



Uranium Mill Tailings Management

Annual Report to the Uranium Mill Tailings Remedial Action (UMTRA) Program Oversight Committee
July 1, 2013 to June 30, 2014

Submitted to the Colorado Legislature on September 2, 2014



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(July 2015–June 2016)



COLORADO
Department of Public Health & Environment

Hazardous Materials and Waste Management Division

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Statute

C.R.S. 25-11-301 et. seq.

Date

September 2, 2014

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Authorization

The Colorado Department of Public Health and Environment (department) is authorized by Colorado law (see C.R.S. 25-11- 301 et. seq.) to assist local governments in identifying and managing uranium mill tailings remaining in western Colorado communities. This authority was created to fill a void left when the U.S. Department of Energy's (DOE's) authority to remediate surface tailings deposits at 9 abandoned uranium mills under the Uranium Mill Tailings Radiation Control Act (UMTRCA) expired on September 30, 1998. These radioactive uranium mill tailings, which are a health hazard, are likely to be disturbed by infrastructure repair and local redevelopment. Colorado House Bill 99- 1267, last amended by Senate Bill 07-200, authorized the department to continue its involvement in the Uranium Mill Tailings Remedial Action (UMTRA) Groundwater Restoration Phase.

Scope of Work

The department assists local governments and private parties by identifying, removing, storing and disposing of uranium mill tailings; and participates in UMTRA groundwater restoration, monitoring and long-term surveillance activities. This annual report is required by contractual agreement between the Colorado Department of Local Affairs and the department. It documents the department's activities under that agreement and the DOE Cooperative Agreement for the UMTRA Groundwater Restoration Program. It also fulfills the reporting requirements of C.R.S. 39-29-116 (4).

Accomplishments

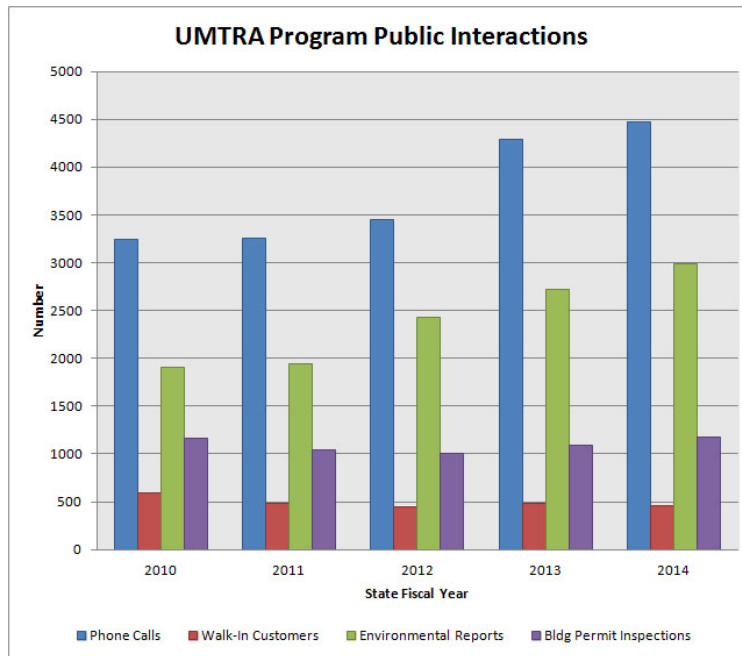
The department is working to improve and streamline tailings management. Growing population and continuing development, particularly in Mesa County, has caused an increased public demand for information on the potential for uranium on properties and for field verification when records reviews are insufficient. The department strives to maintain good working relationships with affected local

governments and participates in outreach to ensure that affected communities understand the UMTRA program and know whom to contact at the State with questions or concerns. The city of Grand Junction and Mesa County are the most involved jurisdictions and have frequent interaction with the department. The department also continues to provide the public with tailings surveys and information on specific properties, as well as, technical assistance on tailings removal projects, as necessary. Most of the department's public services are provided within one working day. Recognizing the continued value of the program, legislation was passed in 2007 to extend the program until 2017.

The department also works with DOE on the Groundwater Restoration Phase of the project. This includes working with DOE to refine the modeling predictions, review groundwater quality data to determine that there are no exposures to contaminated groundwater and most importantly, to monitor the institutional controls that are in place to prevent exposure to contaminated groundwater. DOE continues to monitor groundwater at each of these sites and submits the results to the State in annual Verification Monitoring Reports, which are reviewed by the department.



HELPING LOCAL GOVERNMENTS AND THE PUBLIC



Public Information

A major function of the post-Uranium Mill Tailings Remedial Action Program is public information dissemination. This information is provided in various settings and formats. For example, the department provides explanations and interpretations for tailings management during building permit survey inspections, environmental report preparation, file searches, interaction with walk-in customers, during tailing removals, and while loaning out radiation survey instruments. The topics discussed include such things as proper tailings management, radon awareness, and the availability of the department's related printed materials. The program responded to approximately 4,469 phone calls and 460 walk-in customers during fiscal year 2013-2014 — a nearly 9 increase for phone calls.



Environmental Reports

In response to public requests, the department produces environmental reports and letters related to specific properties. Most frequently these requests come from real estate companies during property transactions. Department staff review computer databases and property files to determine whether the property was included in the UMTRA Program, the nature of remediation performed on the property, and whether tailings remain on the property.

There are files on over 70,000 properties. If a report for a given property does not exist, or indicates that tailings potentially exist, a field survey is conducted at the owner's request. The report often includes data and maps from these files. In fiscal year 2013-2014, the department prepared 2,990 environmental reports. This number reflects a continued upward trend in requested environmental reports. The number of requests this year was 10% higher than last year.

Program information is available at: www.cdph.state.co.us/hm/rptailing.htm.

Interim Storage Facility



Another important component of the post-Uranium Mill Tailings Remedial Action Program is the operation of an interim storage facility in Grand Junction. This facility stores tailings temporarily until a sufficient quantity exists to warrant opening the Cheney Disposal Cell for permanent disposal of the material. The interim

storage facility, which is located on property owned by the city of Grand Junction, is managed by the department under a contract between the two parties. In 2005, the city of Grand Junction prepared a second storage area at the site for the potential receipt of tailings materials. This area was divided to allow for the separation of materials received from different communities in an effort to address liability concerns regarding mixing of materials and to facilitate the ability of other communities to sign the hauler agreement requirement by the city of Grand Junction for other local governments using the facility.

From July 1, 2013 through June 30, 2014, approximately 798 cubic yards of material was placed in the interim storage facility.

Waste Minimization

The department facilitates waste minimization through oversight of excavation activities. Whenever department representatives are on a tailings site, they work with the contractor to minimize the size of the excavation to avoid digging a larger hole than necessary and to carefully exclude clean material. Although it is difficult to quantify the amount of

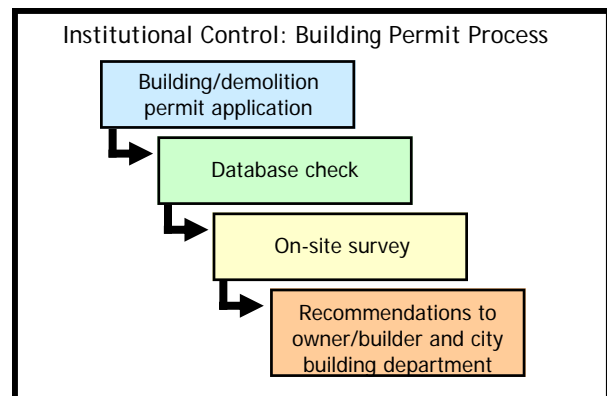
uncontaminated material not excavated as a result of this waste minimization practice, the department believes that this practice preserves disposal capacity in the Cheney cell and reduces hauling costs. In addition, the department inspects material brought to the interim storage facility to exclude uncontaminated material that was excavated inadvertently.

Building Permit Inspections

Significant volumes of uranium mill tailings remain in the Grand Junction area. The city of Grand Junction require owners to consult with the department for all building and demolition permits in the city. The department first performs a database check to determine if the property was part of the uranium mill tailings program. If the property has a history of tailings, or if there is a tailings site within the immediate vicinity of the property, an on-site survey is performed. If uranium tailings are discovered, recommendations are made to the owner/builder and to the city building department.

In fiscal year 2013-2014, 1172 requests were received for building permit surveys. Of those,

1047 were processed by a computer data check and 125 underwent both the data check and an actual field survey. From those surveys, 12 properties had tailings.



Groundwater/Millsite Issues

Under the post-Uranium Mill Tailings Remedial Action agreement, the department participates in the groundwater restoration phase of the Uranium Mill Tailings Remedial Action Project. The U.S. Environmental Protection Agency (EPA) recognized the difficulty in restoring groundwater at the abandoned mill sites when it established the cleanup regulations for the UMTRA Title I program in 40 CFR 192. The EPA regulations state that if DOE determines that sole reliance on active remedial procedures is not appropriate and the groundwater can be more reasonably cleaned up through natural flushing, then the period for remedial procedures may be extended to a term not to exceed 100 years.

Recognizing the potential for large expenditures of State funds if active remediation techniques were employed at Colorado sites, the department concurred with DOE's determination that sole reliance on active remediation was not appropriate and that cleanup of the groundwater could be more reasonably accomplished through natural flushing. This determination was based on characterization studies at each site and detailed hydrogeologic groundwater models predicting the time required to meet standards through natural flushing. In all cases, compliance with groundwater concentration limits at Colorado sites was predicted to occur within the 100-year period allowed by the regulations. The department has concentrated efforts on ensuring that institutional controls with a high

degree of permanence are in place and that alternate sources of drinking water are available for all properties affected or potentially affected by groundwater contamination from the mill sites.

For most of the sites, the groundwater modeling projects were conducted in the late 1990's so 10-20 years of monitoring data is now available for comparison to modeling predictions. As expected, the modeling is somewhat imprecise; at most of the sites the degree of correlation between the actual concentrations and the model predictions is low. In most cases, natural flushing is not occurring at the rates predicted by the models. The department continues to work with DOE to determine if the models should be refined, if additional, more active strategies could be employed to enhance or increase natural flushing rates, or if more time is needed before new decisions are made. During fiscal year 2013-2014, the department reviewed documents submitted by DOE including: annual Verification Monitoring Reports, groundwater monitoring plans/data, and revised Groundwater Compliance Action Plans. The department continues to work with DOE to refine the methods used to monitor the institutional controls that are in place to preclude exposure to contaminated groundwater.

Additionally, more detailed information about the groundwater status for each mill site is available from the department on request.

New homes constructed over the groundwater contaminant plume in Gunnison that are provided potable water from the DOE-State funded public water system.





Telemetry equipment used to relay data to the Department of Energy from a well at the Durango Disposal Site.

Long-term Stewardship

All surface site work was completed by the Uranium Mill Tailings Remedial Action Program and reviewed by the State in fiscal year 1999. The department continues to monitor the disposal sites through the Department of Energy (DOE) Long-Term Surveillance and Maintenance Program, which performs site inspections to determine whether the disposal cells are performing as designed. Problems, such as minor erosion, are repaired when necessary and otherwise are regularly monitored (e.g., small erosion gullies are measured and photographed each year to see if they are expanding). The department performs inspection oversight within its existing staffing authority, with federal dollars under the groundwater restoration phase cooperative agreement. During fiscal year 2013-2014, the department participated in 8

inspections at UMTRA sites. Increasing uranium concentrations in a monitoring well at the Durango disposal site continues to draw the attention of the department. As a result, DOE increased the monitoring efforts and is evaluating several possible root causes for the increases. The department believes that a lined surface water retention basin located near the monitor well may have leaked in the past and contaminated seepage has now reached the monitoring well. Liner repairs have been conducted and current monitoring information indicates that basin does not leak. The department continues to monitor and evaluate this situation, and in June 2014 the department met with the DOE and the County Commissioners to discuss these issues.

Land Annotation

The federal Uranium Mill Tailings Radiation Control Act requires that all properties included in the program have their property records annotated to indicate what cleanup happened on the property and when. However, this requirement only applies to properties cleaned up under the program. No annotation is required on properties that are known to have had tailings, but that were never included in the cleanup program due to the owner's refusal to participate. Colorado historically has opposed this annotation requirement because it applies only to properties that participated in the

program and unfairly stigmatizes the properties that did participate and now are considered to be clean. In deference to these concerns raised by Colorado, as well as other States, the DOE has delayed the rulemaking required by federal law to implement the annotation requirement and, to date, have not. However, without a federal statutory change, this issue will remain open. A more effective solution might be to pass state legislation requiring a report for all building permits and/or real estate transactions in the affected areas.

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Land Transfer/Millsite Reuse

To preclude windfall profits to the mill site owners, the UMTRCA statute required the state to take title to the property. The statute then allows the state to keep the property, sell it (giving 90% of the revenue to DOE), or donate it to a local government for public use. The department has transferred all sites owned by the state to the relevant local governments. A list of Uranium Mill Tailings Remedial Action Sites and the current owners appear below.

The deeds for the mill sites that were transferred to local government ownership contain restrictions that govern how the site can be reused and provide for department and DOE approval for reuse plans. These restrictions were necessary because of remaining low-levels of contamination that are present on the site and because of the groundwater contamination. The deeds were also annotated to document any remaining contamination on the site. In addition, most of the mill sites are covered by either Environmental Covenants or Notices of Environmental Use Restrictions. Because of these restrictions, the department and DOE must review and approve reuse plans for the mill sites.

During fiscal year 2013-2014 a number of successful redevelopment projects were completed. In one example, the department worked closely with Gunnison County, the owner of the former Gunnison uranium mill site, to finalize and implement a plans for a new animal welfare shelter. This new, 1,300 square foot facility, which is a protective reuse

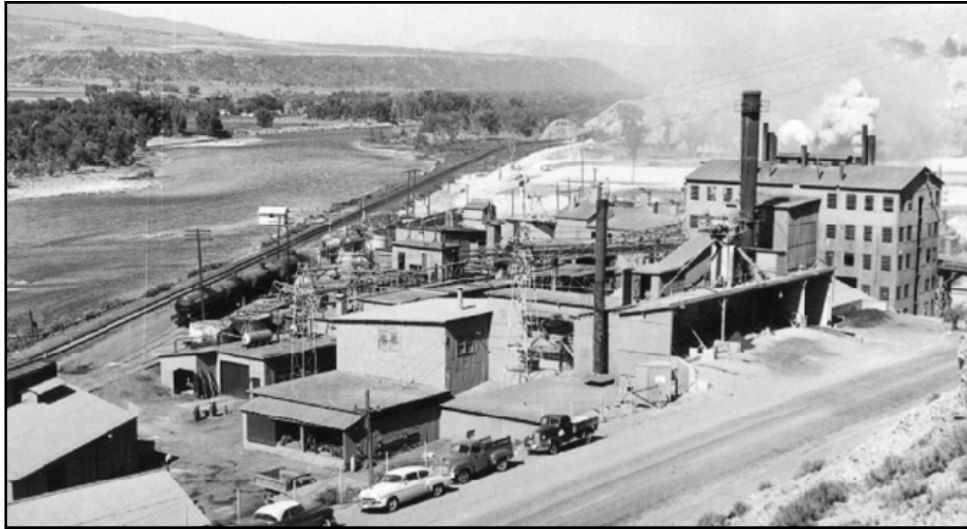


of the mill site, houses both dogs and cats and provides an animal foster program for the community. Prior to construction of the shelter, there was no valley-wide, full-service shelter in Gunnison county.

In another example of excellent department/DOE coordination, the parties have been working on the former Grand Junction mill site reuse plans. The site is currently slated to be redeveloped into a multi-use park, which will include an amphitheatre, playground, water features and parking. The department is currently working with the owner, the city of Grand Junction to ensure that the proposed development is protective of human health and the environment.

Also during fiscal year 2013-2014, the department and DOE worked with the city of Durango to review and approve plans for expansion of their whitewater park at the former Durango Mill Site.

Site	Owner
Durango South Parcel	Animas-La Plata Water Conservation District
Durango North Parcel	City of Durango
Grand Junction	City of Grand Junction
Gunnison	Gunnison County
Maybell	U.S. Department of Energy
Naturita	Town of Naturita owns half; other half is privately owned
New Rifle	City of Rifle
Old Rifle	City of Rifle
Slick Rock (2)	Dow Chemical



Old Rifle Mill Site



Conclusion

This is the 16th annual Uranium Mill Tailings Management Report. Increasing numbers of requests for reports and surveys demonstrates the long-term need for assistance to local governments and private citizens regarding the safe handling of uranium mill tailings. Almost 5,000 people annually request information about the history of tailings contamination in communities affected by the Uranium Mill Tailings Remedial Action Program. Many times

each year, tailings are encountered that must be managed safely. Continued public awareness of the presence and safe handling of mill tailings is important, and the department should continue its public outreach efforts. The program continues to operate cost-effectively and within budget. This report further demonstrates all the involved parties have worked cooperatively to achieve the program goals.

FISCAL YEAR 2016 BUDGET REQUEST

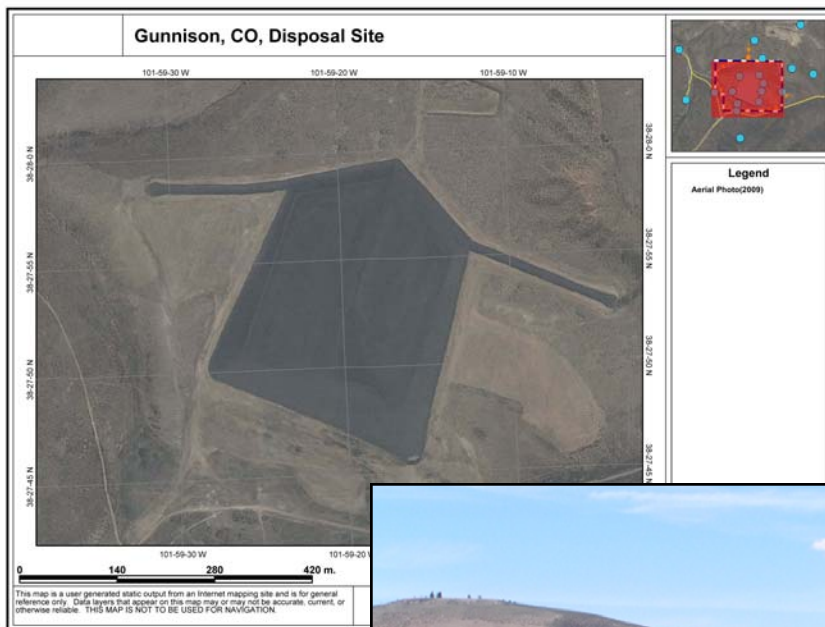
Budget Request

The following spreadsheet presents the budget request for State fiscal year 2016. This budget reflects an anticipated 3 percent increase in personal services and operating costs for 2016. There is no longer a requirement that the State match 10% of the federal grant.

The program completed the digitizing of approximately 70,000 microfilm records and is continuing to index them into corresponding electronic files. New property reports that are produced are being digitized and a database has been created to track these files and integrate them with the newly digitized microfilm files. The old paper records have been scanned and

have been added to the database created in 2011.

Currently, staff works on these tasks as daily workloads permit and with the help of a new temporary employee who was hired in December 2013 to complete the indexing of all the files in an electronic database. Relying on this temporary employee, the department believes that it should take approximately 2 years to complete this extensive and comprehensive indexing project. Therefore, we are seeking continued funding of this position until the indexing of the files is complete in approximately December 2015.



Gunnison Disposal Site, aerial view and ground view.



STATE OF COLORADO UMTRA BUDGET (JULY 2015 - JUNE 2016)

**TABLE 1
Colorado Department of Public Health and Environment
UMTRA FY16 Preliminary Budget Estimate
July 1, 2015 - June 30, 2016**

a. Personnel			POST-UMTRA (7X16)		Groundwater (RJ16)		TOTAL
			FTE	Cost	FTE	Cost	
<u>Title</u>	<u>Task</u>	<u>Salary*</u>					
Program Manager	Policy	\$158,588	0.03	\$ 4,675	0.00	\$ -	\$ 4,675
Professional Engineer	Technical review	\$147,751	0.00	\$ -	0.20	\$ 29,550	\$ 29,550
Env. Protection Spec.	Technical review	\$111,126	0.90	\$ 100,013	0.10	\$ 11,113	\$ 111,126
Env. Protection Spec.	Technical review	\$122,946	0.06	\$ 7,377	0.00	\$ -	\$ 7,377
Program Assistant I	Staff support	\$77,538	0.93	\$ 72,110	0.07	\$ 5,428	\$ 77,538
Adm Assistant I	(PT) Staff support	\$46,103	0.50	\$ 23,052	0.00	\$ -	\$ 23,052
Administration	Adm & Mgmt Support		0.40	\$ 33,152		\$ 8,296	\$ 41,448
	Retirement payouts			\$ -		\$ -	\$ -
			2.82	\$ 240,379	0.37	\$ 54,387	\$ 294,765
	POTS						\$ -
			2.82	\$ 240,379	0.37	\$ 54,387	\$ 294,765
b. Travel				\$ 2,833		\$ 2,060	\$ 4,893
c. Operating	Supplies			\$ 5,356		\$ 1,337	\$ 6,693
	Vehicle Lease & Mileage			\$ 3,296		\$ 1,114	\$ 4,410
Contractual	Legal Services			\$ 469		\$ 5,521	\$ 5,989
Other	Training			\$ 515		\$ 668	\$ 1,183
	Medical Monitoring			\$ 515		\$ 433	\$ 948
	Records storage			\$ 4,120			\$ 4,120
Total Direct Charges				\$ 257,482		\$ 65,519	\$ 323,001
INDIRECT							
	Federal On-site @: 22.70%					\$ 9,397	\$ 9,397
	Federal Off-site @: 17.60%					\$ 2,911	\$ 2,911
	Federal Flow-thru @: 1.30%					\$ 72	\$ 72
	State Cash Onsite @: 26.00%			\$ 14,160		\$ -	\$ 14,160
	State Cash Offsite @: 17.60%			\$ 31,592		\$ -	\$ 31,592
	State Cash Flow-thru @: 1.30%			\$ 6		\$ -	\$ 6
	Planned Indirect			\$ 45,758		\$ 12,380	\$ 58,138
Total Cost				\$ 303,240		\$ 77,899	\$ 381,139
				\$ 303,240		\$ 77,899	
Total State Share				\$ 303,240		\$ -	\$ 303,240
Total Federal Share				\$ -		\$ 77,899	\$ 77,899

* Salaries include base salary plus benefits.

