerns," and a workshop on "Exploring Environmental Justice Stakeholders' Use and Awareness of Online Environmental Information Geographic Information Systems (GIS) Mapping Web Sites."

This year's conference also honored the 20-year anniversary of Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." In recognition of this historic milestone, a celebratory program and reception was held the evening of March 27, and awards were presented to several pioneers of the EJ movement. Individual Pioneer award recipients were Dollie Burwell from Warren County, North Carolina, and Harold Mitchell from Spartanburg, South Carolina. The Organization Pioneer award went to the Massie Chairs of Excellence.

More than 380 attendees from across government, business, academia, and communities came together to share views and challenges, and to discuss solutions for one very important topic: environmental justice. ❖

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LM Issues the Final Programmatic Environmental Impact Statement on the Uranium Leasing Program

After conducting the environmental analysis that complies with NEPA, the Endangered Species Act, and all other governing statutes and regulations, DOE may ask the court to dissolve its injunction.

During the evaluation, DOE conducted a 109-day public comment period, held 4 public meetings in southwestern Colorado, and considered all public comments on the draft in preparing the PEIS. DOE will issue a Record of Decision no sooner than April 21, 2014. ❖

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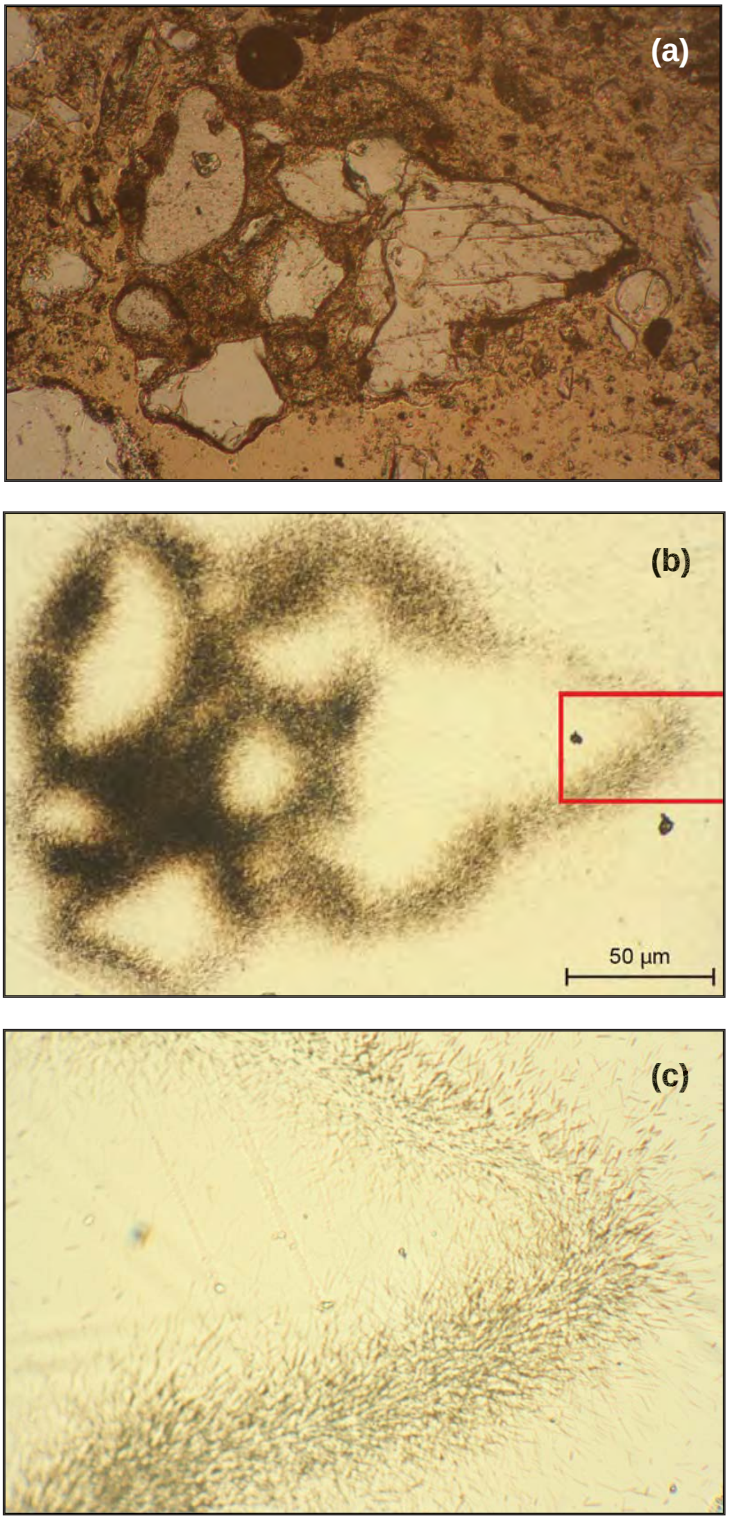
Tracking Uranium Atoms

each of the two images are located using caliper stages. With these tools, the distribution of uranium can be mapped, and associations with various minerals can be determined.

The images at the right show that high density tracks can be clearly seen in the mineral matter that cements sedimentary grains. The petrographic image shows that the tracks are associated with the fine-grained matrix, likely a mixture of very fine-grained clay and iron hydroxide minerals. Similar fission-track images were made on core samples collected throughout the contaminant plume at an LM site. Fission-track results suggest that most of the contaminant uranium attaches to surface adsorption sites of iron oxyhydroxide minerals. The results are used in groundwater transport models to help predict cleanup rates. The rates vary depending on the chemical interactions that occur. Based on the associations with iron hydroxide, a groundwater model relying on uranium adsorbing to the rock via surface complexes would be preferred over one relying on reduced-phase uranium-mineral precipitation. Flow models can indicate different cleanup rates for these different chemical models.

New, more sophisticated methods of modeling the fate and transport of uranium in the groundwater will be used by LM to improve predictions of cleanup at LM sites. This old method of determining uranium-mineral associations will help guide these efforts and increase our ability to manage LM groundwater sites for the long term. ❖



(a) Photomicrograph, (b) corresponding fission-track map, and (c) enlargement of boxed area from (b). Individual fission events (tracks) are seen on (c). Tracked areas composed of uranium are associated with red-colored, grain-cementing matrix matter.

Anticipated Legacy Management Sites Through Fiscal Year (FY) 2020

Legacy Management Goals and Objectives

Goal 1. Protect human health and the environment

Objectives

1. Comply with environmental laws and regulations.
2. Reduce health risks and long-term surveillance and maintenance (LTS&M) costs.
3. Partner with other Federal programs to make environmental remedies better and last longer.
4. Oversee DOE implementation of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

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

Objectives

1. Meet public expectations for outreach activities.
2. Protect records and make them accessible.
3. Protect and ensure access to information.

Goal 3. Meet commitments to the contractor work force

Objectives

1. Safeguard contractor pension plans.
2. Fund contractor health and life insurance.

Goal 4. Optimize the use of land and assets

Objectives

1. Optimize public use of Federal lands and properties.
2. Transfer excess government property.
3. Improve domestic uranium mining and milling operations.

Goal 5. Sustain management excellence

Objectives

1. Renew LM's designation as a high performing organization (HPO).
2. Implement LM's *Human Capital Management Plan*.
3. Operate in a sustainable manner and reduce LM's carbon footprint.

U.S. DEPARTMENT OF ENERGY | Legacy Management

1000 Independence Avenue, SW
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Program Update

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