



## Rail Transport By Design

How do you move 16 million tons of uranium mill tailings? One trainload at a time!

The U.S. Department of Energy (DOE) will be moving the mill tailings pile that is located near Moab, Utah, by rail to a permanent disposal site at Crescent Junction, Utah. Steel, intermodal containers will be filled with tailings and carried by truck via an at-grade crossing of State Route 279 (Potash Road) on a dedicated haul road to the rail load out area. The containers will be transferred to railcars for transport to the Crescent Junction disposal site. Mill debris and other oversized materials, such as structural steel, that will not fit into the containers likely will be hauled by over-the-road trucks.

### Transportation Decision

The current schedule for completion of the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project is 2028. The National Defense Authorization Act for Fiscal Year 2008 included an amendment requiring DOE to complete the project by 2019. In assessing the potential effects of this amendment, we evaluated options for transporting the mill tailings in a more expeditious manner. DOE amended its Record of Decision for the project in February to allow more truck transport of the tailings.

In addition, the Remedial Action Contractor (RAC) for the project was asked to prepare an Alternatives Analysis of transportation options. We also reviewed a traffic study commissioned by the Utah Department of Transportation (UDOT) of the U.S. Highway 191 transportation corridor that would be used if the tailings were to be hauled by truck.

On June 5, we held a public meeting to discuss the transportation options and to get input from the community on these options. We appreciate the many comments we received from the roughly 60 people who attended and others who sent in comments afterward. The *Moab Times-Independent* took an informal online poll in early June that asked its readers whether the tailings should be transported by rail or truck. The results of the poll showed 97 percent were in favor of shipping the tailings by rail. The public meeting comments, the poll results, and views we heard from senior citizens when we visited the Grand Center in June were

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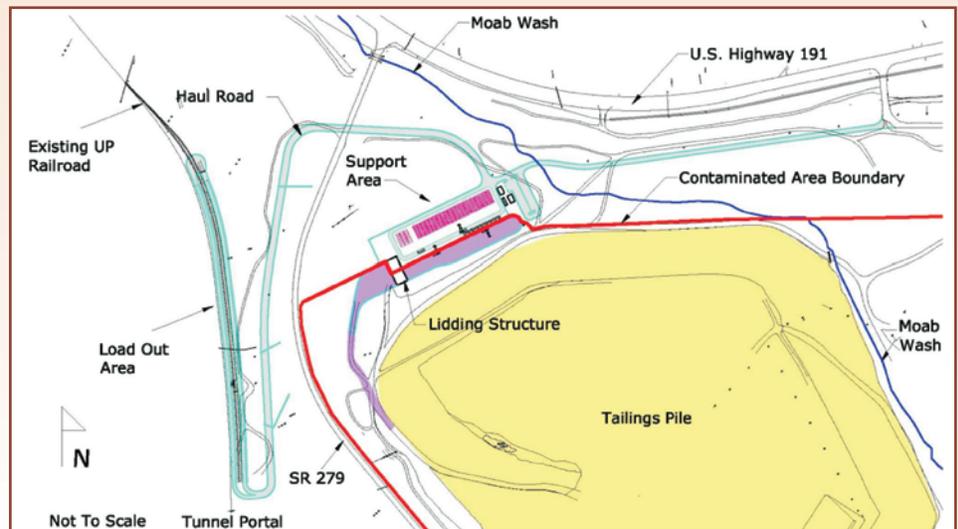


Figure 1. Layout of Moab site tailings removal processes.

## Message From the Federal Project Director

I was pleased to see the great turnout we had at our Open House last August. It was the first time since DOE assumed ownership that the public has been invited to the site. We saw some familiar faces and many new ones in the crowd.

The Open House was held in our conference trailer, and those who were interested were taken to our radiological access-control trailer to see our process for entering and exiting the Contaminated Area. Thank you to all those who came to the Moab site that afternoon. We hope you found the setting comfortable and the event informative and enlightening.

One of the activities we were celebrating at the Open House was the successful transition to our new contractors, EnergySolutions as the RAC and S&K Aerospace, Inc., as the Technical Assistance Contractor (TAC). The Open House provided an opportunity to introduce the new contractors to the community.

To help educate the newer project staff about the legacy of mining activities in the Moab area and about past tailings cleanup efforts, we instituted a brown-bag lunch program this spring. Each month we invite a local expert or long-time resident to share his or her experiences with employees. We alternate the lunches

between the Moab site office and Grand Junction project office. Some of our recent guests have been Carl Dixon, a long-time employee of Atlas Minerals Corporation, the previous owner of the millsite;

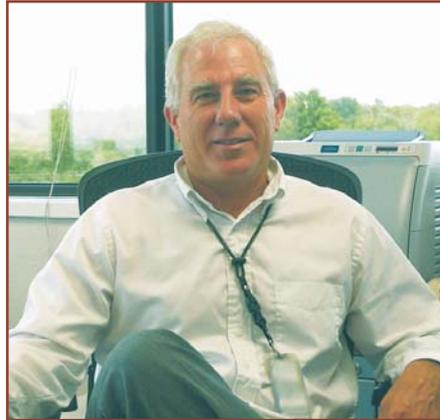
Kevin Clyde, part owner of WW Clyde Construction Company; and Bud Franz and Paul Oliver, both formerly with the Colorado Department of Public Health and Environment. These speakers have been educational and insightful.

I want to introduce a new member of my DOE staff on the Moab Project, Ken Wethington. Ken joined us in July from the DOE Los Alamos National Laboratory in New Mexico. Ken replaced Jeff Parkin as the Crescent Junction Facility Representative. Jeff accepted a position at the DOE

Oakland Project Office in California. I also want to congratulate another member of my staff, Gail Majors, who received a promotion within DOE last February. As the Contracting Officer Representative for the TAC and Program Analyst for the project, Gail's work on the budget, planning, and contracting aspects has been invaluable.

In our last edition of the newsletter (August 2007), we described the scope of the new contracts. In this

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*Donald Metzler, Federal Project Director*

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## Rail Transport By Design (continued from page 1)

overwhelmingly in support of the rail transport method. In August, DOE reaffirmed its prior decision to relocate the mill tailings predominantly by rail.

Although not anticipated to be the primary mode of transportation, DOE may still consider using truck transport under certain circumstances to advance cleanup, such as in the event that a storm significantly affects rail operations. If extended truck transport becomes necessary, DOE would inform the public and coordinate with UDOT on highway upgrades, if any, that would be needed.

### Material Handling

The consistency of the tailings throughout the pile has been compared to that of a jelly donut, where the outer “ring” is mostly dry sands and the inner part consists of wet, clayey “slimes.” There are also transitional materials that are in between. The wet materials will be air-dried and mixed with the drier materials on top of the pile to optimize the moisture content before shipment.

There are two processes at the Moab site involved in getting the tailings to the rail load out area: a container filling process and a rail load out process. Figure 1 on page 1 shows the layout where these processes will be performed.

### Container Filling Process

The container filling process involves loading an empty container on a truck within the Contaminated Area, driving the truck to the top of the tailings pile, top-filling the container through a chute with almost 40 tons of residual radioactive material, and placing the filled container (with a lid) onto a survey rack in the Support Area where a radiological survey of the container exterior is performed. The container is decontaminated, if necessary, and loaded onto a haul truck outside the Contaminated Area that transports it to the rail load out area.

The trucks used in the container filling process will stay within the Contaminated Area to eliminate the need to decontaminate these trucks each time they complete the process. Likewise, the trucks used to haul the material to the rail load out area will stay outside the Contaminated Area.

A lidding structure is being constructed in the Support Area to remove and attach lids to the containers.



*Containers like this will be filled with tailings for transport to the disposal cell.*

The lids are constructed of steel and will fit on top of the containers like a shoebox lid. They are equipped with leak-proof gaskets and automated locking mechanisms. As a safety measure, functions within the lidding structure will be mechanized to the extent possible to avoid having employees perform the functions manually.

### Rail Load Out Process

The current design for the haul road to the rail siding shows sufficient width for two-way traffic. However, the RAC is preparing an alternative design using a one-way road that rejoins at the Potash Road crossing to lessen the impact on the hillside build-out. The road will climb 220 feet (ft) in elevation at a maximum slope of 8 percent. The road will be paved for dust control and longevity.

At the rail load out area, a gantry crane places the filled container onto a railcar. The gantry crane then takes an empty container from a railcar and places it on the truck, which travels back to the Support Area where the container is removed and transferred across the Contamination Area boundary, de-lidded, and readied for refilling. The truck then moves forward to be loaded with another full container to transport to the rail load out area.

The gantry crane will traverse through the course of the day from one end of the rail track to the other removing empty containers from the railcars and replacing them with full containers.

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## Rail Transport By Design (continued from page 3)



*Existing Union Pacific branch line and siding at the Moab site looking south toward tunnel.*

The project noted concerns expressed by Moab residents about bright lights shining on the hillside and will install lights that meet the Grand County Land Use Code.

Last fall, DOE commissioned an independent review of the hillside load out design to determine if construction and operations could be performed safely. The design was modified to incorporate several safety recommendations, such as installing a chain link drapery system on the hillside to control and collect small rockfall.

### Integrated Project Team

DOE established an Integrated Project Team (IPT) in 2005 to maximize project performance. Through the use of multi-disciplined teams, IPTs optimize processes during all phases of a project, from requirements definition through design, production, and operational support. The IPT is led by Donald Metzler, Moab Federal Project Director, and is composed of personnel from other DOE sites with previous UMTRA experience, safety experts, and project cost and schedule specialists. "We are fortunate to have such a competent group of individuals on our team who bring years of experience to the table," said Donald. The IPT met last fall in Grand Junction, Colorado, to hear the status of the designs for the project and to identify and assess project risks. The IPT plans to meet again in late September.

### Schedule and Status of Activities

To meet the schedule of completing the tailings disposal project by 2028 within the existing funding projections, DOE will transport the materials to Crescent Junction in two phases. Phase I consists of

one roundtrip train that runs daily Monday through Friday with at least 17 railcars, each car holding four containers. Phase II consists of one roundtrip train that runs daily Monday through Thursday with 34 railcars, each car holding four containers. The train will leave Moab between 4:00 and 6:00 p.m. on each day of shipment and will arrive in Crescent Junction approximately 90 minutes later.

Phase I shipments will continue through September 2012; Phase II shipments will be performed from October 2012 to March 2027. The estimated number of shipments during Phase I is 930 (68 containers per shipment) and in Phase II is 2,900 (136 containers per shipment).

This spring, construction equipment could be seen working just north of the tailings pile. Crews were remediating 29 acres in preparation for constructing the Support Area for staging containers and performing vehicle maintenance. In addition, several acres along State Route 279 were remediated prior to construction of the haul road to the hillside load out area. A total of about 63,000 cubic yards of contaminated soil was excavated from these two areas and moved to the tailings pile. Construction of Support Area structures is in progress.

The hillside build-out is anticipated to begin this fall and is scheduled to be completed by late spring 2009, barring any weather or other unforeseen delays. The RAC will be ready to commence the hauling of tailings within one month after the rail infrastructure is complete.

DOE Headquarters' approval of the project performance baseline (planning and program documents including budgets, contracts, and schedules) was required before most of the construction activities could begin. Because of DOE policies regarding baseline requirements, the baseline prepared (and approved in August) was for the 2028 completion date; however, DOE's goal is to complete the project in 2019, if consistent additional annual funding is appropriated by Congress. DOE submitted a Report to Congress in July that stated the annual funding requirements to meet the 2019 completion date. Early completion is affected by factors beyond sufficient funding, including infrastructure capacities, such as limited space for staging railcars, and shipment disruptions, such as weather delays. 

## Message From the Federal Project Director (continued from page 2)

edition, we brief you on designs prepared for transporting the mill tailings and for constructing the disposal cell at Crescent Junction and give you a status of infrastructure construction activities. I share what I learned at a conference last fall about the Germans' mill cleanup techniques and reuses for their former millsites. We also talk about some visitors we've had to the site, the formation of an Employee Safety Committee for the project, and a ground water contamination milestone we reached.

This and previous editions of the newsletter can be found on our website under the General bullet. Please note our **new website address**:  
<http://www.gjem.energy.gov/moab>. 



*Stakeholders who attended the Open House met project personnel and viewed site information.*

## Donald Metzler Named a 2008 Federal Engineer of the Year Award Recipient

The Moab UMTRA Project staff would like to congratulate Federal Project Director Donald Metzler for being named one of three 2008 Federal Engineers of the Year within DOE. Donald was honored at a ceremony hosted by the National Society of Professional Engineers in February at the National Press Club in Washington, DC.

Federal agencies nominate candidates on the basis of their engineering achievements, education, continuing education, professional and technical society activities, awards or honors, and civic and humanitarian activities.

Engineers employed by a federal agency with at least 50 engineers worldwide are eligible. Candidates are nominated by their employing federal agency. Donald was nominated by DOE Headquarters Deputy Chief Operating Officer Cynthia Anderson.

The Federal Engineer of the Year Award program highlights important workforce issues, such as science, technology, engineering, and math education, and showcases the exciting and often cutting-edge federal jobs available to engineers. 



*Donald Metzler (second from left) accepts his Federal Engineer of the Year award.*

## Major Milestone Reached for Extraction of Contaminated Ground Water

Last October, the Moab UMTRA Project reached a major milestone in the protection of Colorado River water: 100 million gallons of contaminated ground water extracted.

In 2003, DOE began an interim remedial action system to address concerns regarding elevated ammonia and uranium concentrations in ground water while it evaluated long-term solutions to site contamination. The ground water extraction system consists of 40 remediation wells installed specifically for withdrawing ground water near the Colorado River and one well located near the base of the tailings pile. The system was designed to prevent contaminants from directly discharging to the Colorado River. Intercepting contaminants before they reach the river reduces negative impacts on several endangered fish species and critical habitat.

On October 24, 2007, the extraction wells had captured a total of 100 million gallons of contaminated ground water. By comparison, 100 million gallons is approximately the volume of water in 150 Olympic-sized swimming pools with a depth of 6 ft. "We are fortunate that we've had many skilled, hard-working people who were involved with the design, installation, and operation of this system to meet this goal," said Ken Pill, Moab Project Hydrogeologist for TAC teaming partner Pro2Serve. Since this milestone was reached, another 17 million gallons has been extracted. The extracted ground water in total contained about 516,000 pounds of ammonia and 2,300 pounds of uranium.

For the first time since the interim action system began operations, the well field remained operational this past winter. Ten wells actively extracted ground water from January through April. This improved the system performance by reducing elevated ammonia and uranium concentrations typically exhibited in the side channel habitat area after winter shutdowns.



*Steve Back, Ground Water System Operator, and Liz Glowiak, Moab Site Hydrogeologist, check the flow rate of an extraction well in the interim action system.*

The extracted ground water is pumped via pipeline to a lined 4-acre evaporation pond located on top of the tailings pile. Water from the pond is sprayed on top of the tailings pile using sprinklers (that cover a total of 38 acres) to maximize the evaporative capacity of the interim action system. The sprinkler system is designed to apply enough water to suppress windblown dust while not applying so much as to percolate into the tailings pile.

We will continue to operate the ground water interim action system, which will likely become part of the final remedy. Ground water cleanup is planned to be complete simultaneous with the end of tailings removal.

For more information about the ground water interim remedial action at the Moab site, visit our website at [http://www.gjem.energy.gov/moab/project\\_docs/interim\\_action.htm](http://www.gjem.energy.gov/moab/project_docs/interim_action.htm). 

## Storing 16 Million Tons of Tailings

At the other end of the removal process is the permanent disposal of the tailings in an engineered cell. In this case, the tailings at the Moab Project site will be disposed of 30 miles to the north in a cell being constructed near Crescent Junction.

### Tailings Disposal

Once the railcars arrive at the new rail siding to be built just east of the existing Brendel siding at Crescent Junction, the containers will be loaded onto off-road trucks that will haul the containers to the open area of the disposal cell. The containers will be emptied through an end dump gate, which is equipped with an interlocking seal to prevent materials inside the container from leaking. After the container exterior is decontaminated as necessary, the empty container is driven to the rail siding where a loader places it on a railcar to be transported back to the Moab load out area.

The train will return to Moab by 6:00 a.m. the next morning to be ready for the unloading of empty containers onto trucks and the loading of filled containers onto railcars.

### Permanent Land Withdrawal

In 2005, DOE requested a 5-year temporary withdrawal of 2,300 acres of U.S. Bureau of Land Management (BLM) lands near Crescent Junction for construction of the disposal cell, a buffer zone surrounding the disposal cell, and areas needed for construction support purposes. DOE submitted an application in fall 2007 to BLM for a Public Land Order to permanently transfer 500 of the 2,300 acres needed for the final disposal cell footprint. No comments on the transfer request were received by BLM during the 90-day public comment period. Utah Governor Jon Huntsman, Jr., sent a letter to DOE expressing the State of Utah's support of the land transfer and the Moab UMTRA Project. On March 31, 2008, the Department of Interior issued Public Land Order Number 7697 in the *Federal Register*, permanently transferring this land to DOE. During the temporary withdrawal renewal process for the remaining 1,800 acres, DOE will relinquish back to public domain the portions that are no longer needed.



*A bulldozer digs the westernmost section of the Crescent Junction disposal cell.*

### Cell Specifications

The disposal cell will be aligned in a general east-to-west direction and will be excavated about 25 ft below the existing grade. The cell will be roughly rectangular in shape and will extend almost 1 mile long by 2,400 ft wide. In accordance with federal regulations, the Crescent Junction disposal cell was designed to effectively provide isolation of tailings and control of radon emanation for a period of up to 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years.

The 2,400-foot-thick Mancos Shale that extends below the Crescent Junction site and the small amount of precipitation in the area make this an ideal location to build the disposal cell. For these same reasons, lining the cell is unnecessary.

The disposal cell will be excavated in sections. Cell excavation and preparation should be completed this fall on the westernmost section to accommodate placement of the initial 2.5 million tons of tailings.

The estimated aboveground height of the contaminated materials will be 20 ft. The top of the contaminated materials will be capped with an 8-foot-thick, multi-layered permanent cover composed of soil and rock. Finding cover rock to match the surrounding landscape that meets longevity requirements is difficult. Several potential sources north and west of Moab have been identified and are being tested for durability. Figure 2 on page 8 shows a profile of the disposal cell features.

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## Storing 16 Million Tons of Tailings (continued from page 7)

More than half of the excavated material for the cell can be used for compaction and in the cover layers; however, almost 4 million tons of soil will be excess. To use this material to our advantage, DOE will build an engineered “wedge” between the disposal cell and the Book Cliffs to help channel storm water coming off the Book Cliffs away from the cell. The wedge will reach 48 ft in height in the middle and taper off on the sides.

### Construction Water

In 2006, we constructed a 3-inch potable waterline from Thompson Springs to the Crescent Junction site in anticipation of the project needs. Construction water needed for dust suppression and compaction of the tailings is coming from the Green River via a 21-mile long, 6-inch buried waterline that was completed this past May. The waterline is made of high density polyethylene (HDPE) and has a carrying capacity of more than 200 gallons per minute. Along with ownership of the site, DOE assumed Colorado River water rights. Some of these rights were transferred to the Green River.

A small freshwater reservoir has been constructed at the southwest corner of the cell to store water



Donald Metzler, Federal Project Director, and Brent Anderson, RAC Construction Manager, hold a streamer across the first truck filled from the freshwater reservoir.

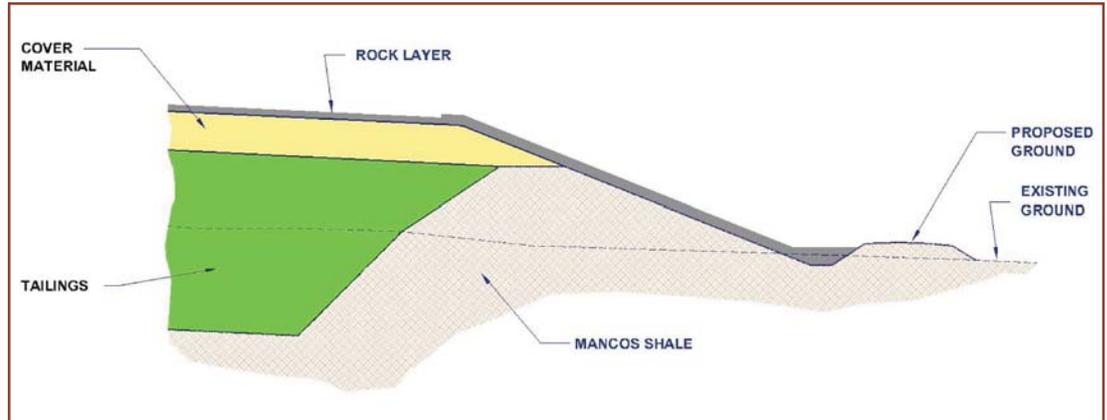


Figure 2. Profile of Crescent Junction disposal cell features.

pumped from the Green River. The reservoir was designed to gravity feed water to trucks. DOE held a “ribbon-cutting” ceremony at the Crescent Junction site to commemorate the filling of the first water truck from the storage pond. Grand County officials, nearby property owners, and a reporter from the *Moab Times-Independent* were among the 25 people who helped us celebrate this milestone. “Having construction water available on a consistent basis at the disposal site is critical to ensuring we control dust generated by our activities and obtain the required compaction of the tailings in the cell,” said Donald Metzler. Donald used the waterline and reservoir construction as examples of how project activities are conducted in a safe and disciplined manner.

### Remedial Action Plan

The Final Remedial Action Plan and Site Design, which presents the basis for constructing the disposal cell at Crescent Junction, was submitted to the U.S. Nuclear Regulatory Commission (NRC) in March 2008, with some modifications submitted in July. NRC conditionally concurred on the plan on July 25. In its technical evaluation report, NRC stated “DOE has demonstrated an understanding of the geology and stratigraphy occurring at the site and thoroughly analyzed the site to provide reasonable assurance of long-term geologic stability.” Receiving NRC’s concurrence allows DOE to proceed with constructing the disposal cell. Once a final ground water remedy has been implemented at the Moab site, NRC will be able to give its full concurrence on the Remedial Action Plan. 

## Moab Site Prepared for Flooding of Colorado River



*Water level in Moab Wash crossing on May 23. Sandbags prevent water from reaching the road on the south side that leads to the well field.*

feet per second (cfs) in only 2 to 3 days. In another 2 to 3 days, the flow rates exceeded 40,000 cfs. These runoffs were the most recent events that flooded low-lying areas of the Moab site, including where the ground water interim action well field is now located.

Spring river flows for 2008 were predicted to be 130 percent of the normal volume, and staff daily monitored the Colorado River flows at the Cisco Gage and the National Oceanic and Atmospheric Administration (NOAA) Western Water Supply Forecast websites for the latest information on river flow predictions.

In mid-May, NOAA predicted the Colorado River flow to exceed 40,000 cfs, prompting implementation of the Flood Mitigation Plan. Activities completed in preparation for the potential flooding of the well field included relocation of the sampling trailer and storage shed, filling and placement of approximately 700 sandbags along the Moab Wash lower crossing and low-lying areas along the river berm, shutdown of the well field, and removal of pump controllers and flow meters from each remediation well vault.

Although the well field did not flood, the water surface came within 1 foot of the top of the berm at some locations. "We were fortunate that the river did not flood, but we were confident that our precautionary measures would have prevented damage," said Joe Ritchey, TAC Senior Program Manager. 

This past spring, project staff prepared a Flood Mitigation Plan for the Moab site, including the ground water interim action well field. Above-normal snowfall in the Rocky Mountains during the 2007 to 2008 winter increased the likelihood of abnormally high flow in the Colorado River. Because the Moab site is bounded on the east by about 3,500 feet of riverbank and the site is transected by the Moab Wash, protection of the site from flood damage is essential.

Historical data collected from the nearest upriver gaging station, called the Cisco Gage, reveals that during the 1983 and 1984 runoffs, the river flow rate increased from approximately 20,000 to 30,000 cubic

## Tour Groups Get Close-Up View of Moab Site

Each year, the Moab site is visited by groups interested in the project from an environmental cleanup perspective or for the site's proximity to fascinating geology.

Board members from the Metropolitan Water District of Southern California (MWDSC) and the Southern Nevada Water Authority visited the site in June and September 2007, respectively. Because both southern California and Nevada are downstream of the Moab site, these groups were, not surprisingly, especially interested in site contaminants that could potentially affect Colorado River water quality. Their concerns are not only with the existing discharge of ground water from the uranium mill tailings pile to the river, but with the potential for tailings to wash into the river during flood events. In response to these concerns, DOE and contractor staff explained what we are currently doing to address



*Visitors from southern California and some local guests were taken up the rail access to view the tailings pile.*

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## Tour Groups Get Close-Up View of Moab Site

(continued from page 9)

elevated ammonia and uranium concentrations in ground water and to prepare for potential flooding.

The southern California troop, composed of about 45 water board members and district staff, was convoyed to the well field that is situated on the southeast portion of the site. When the extraction system is running at an optimal rate, the wells pump a combined total of 100 gallons per minute. The group also saw the pump house associated with an injection trench that pumps freshwater from a storage pond into an underground pipe that acts as a hydraulic barrier to keep the contaminants from reaching the river. In a letter of appreciation to DOE, Timothy Brick, Chairman of the Board of Directors for MWDSC, wrote, "I was pleased to note that substantial amounts of contaminants have been removed from the leachate associated with the pile."

Although the Southern Nevada Water Authority did not have time to visit the well field, they were very interested in the project and asked numerous questions about the interim action system and the project in general.

The Moab site had a special visitor last October. U.S. Senator Robert F. Bennett, from Utah, and two of his aides, Donna Sackett and Brad Shafer, spent about an hour at the site. Donald Metzler, Federal Project Director, took the senator on a tour of the site to show him the infrastructure improvements that DOE made (office trailers, site entrance, river water pump station and storage pond, and decontamination pad), revegetation of remediated areas, the interim action ground water well field, and the hillside load out area.

The Senator commented that he had been to the site 5 or 6 years ago and was impressed with the progress



*Senator Bennett (middle wearing hat) graciously posed for a photograph with Moab site employees during his visit.*

since then. He said it demonstrated to him that DOE has a clear path forward and a plan of action to move the tailings. "Having Senator Bennett come to the site and see the progress we've made is so valuable in keeping this project at the forefront of his agenda," said Donald.

Eight representatives from the Navajo Nation Abandoned Mine Land (AML) offices in Tuba City and Window Rock, Arizona, and Shiprock, New Mexico, visited the Moab site in November 2007 as part of a quarterly technical meeting Navajo AML holds with another office of DOE. Because of their work with mine reclamations and site remediations, these guests were interested in seeing our radiological access control area, which is more robust than at their sites. Also, they wanted to see how we measure radium, thorium, and uranium in soil samples collected in the field, so Ernie Colunga, Radiological Assessment Technician for the TAC, demonstrated the use of the on-site analytical system used by the project.

Especially in the spring and summer, students from universities are attracted to the Moab area and like to visit the hillside load out area because of the interesting geology. This year we had some return visitors from the University of Texas Bureau of Economic Geology, as well as new groups from Michigan Technological University and University of Colorado Law School.

"Hosting tours for these visitors helps us learn what is of interest to various entities and what perceptions exist about the project from outside sources," said Wendee Ryan, TAC Public Affairs Manager. 



*Donald Metzler (left), with representatives of the Navajo Nation AML.*

## Special Guests From DOE Headquarters Visit Moab Project

On May 14, Jim Rispoli, DOE Assistant Secretary for Environmental Management, and Cynthia Anderson, Deputy Chief Operating Officer for Environmental Management, visited the Moab UMTRA Project. Jim's and Cynthia's enthusiasm and keen interest in the project made their visit a very positive one. The agenda for their 1-day trip was extremely full, but Jim took the opportunity whenever possible to personally introduce himself to employees and to give each group he met with his undivided attention. The day started with a meeting at the Grand Junction project office, followed by a tour and a group photo with the TAC team.

Donald Metzler, Federal Project Director, escorted the visitors to Crescent Junction to see the disposal site and construction work being performed on the freshwater reservoir. At the Moab site, Donald recapped some of the major accomplishments during the past few months and led Jim and Cynthia on a tour that ended at the hillside load out area.

After lunch, they met with local elected officials and state congressional office staff for a roundtable discussion on the project and transportation options being evaluated. Members of this group expressed their appreciation for DOE's past communication efforts and emphasized the community's desire to be involved in the decision-making process for choosing the transportation method.

No visit to the Moab area would be complete without a little sightseeing. Laura Joss, former Superintendent of Arches National Park and Kate Cannon, Superintendent of the Southeast Utah Group and Canyonlands National Park, graciously provided a personalized tour for Jim, Cynthia, and a few project staff members. The visitors, who live in the Washington, DC, area



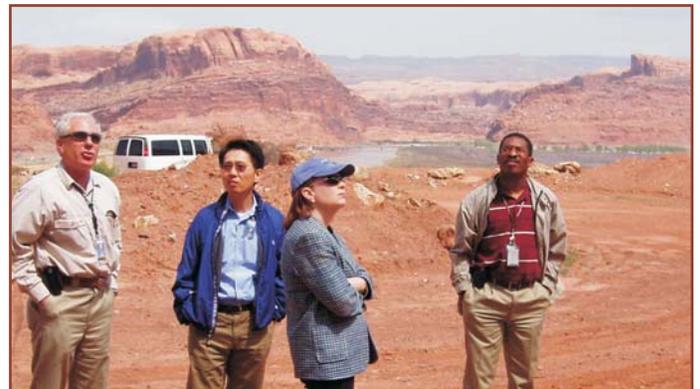
*Cynthia Anderson and Jim Rispoli (center) from DOE Headquarters in Washington, DC, got a personalized tour of Arches by Laura Joss and Kate Cannon (in uniform). Donald Metzler (left), Wendee Ryan, and Joe Ritchey (right) joined them.*

thoroughly enjoyed this excursion and Jim vowed to come back and bring his family. Cynthia commented more than once that the Moab site ranks near the top of the list of DOE sites with the best view.

After a nice dinner at the Sunset Grill in Moab, the guests returned to Grand Junction. Jim expressed his appreciation for the work being performed and the importance of the Moab Project to DOE

Headquarters. "It was a long day for some of us, but in the end, I think we made a positive lasting impression on our visitors," said Donald.

The Moab Project received another visit this spring by DOE Headquarters staff. Dae Chung, Deputy Assistant Secretary for Safety Management and Operations, was interested in the safety and operational aspects of constructing the hillside load out area. Sandra Waisley, Director of the Office of Standards and Quality Assurance, and Desi Crouther, Director of the Office of Small Sites Projects, accompanied Mr. Chung on his visit. 🌊



*Donald Metzler shows the hillside load out area to Dae Chung, Sandra Waisley, and Desi Crouther.*

## Sustainable Reuse, German Style

At 12 million cubic yards, the Moab UMTRA Project uranium mill tailings pile is the largest one to be relocated in the United States. But as big as the Moab pile is, there are even more massive sites in Germany that have been or are in the process of being cleaned up. Donald Metzler, Moab Federal Project Director, attended the Wismut 2007 International Symposium entitled *Mine Closure and Sustainable Development of Rehabilitated Mining Areas* held in Gera, Germany. "The Moab UMTRA Project can learn from Germany's immense environmental cleanup and restoration effort," said Donald upon his return.



*The Ronneburg site with the backfilled Lichtenberg open pit. The "New Landscape" is in the foreground.*

Saxony and Thuringia, two densely populated areas in Germany, were disturbed by more than 40 years of uranium ore mining and processing. At the end of 1990, uranium mining abruptly ended, leaving widespread environmental devastation that was affecting public health and the environment.

Decommissioning, cleanup, and rehabilitation of this legacy are the responsibility of the federally owned company Wismut GmbH. The mission of the "Wismut Project" is to rehabilitate abandoned uranium mine sites in Saxony and Thuringia. Wismut has worked in close cooperation with the affected communities to improve environmental conditions and enhance the quality of life of the regions' citizens.

Wismut developed strategies to remediate the contaminated sites that integrated ideas from regulatory authorities, industry experts, and public opinion. Remediation options had to be both technically feasible and economically sound. As a result, Wismut implemented the latest in remediation technologies, such as tailings covers and contaminated water treatment.

Remediation efforts have been ongoing for the past 17 years. Areas adversely affected by the early years of uranium mining are being restored to their original

condition to the extent possible. Forestry is the most suitable reuse of the former mine sites, but some areas will be available for agricultural reuse.

More than 392 million cubic yards of waste rock in a total of 48 mine dumps was scattered around the various sites when mining operations ceased. At Ronneburg, which was by far the most significant Wismut mine site in terms of production and environmental impacts, most of the waste rock piles were relocated into the mined-out Lichtenberg open pit. The waste rock relocation project started in 1991 and is nearing completion. The concentration of almost 170 million cubic yards of waste rock at the former open pit created a long, high ridge of grass and woodland. A soil cover placed over the piles will allow the safe storage of the waste rock and also will eliminate the public health risk from radiation exposure. In 2010, the new landscape will be publicly accessible by logging roads and hiking trails after all remaining remediation activities are completed.

The 2007 National Horticultural Exhibition hosted by the city of Ronneburg was held for the most part on grounds around the former Lichtenberg mine site.

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## Sustainable Reuse, German Style (continued from page 12)



*View of the "New Landscape" as seen from the Ronneburg Balcony.*

The "New Ronneburg Landscape," as it's called, includes terraced structures, an arboretum, and the Ronneburg Balcony. Most of the landscape was constructed on the reclaimed footprint of the second biggest waste rock dump site, which had been completely relocated by the end of 2002. The

landscape is designed to remind visitors of the region's mining past while showcasing the accomplishments of Germany's greatest environmental restoration project, and it attracted nearly 1.5 million visitors to the Exhibition between April and October 2007.

Of the 9,143 acres disturbed by the mining and processing activities, almost 2,000 acres has been reclaimed to date. The entire environmental restoration project is to be completed by 2015. The rehabilitation project has revived the economy and brought steady employment to the affected communities. This is exemplified by the development of Bad Schlema in Saxony into a spa town.

The Wismut Project is receiving international recognition for its use of the latest remediation technologies and its technical expertise in cleaning up and rehabilitating radioactively contaminated sites. "Wismut is leading by example and I want to refer to its successful reuses as we consider the future of the Moab site," said Donald. He will return to Germany this fall for the 2008 Symposium where he will present a paper on the ground water remediation work being conducted at the Moab site. 

## Employee Safety Committee Established

How do you engage employees to make safety their number one priority? For the Moab Project, we make them an integral part of building the safety culture. One way to do that is through an Employee Safety Committee.

Last October, the contractors for the project established an Employee Safety Committee that is composed of at least three members from the RAC and at least two members from the TAC who each serve 1-year terms. In addition, subcontractors and DOE also can be members. Although management representatives from each contractor participate in the meetings, they do not direct them. "The current membership represents a good cross-section of disciplines from administrative to operations to technical," said RAC Safety and Health Manager Art Murphy.

The Employee Safety Committee provides a means for workers, through their representatives, to voice concerns in a venue that encourages open conversation and interaction. "This is not a place for retribution or intimidation," said Dave Janssen, TAC Safety, Health, and Quality Manager. Members discuss safety concerns, suggest ideas to enhance the safety culture, and bring action items to management for implementation. This group ensures that continuous improvement and safety are integrated into all Moab Project operations.

Issues that the committee identifies at its meetings are brought up as appropriate during the monthly project safety meetings. Recent activities include revising the Employee Safety Committee charter and conducting a site security assessment. 



## 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@gjem.doe.gov](mailto:moabcomments@gjem.doe.gov). Moab UMTRA Project documents are available on the DOE website at <http://gjem.energy.gov/moab> and at the following locations:

### Grand County Library

257 East Center Street  
Moab, Utah  
(435) 259-5421

#### Library hours:

9:00 a.m. to 8:00 p.m. Monday through Wednesday  
9:00 a.m. to 7:00 p.m. Thursday and Friday  
9:00 a.m. to 5:00 p.m. Saturday  
Closed Sunday

### Thompson Springs Fire Station

Off I-70 exit  
Thompson Springs, Utah  
Contact Lori Bell  
Thompson Springs Fire Department  
(435) 260-6059

#### Available by appointment:

8:00 a.m. to 5:00 p.m. Monday through Friday

### DOE Office in Grand Junction

200 Grand Avenue, Suite 500  
Grand Junction, Colorado  
Contact Wendee Ryan  
S&K Aerospace, Inc., Public Affairs Manager  
(970) 257-2145

#### Available by appointment:

8:00 a.m. to 4:00 p.m. Monday through Friday

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