Tailings Times

March 2006
Volume 1, Issue 1

MOAB UTAH
UMTRA Project

Message From the Federal Project Director

Welcome to the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project newsletter, *Tailings Times*. The U.S. Department of Energy (DOE) Office of Environmental Management in Grand Junction, Colorado, is preparing to relocate the approximately 16-million-ton uranium mill tailings pile located near Moab, Utah, to a permanent disposal site near Crescent Junction, Utah.

We created this newsletter as another way to keep you updated on our progress. In this first issue, we'll give you a status of some ongoing activities in preparation for moving the tailings, tell you about an upcoming construction project associated with our use of the Colorado River water, and introduce you to some project personnel. We are working hard to wisely spend the $28 million we received in funding this fiscal year to accomplish the many activities we have planned.

Don Metzler, Federal Project Director

We hope you find the newsletter to be interesting as well as informative.

Donald Metzler
Moab Federal Project Director

What Is That Pile Anyway?

That "pile" is part of the DOE Moab UMTRA Project site, which is located approximately 3 miles northwest of the city of Moab in Grand County, Utah, and includes the former Atlas Minerals Corporation uranium-ore processing facility. The site is situated on the west bank of the Colorado River at the confluence with Moab Wash. The site encompasses approximately 400 acres; a 130-acre uranium mill tailings pile occupies much of the western portion of the site.

DOE published a final Environmental Impact Statement (EIS) in July 2005 that presented a detailed evaluation of a proposed on-site and three off-site alternatives for permanent disposal of the uranium mill tailings pile. The proposed alternatives also included cleanup and reclamation of the millsite property and certain off-site properties known as vicinity properties. The final EIS included the preferred alternatives of active ground water remediation and off-site disposal of the tailings pile and

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Who's Running the Show?

Donald Metzler, the Moab Federal Project Director, reports to Sandra Johnson, Director of the Western Sites Project Office, at DOE Headquarters in Washington, DC. As the Director, Sandra is responsible for all the DOE Office of Environmental Management (EM) projects at non-EM Program Sites Offices, which encompass approximately 12 sites in the Western United States. She has a Bachelor of Science degree in mechanical engineering. Prior to this position, Sandra was the Director of the Office of Safety and Engineering for the Assistant Secretary of EM. During her 17-year career with DOE, she has been responsible for nuclear facility operations and setting safety, health, and quality policy requirements and standards. Sandra is a proponent of self-assessments to determine potential safety vulnerabilities and has implemented programs to actively involve workers in planning and establishing safety policies.

Although Sandra has other projects under her purview, she is very much an advocate for ensuring that the Moab Project continues to be funded and moves forward. "The Moab Project has made tremendous progress in the past 2 years, as noted by the issuance of the Environmental Impact Statement and Record of Decision," said Sandra. Sandra spearheaded the effort within DOE to accelerate approval to move the pile.

She is keenly aware of and interested in local citizens' concerns and issues related to the Moab Project. "This project has every possibility of being one of EM's most successful projects. We must not lose momentum on our progress."

The Moab Project staff members appreciate the support and energy Sandra has brought to the project.

What Is That Pile Anyway?

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other contaminated materials at the proposed Crescent Junction, Utah, disposal site using predominantly rail transportation. DOE issued the Record of Decision in September 2005 that detailed the selection of the preferred alternatives and the basis for those decisions.

DOE has begun taking steps toward relocation and permanent disposal of the pile. Some of these steps include characterizing the Moab and Crescent Junction sites, building necessary infrastructure, coordinating transportation logistics, hiring appropriate personnel, and awarding contracts to perform the work. DOE is also performing ongoing site operations and maintenance activities, consisting of maintaining site access controls, conducting radiological assessments and environmental monitoring, dewatering and stabilizing the uranium mill tailings pile, and implementing cleanup of the ground water to address elevated ammonia levels and other contaminants.

What's In This Issue?

Tailings Times is published periodically by the U.S. Department of Energy Office of Environmental Management at Grand Junction, Colorado, to inform stakeholders of progress to date on the Moab UMTRA Project and plans for future activities.

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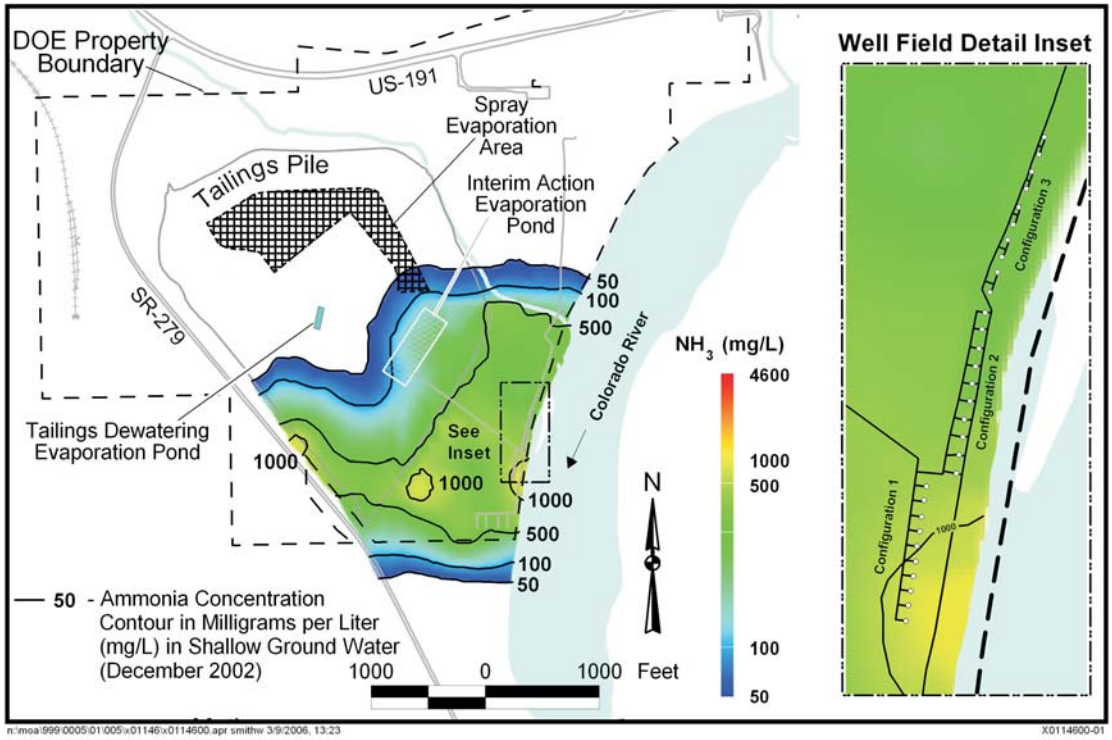
Protecting the Colorado River Now

In 2003, DOE implemented the first phase of an interim action system at the site to address concerns regarding elevated ammonia (NH_3) levels in ground water while it evaluates long-term solutions to site contamination. Referred to as Configuration 1, the first phase consisted of 10 closely spaced extraction wells designed to remove contaminant mass (ammonia) from the ground water system before it discharges to critical habitat areas of the Colorado River (see figure below). Since then, two additional configurations of 10 dual-purpose extraction and fresh water injection wells have been installed north of Configuration 1. The objective of fresh water injection is to create a subsurface mound of fresh water that would provide a hydraulic barrier between the ammonia plume and the river.

Ground water is extracted through Configuration 1 and Configuration 3 wells from the shallow aquifer and pumped via pipeline to an approximately 4-acre, lined evaporation pond that was constructed on top of the tailings pile. A sprinkler system (spray evaporation system) was installed on top of the tailings pile and later expanded to operate in conjunction with the evaporation pond. The sprinkler system is designed to enhance evaporation of the extracted water and also to suppress dust. The combined 28 acres of sprinklers has more than doubled the evaporative capacity of the existing interim action system.

Interim remedial action sprinkler system in operation on top of tailings pile.

This interim action is not intended as a long-term activity; however, the effectiveness of the system is being evaluated and it may eventually become part of the final ground water remedy.



Ground water interim remedial action system components treat ground water contamination at the Moab site.

Environmentally Friendly Facelift for River Pump Station

These river pumps will be replaced with more energy-efficient pumps.

The existing river water pump station and associated pipeline trestle at the Moab site are among the original millsite structures and are eligible for inclusion on the National Register of Historic Places. Because the pump station and trestle are almost 50 years old, DOE is preparing to refurbish the pump station and replace the trestle with an underground pipeline. The trestle has been demolished along with the old piping on it. Because of their historical value, these structures were thoroughly documented with photographs and drawings before any work was performed.

The pump station, which is located next to the Colorado River on the northeast side of the site, pumps river water to the site for construction water purposes, irrigation water, and injection of fresh water into the ground water interim action system. The pump station will be cleaned and painted, and the pumps, valves, discharge pipeline, controls, and lighting will be replaced. Because the replacement pumps are newer, they will require less horsepower and provide more water flow than the existing pumps; therefore, they will be much more energy efficient than the former pumps.

The contaminated soils have been remediated at the former trestle location, around the pump station, and at the river water storage pond location. To keep river water from entering the pump station inlet during remediation and reconstruction, a temporary cofferdam was constructed in the river with minimal environmental disturbances to the river.

Trestle bearing a pipeline from the river pump station was demolished and will be replaced with an underground pipeline.

The existing river water storage pond, located inland west of the pump station, is undersized for current and future needs of the site and has become contaminated and full of sediment over the years. This pond will be remediated during the interim soils remediation work being performed at the site. A new storage pond will be constructed adjacent to the existing one. The new pond will be deeper to slow the evaporation rate of the water and allow more conservation of water. This pond will be lined with a geosynthetic clay liner (GCL) with a layer of soil placed over it instead of a geomembrane (plastic) liner that is more visible. When water contacts the clay (bentonite), it causes the clay to expand and thus seals the bottom of the pond. “From the surface, the GCL liner makes the pond look like it's lined with dirt and, therefore, is more aesthetically pleasing,” says Dan Nordeen, contractor Project Engineer. “After the site has been remediated, the pond can easily be converted to a wetlands area if desired.” The pump station refurbishment and pond construction work should be completed by early summer.

Interim Soils Cleanup and Revegetation Efforts

To support remediation and the site cleanup design, DOE assessed Moab site soils for radiological contamination last spring. This assessment provided a general sense of where the highest concentrations of radiological contaminants in soil exist. Interim soils remediation is part of DOE's cleanup strategy and one of the ongoing measures to address contamination resulting from historical uranium-ore processing at the site and to reduce potential health and environmental risks.

DOE has been cleaning up radiologically contaminated soil in the non-pile areas of the project site and hauling it to the top of the tailings pile. All site soils are cleaned up to applicable U.S. Environmental Protection Agency standards. The weight of the excavated soils on the pile serves both to consolidate the tailings and to extract water. To date, approximately 140,000 cubic yards of soil has been removed, resulting in a reduction of the contaminated footprint by 41 acres. The figure below shows the extent and estimated depth of contamination

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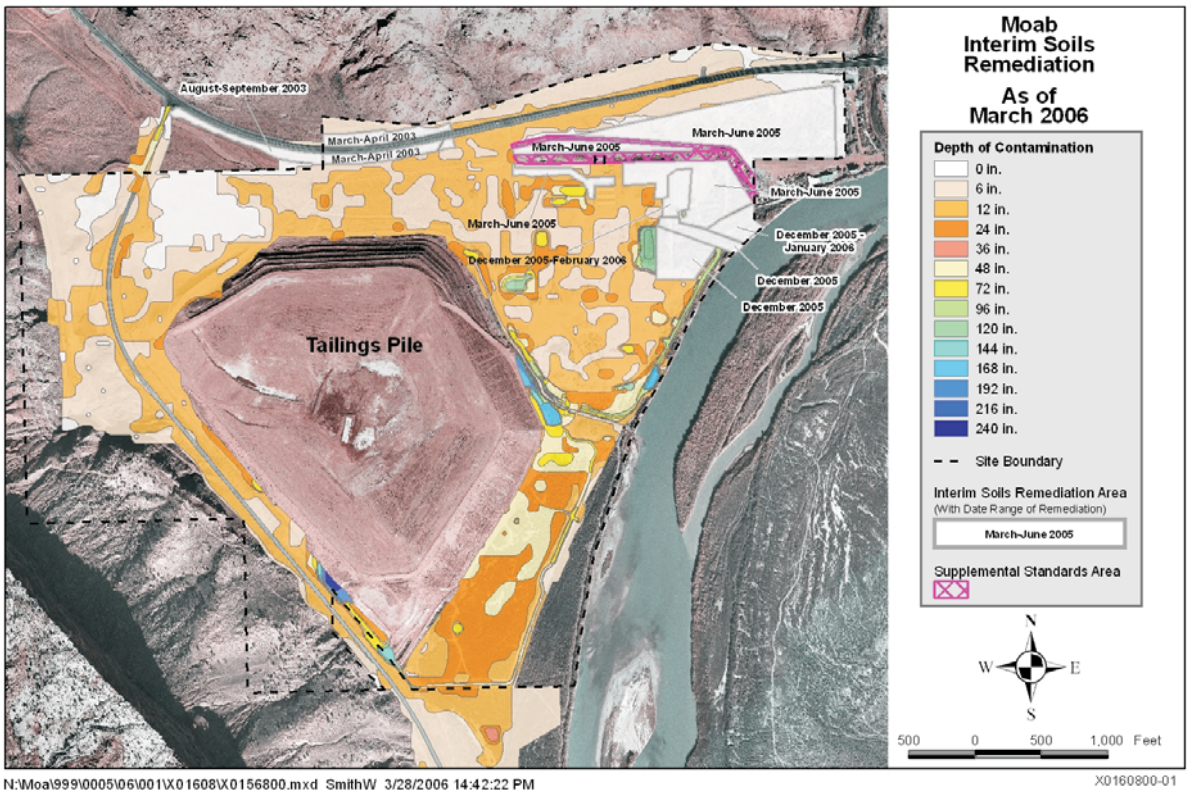
First-year plant growth is shown in an area seeded with grasses and planted with young cottonwood trees.



This figure shows the extent of interim soils remediation and the dates of remediation at the Moab site as of February 2006.

Air Quality and You

DOE understands citizens' concerns about the quality of the air they breathe and what effect opening up the tailings pile to relocate the tailings may have on air quality. DOE monitors air quality parameters at a number of monitoring stations placed on the site, at the boundary of the site, and in key off-site locations, including the closest residential location to the Moab site. The monitored residential location, known as the Maximally Exposed Individual (MEI), is the off-site location considered to have the greatest potential for radiation exposure. Important air quality parameters include radon concentration, radioparticulate concentration, and fugitive dust.

Outdoor Radon Monitoring

Radon is a naturally occurring inert gas that is produced by the radioactive decay of radium in soil. DOE measures radon concentrations in air with a system of radon monitoring stations: 13 are located on the Moab site and 11 are at off-site locations. DOE has implemented a long-term concentration guideline level of 3.0 picocuries per liter (pCi/L) above background for radon at locations beyond the Moab site boundary. The background radon concentration for the Moab area fluctuates during the year and was 0.7 pCi/L during the third quarter of 2005 (ended October 2005).

Monitoring results show that radon concentrations at some on-site monitoring locations are higher than 3.7 pCi/L, but these results are common for an unremediated tailings pile. None of the measurements at off-site radon monitoring locations, including the MEI, exceed the DOE guideline. The MEI measured 1.5 pCi/L radon during the third quarter of 2005. Although other off-site locations show a measurable concentration of radon, the MEI represents the worst-case scenario with respect to radon exposure.

Because radon exposures at the MEI are within the guideline, citizens who spend relatively short periods of time near the site boundary, for example rafting on the Colorado River or mountain biking along Potash Road, need not be concerned about exposure to radon. The campgrounds located near the Moab site are also a safe distance from the tailings pile. Radon monitoring data collected upwind of the campground location show that radon concentrations in the vicinity are indistinguishable from background, indicating that the tailings pile has little discernable effect on radon concentrations at the campground.

Indoor Radon Monitoring

In 2003, DOE began monitoring indoor radon levels at the MEI location. Concentrations at this location have not exceeded the U.S. Environmental Protection Agency standard for indoor radon.

Last fall, DOE added indoor radon monitoring equipment at one residence in Crescent Junction, Utah, across the interstate from the disposal site and at one residence in Thompson Springs, Utah. By beginning the monitoring program at these locations now, DOE can establish baseline air quality conditions for these areas.

DOE will continue to monitor radon levels at the Moab site boundary, in the town of Moab, at the MEI, and at

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Calcium chloride is applied at the project site to control fugitive dust.

Interim Soils Cleanup and Revegetation Efforts Continued From Page 5

in the assessed areas, the areas that have been remediated, and the date range when each remediation occurred.

As non-pile soils are remediated, we are replanting native plant communities in those areas. The northeast portion of the site was seeded with grasses and shrubs and planted with young cottonwood trees. Just south of that area, willows, cottonwoods, grasses, flowers, and shrubs were planted. Additional areas are being targeted for revegetation this spring and summer.

In addition to these revegetation efforts, DOE planted a hedgerow of 200 native cottonwood trees along the northern site boundary from the site entrance to the eastern site boundary. It is our hope that these trees will someday improve the aesthetics of the site as viewed from Highway 191.

Tamarisk (salt cedar) is an exotic, invasive shrub that has largely displaced desirable riparian species at the Moab site. DOE is replacing tamarisk with native plant communities across the site. In early 2005, tamarisk plants in the northeast portion of the site were cut and shredded with customized equipment; the remaining stumps were then spot sprayed with herbicide. Later, in other areas, entire tamarisk plants (including roots) were removed with track hoe equipment.

Air Quality and You Continued From Page 6

residences in Crescent Junction and Thompson Springs throughout the cleanup phase of the project.

Radioparticulate Monitoring

DOE also monitors radioparticulates at nine stations (two on site and seven off site) to determine if particulate mill tailings are becoming airborne. No standards or radiological exposure limits have been exceeded at any of the nine radioparticulate monitoring locations since DOE began monitoring for radioparticulates in 2002.

Fugitive Dust

Another air quality issue that DOE is addressing is fugitive dust emissions. DOE consistently controls fugitive dust emissions from the site in compliance with State of Utah regulations. At the Moab site, calcium chloride (a common dust control agent used on dirt roads) and water are used to control generation of airborne dust. Critical areas of the site are periodically wetted with the interim action sprinkler system, while calcium chloride is applied to areas not watered by the sprinkler system.

DOE also manages dust emissions through administrative controls, such as imposing speed limits on site. During remediation of the pile, the potential for dust emissions will increase. DOE has been successful at controlling the generation of fugitive dust at other mill tailings sites by applying water and calcium chloride to the tailings. During removal of the tailings, DOE will continue to emphasize the management of fugitive dust. DOE's goal is to continue to comply with State of Utah rules for controlling fugitive dust emissions.

Air monitoring results are published quarterly and are available on the DOE Moab UMTRA Project website at **http://gj.em.doe.gov/moab** and in the reading rooms listed at the end of this newsletter.

Where Are the Tailings Going?

DOE selected the Crescent Junction site for permanent disposal of the uranium mill tailings and other contaminated materials from the former millsite and vicinity properties in Moab. DOE requested a 5-year temporary withdrawal of approximately 2,300 acres of public domain lands near Crescent Junction for construction of the disposal cell and surrounding buffer zone, as well as areas needed for construction support purposes. The Assistant Secretary of the U.S. Department of the Interior approved DOE's request in November 2005.

DOE is currently in the process of characterizing the Crescent Junction site (see figure below) to determine the exact location and surface dimensions of the disposal cell. DOE drilled ten 300-foot holes within the temporary withdrawal area for the disposal cell to obtain core from the Mancos Shale to determine its geotechnical and hydrologic properties. The core obtained from Crescent Junction confirmed DOE's premise that the site is a geologically suitable location for the disposal cell. The shale is more than 2,000 feet thick below the site and would geologically isolate the disposal cell from deeper ground water.

DOE requested temporary withdrawal of the entire area with the intent of incrementally relinquishing areas back to public domain as they are no longer required for construction support purposes. During the first 5-year with-drawal period, DOE will determine the extent of the final disposal cell footprint and buffer zone and will apply for a permanent land withdrawal of the necessary area.

The preliminary outline of the disposal cell location and buffer zone and the estimated boundary of the

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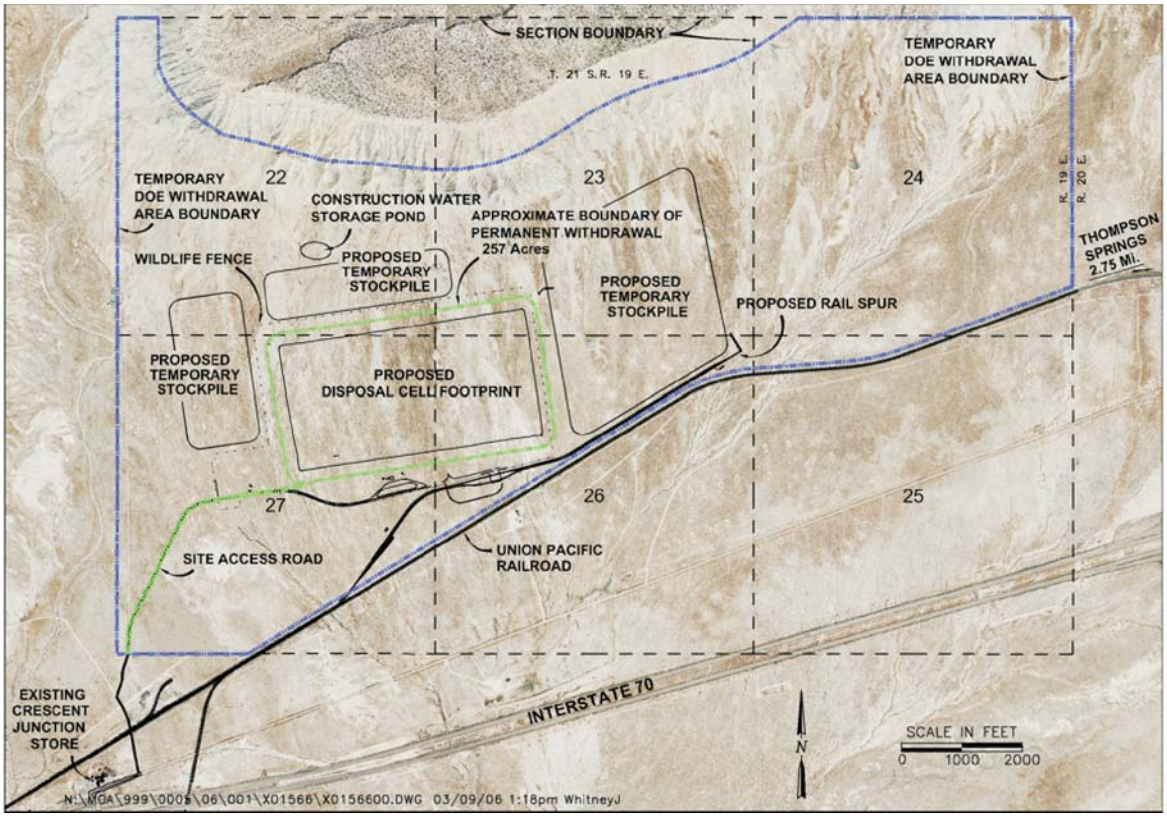


Preliminary Crescent Junction disposal cell location and permanent withdrawal area.

What's Next?

DOE is preparing preliminary designs that describe how the surface contamination will be cleaned up. To help with preparation of these designs, a value engineering session was conducted in late February in which strategies for relocating the mill tailings to the Crescent Junction disposal site were discussed. "We went through a pretty intense six-step process during the session and discussed every aspect from excavation of the tailings, to conveying them to the railcars, to disposition of the tailings in the cell," said Greg Lord, contractor Lead Design Engineer.

The objective of the value engineering session was to develop the preferred recommendations and the path forward to enable the safe and efficient excavation, transportation, and disposal of the mill tailings. Considerations included mitigating personnel and environmental hazards, facilitating contract and regulatory compliance, optimizing the efficiencies of the operations and maintenance, and overall cost and schedule.

The Record of Decision issued last fall selected rail as the predominant means of transporting the contaminated materials 30 miles north to Crescent Junction for disposal. The value engineering team identified several areas of improvement for the proposed pipe conveyance system to transport the tailings from the pile to gondola railcars. The team also evaluated the tried-and-true intermodal method of using trucks to load containers onto flatbed railcars rather than using a pipe conveyor and gondola railcars. The team determined that both approaches to conveyance and rail containment are feasible, with the container and truck method showing more promise in the start-up phase of the project.

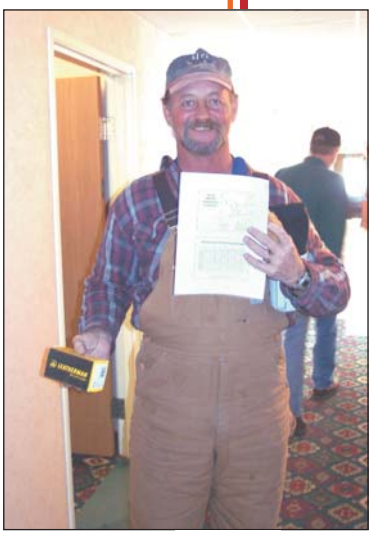
Oversized materials that cannot be conveyed with railcars will be hauled by truck on Highway 191 to the disposal site. The truck trailers will be covered with tarps to prevent dust and debris from blowing off the trucks.

Among the nearly 20 participants were DOE and contractor representatives, people with UMTRA Project experience, and experts in construction, materials handling, design engineering, and the railroad industries. We even brought in a German engineer who deals with similar mill tailings projects in Germany. The value engineering session was productive and opened up avenues to pursue options previously not considered.

Value Engineering participants (clockwise from front center): Roman Popielak of Golder Associates, John Elmer and Ken Karp of S.M. Stoller Corporation, Frank Bosiljevac of the DOE office in Albuquerque, Roger Milroy of Gannett Fleming, and Irwin Stewart of S.M. Stoller Corporation.

"Our next big task is to complete the acquisition strategy for placement of contracts to perform the remediation work," said Sandra Johnson, DOE Director of the Western States Project Office.

Working Safely Is Our Goal . . . Do It for Life!



Alan Manson, a Stoller employee, received a safety incentive award in January.

At DOE, safety is not just a slogan, it's the way we do business. We developed an Integrated Safety Management Program so that the environment, health, and safety are integrated into our work planning and execution at all levels. Each employee also has authority to stop work if he or she sees an unsafe activity or working condition. We are proud of our safety record of more than 1,000 days (and counting) without a work-related lost-time injury or illness. DOE and Stoller recently implemented a safety incentive program to enhance the safety culture and to encourage employees to make safety their number one priority. Each month, employees who demonstrate a safety first attitude will be recognized.

We'd like to introduce you to a couple of employees who received safety incentive awards in January.

Alan Manson is a Stoller employee who found a piece of rebar in the work area extending about 6 inches above the soil surface. Rather than ignoring the hazard, he dug it up, pulling almost 9 feet of rebar from the subsurface and, thus, eliminated a tire and tripping hazard.

Dusty Wilson works for Ksue Corporation, one of Stoller's subcontractors. Dusty has demonstrated an outstanding safety attitude in the operation of the track hoe, particularly near power lines. He watches for personnel in the vicinity of the work area, stopping when he thinks people are about to enter the swing radius of the track hoe.

Jobs, Jobs, Jobs

The recent resurgence of uranium mining activities and oil and gas drilling on the Colorado Plateau has helped lower the unemployment rate in parts of Utah and Colorado. The Moab UMTRA Project is also staffing up in some disciplines; however, the bulk of hiring for construction-related jobs is anticipated to occur in 2007.

DOE encourages local hiring by its contractors and subcontractors. S.M. Stoller Corporation (Stoller) is the prime contractor to the DOE Office of Environmental Management in Grand Junction, Colorado. Stoller currently employs 22 people at the Moab site, of which 40 percent are Moab residents. An additional 15 employees at the site work for local subcontractors Ksue Corporation and Mogensen Electric. Classified advertisements for open positions with Stoller will be placed in the *Moab Times-Independent*. Job seekers may also call the Moab job line at 1–800–637–4575 and select option 2 or visit our Employment Opportunities web page at **http://gj.em.doe.gov/moab/additional_info/add_info.htm**.

Where Are the Tailings Going?

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permanent withdrawal area are shown on page 8. Approximately 260 acres will be part of the permanent withdrawal that will include the cell, buffer area, and access road. The cell will be aligned in a general west-to-east direction and will be excavated approximately 20 feet into the existing grade. The aboveground height of the contaminated materials is estimated to be 20 feet with an additional 6 feet of cover. The disposal cell location and permanent withdrawal boundary could change during the conceptual design phase; however, DOE believes this figure is an accurate representation based on current information.

How Do I Get Information About the Project?

For more information about the Moab UMTRA Project, contact

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You may also call our toll-free hotline at 1–800–637–4575 or send us an email at moabcomments@gjo.doe.gov. Moab UMTRA Project documents are available on the DOE website at **http://gj.em.doe.gov/moab** and at

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Available by appointment:
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