Colorado Department of Public Health and Environment

# Uranium Mill Tailings Management Annual Report for July 1, 2010 - June 30, 2011

Submitted to the Colorado Legislature September 15, 2011

# Executive Summary

The Colorado Department of Public Health and Environment (department) is authorized by Colorado Revised Statutes (C.R.S. 25-11-301 et. seq.) to assist local governments in the identification and management of uranium mill tailings remaining in western Colorado communities. This authority filled a void left after the U.S. Department of Energy (DOE) authority to remediate surface tailings deposits under the Uranium Mill Tailings Radiation Control Act (UMTRCA) expired on Sept. 30, 1998. Determined to be a health hazard, these uranium mill tailings 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.

The department assists local governments in identifying, removing, storing and disposing of uranium mill tailings; participates in UMTRA groundwater restoration, monitoring and long-term surveillance activities; and annotates land records as required by federal law. This annual report is required by contractual agreement with the Colorado Department of Local Affairs to document the department's activities within this scope of work, and under the cooperative agreement with the DOE for the UMTRA Groundwater Restoration Program. It also fulfills the reporting requirements of C.R.S. 39-29-116(4).

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 where records reviews are not sufficient. The department strives to maintain good working relationships with affected local governments, and engages in outreach to ensure that all the UMTRA communities understand the program and know whom to contact at the state with questions or issues. The city of Grand Junction and Mesa County are the most involved jurisdictions and have the most extensive working knowledge of the program. In addition, the department 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 and DOE work with local communities to ensure people are not exposed.*

The department continues to work with DOE on refining the groundwater restoration modeling predictions regarding the natural attenuation of contamination. The department and DOE also work with local communities to approve future land uses for the mill sites and to formulate institutional controls to ensure people are not exposed to contaminated groundwater.

**Colorado Department of Public Health and Environment**
**Hazardous Materials and Waste Management Division**
**Remediation Program**

**Remediation Program**
Dan Scheppers, Program Manager
Michael Cosby, UMTRA Property Specialist
Kate Elsberry, UMTRA Program Support
Wendy Naugle, UMTRA Groundwater

**Statute:** C.R.S. 25-11-301 et. seq.

**Date:** September 15, 2011

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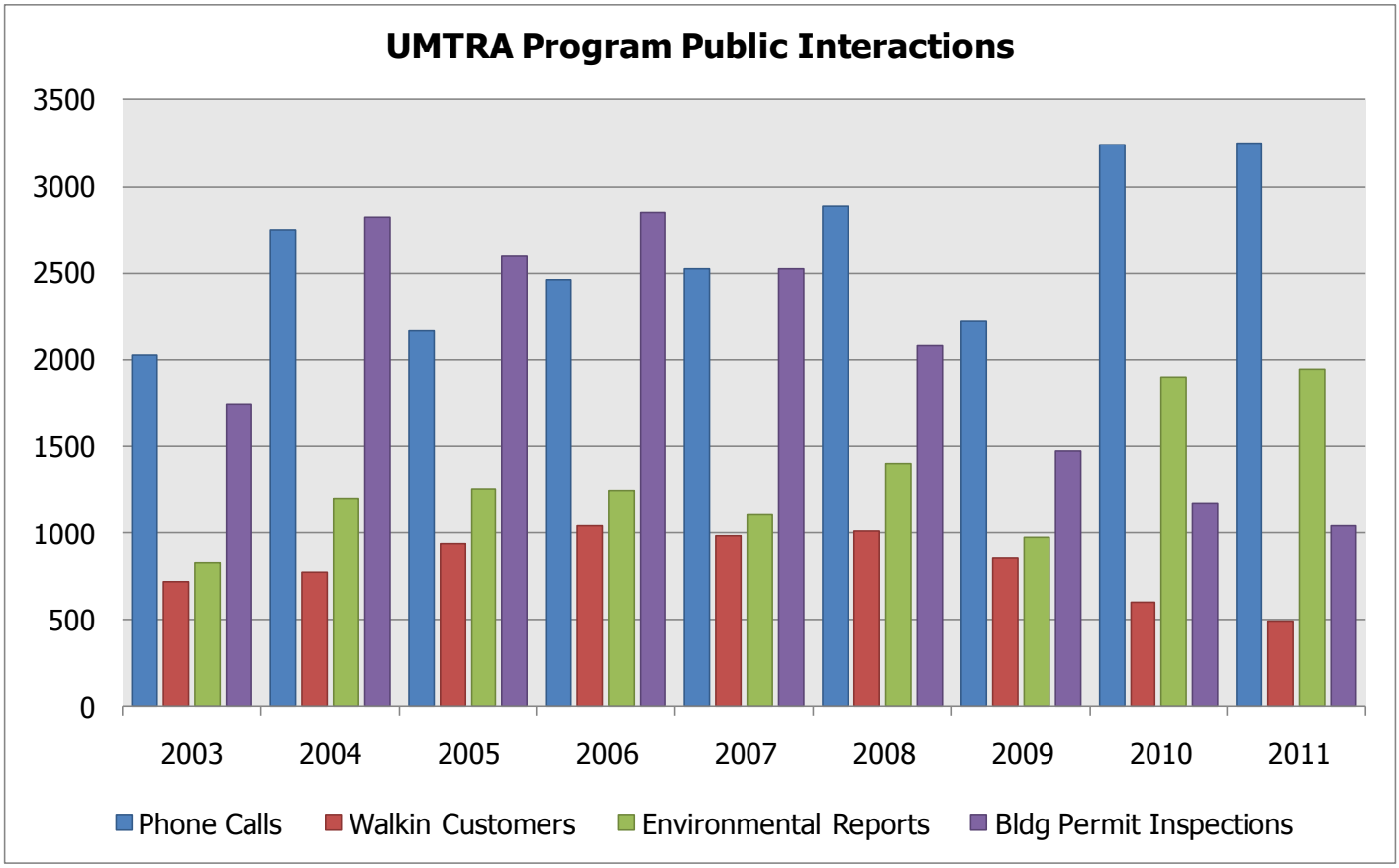
# Helping Local Governments and the Public




## Public Information

A major function of the post-Uranium Mill Tailings Remedial Action Program is public information dissemination. The Department of Public Health and Environment offers this information in various settings and formats. In direct support of tailings management activities, explanations and interpretations are provided during building permit survey inspections, environmental report preparation, file searches, interaction with walk-in customers, tailings removals, and radiation survey instrument loans. The topics discussed include not only proper tailings management, but also radon and the availability of the department's related printed materials. The program responded to approximately 3,254 phone calls and 486 walk-in customers during fiscal year 2010-2011.

## Environmental Reports

In response to public requests, most frequently from real estate companies during property transactions, the department produces environmental reports and letters regarding specific properties. The department reviews computer databases and property files to determine whether the property was included in the Uranium Mill Tailings Remedial Action 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 the potential for tailings exist, a field survey is conducted at the owner's request. The report often includes data and maps from these files. In fiscal year 2010-2011, the department prepared 1,944 of these reports.

### Web Site

Information is available at www.cdphe.state.co.us/hm/rptailng.htm.

# Mill Tailings Management

## Interim Storage and Permanent Disposal

One 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 required by city of Grand Junction for other local governments using the facility.

In September and October 2010, approximately 3,000 cubic yards of material from the interim storage facility were permanently disposed in the Cheney Disposal Cell. During fiscal year 2010-2011, an additional 7,319 cubic yards of uranium tailings soils and debris were added to storage at the interim storage facility in Grand Junction and was disposed in the Cheney Disposal Cell in May and June of 2011. The majority of this material was the result of work being done with department coordination by the city of Grand Junction as part of their redevelopment and reconstruction on Main Street.

## Waste Minimization

The department facilitates waste minimization through oversight of excavation activities. Whenever department representatives are on site, they instruct 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 this is an important procedure in terms of preserving disposal capacity in the Cheney cell and reducing the cost of hauling material. 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 and county require owners to consult with the department for all building and demolition permits in the city. First, a database check is performed to determine if the property had involvement with 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 2010-2011, 1,047 requests were received for building permit surveys. Of those, 872 were processed by a computer data check and 175 underwent both the data check and an actual field survey. From those surveys, 35 properties were found to contain tailings.

*The department consults with Grand Junction property owners who encounter mill 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 goals are to remain informed of Department of Energy actions regarding groundwater contamination, to review Department of Energy cleanup strategies at the mill sites and provide state concurrence on these strategies, and to monitor implementation of those strategies and ensure the remedies are protective of human health and the environment. To meet these goals, the department reviews work plans, groundwater data and other Department of Energy reports. In fiscal year 2010-2011, the department engaged in the following activities in the Uranium Mill Tailings Remedial Action groundwater restoration phase:

- The department successfully secured an environmental covenant on the UMETCO Rifle property. In addition, the department secured a Notice of Environmental Use Restriction on the Naturita Chemetall Foote property. Notices of Environmental Use Restrictions for both Slick Rock parcels (owned by UMETCO) and the Durango South Mill sites are in progress. These restrictions are necessary so the Nuclear Regulatory Commission can approve the Groundwater Compliance Action Plans for these sites. The Nuclear Regulatory Commission requires institutional controls during the periods of natural attenuation, so people are not exposed to the groundwater while it still exceeds standards.

*Durango Youth Baseball secured a long-term lease from the land owner, the Animas La Plata Water Conservancy District, to construct baseball fields on the property. Site preparation work is under way.*

- At the Durango South Mill parcel, the Bureau of Reclamation requested permission to construct a Permanent Operating Facility Building. The department reviewed the bureau's plans for the building and its radon mitigation system and approved the plans for construction. Also, Durango Youth Baseball secured a long-term lease from the land owner, the Animas La Plata Water Conservancy District, to construct baseball fields on the property. The department met with Youth Baseball representatives and reviewed and approved the plans for the baseball field complex.
- The department continues to work with the City of Rifle during its reuse of the New Rifle mill site. Over the past few years, the department has approved several reuse requests from the city of Rifle for its Energy Innovation Park on the former mill site. Currently the department is reviewing a modified proposal for the soil composting operation. The department also approved the city's request to expand the county shop building on the Old Rifle Mill Site.
- Gunnison County requested the department's review and approval for construction of a new public works complex to be constructed on the Gunnison Mill Site. The department reviewed and approved the plans for the building. In addition, the department approved an additional request for a Fed Ex Annex on the Gunnison Mill site.

# Surface Program/Disposal Site Issues

## 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 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, matched 90 percent with federal dollars under the groundwater restoration phase cooperative agreement. The department also reviews summary reports and data collected during inspections. During 2010-2011, seven inspections were performed at the disposal sites. DOE modified the Long Term Surveillance and Maintenance Plan for the Durango Disposal Site, with departmental input, to allow Beneficial Reuse Projects on the Durango Disposal Cell property, including a solar energy project.

One issue regarding long-term disposal cell maintenance involves high water levels in the Estes Gulch (Rifle) cell. The department has been monitoring the situation for several years. Based on trigger action levels established in the Department of Energy maintenance plan, a small solar-powered pump was placed in an existing well during the fall of 2001. The extracted water is placed in a lined pond at the base of the cell where it is allowed to evaporate. It is believed this water is transient drainage from the wet tailings that were placed in the cell; however, when the pumps are shut off a rebound in water level still occurs. An additional pump was added in 2004 to accelerate removal of water from the tailings. In 2009, DOE conducted a thorough review of the Estes Gulch disposal cell and produced a document titled "Rifle Disposal Site Transient Drainage and Slope Stability Evaluation," which the department reviewed. The report concluded and the department agreed that it appears that although there is more water in the disposal cell than originally predicted, the disposal cell is expected to remain stable. It also concluded a significant amount of water remains in the cell, so pumping must continue for many years.

As reported last year, DOE continued to investigate a monitoring well at the Durango Disposal site that had exceeded the groundwater regulatory limit for uranium. The concentration increase in the well may have been associated with an in-situ treatment pilot study conducted nearby in the 1990s. During 2010, DOE removed the in-situ treatment pilot system with oversight from the department. No uranium contamination was found associated with the pilot system. The uranium concentrations in the groundwater have declined to below standards, but the cause of the increase has not been identified. Monitoring of the suspect well continues on a more frequent basis.

## 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. This requirement only applies to properties cleaned up under the program. No annotation is required on properties 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 properties that did participate in the program 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. Without the rule, states contend they need not 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 legislation requiring a report for all building permits and/or real estate transactions in the affected areas.

# Surface Program/Disposal Site Issues

## Land Transfer

To preclude windfall profits to the mill site owners, the UMTRCA statute required the state to take title to the property. The statute allows the state to keep the property, sell it (giving 90 percent 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. In addition, the department has been working with Dow Chemical (parent of Umetco Minerals) to execute environmental covenants on the Slick Rock Mill sites. There is an outstanding issue regarding transfer of the Naturita site to the town of Naturita. During spring 2009, the town expressed its desire to obtain the property. The current owners want to sell, rather than donate the property to the town, but have not determined an asking price. The next step would be a property appraisal. The department has no continuing involvement in this proposed property transfer other than providing technical assistance to the town.

A list of the Uranium Mill Tailings Action sites and the current owners appears below.

| 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 of the site; other half is privately owned. |
| New Rifle | City of Rifle |
| Old Rifle | City of Rifle |
| Slick Rock (2) | Dow Chemical |

# Conclusion

This annual report confirms that the department is filling a continuing need for assistance to local governments and private citizens regarding the safe handling of uranium mill tailings. Thousands of people annually require information about tailings contamination in communities affected by the Uranium Mill Tailings Remedial Action Program. Many times each year, tailings that were left behind are encountered and must be managed safely. Public outreach should continue to promote public awareness of the presence and safe management of remaining tailings.

The program continues to operate cost-effectively by providing services to Western Slope communities and citizens dealing with uranium mill tailings within a budget largely financed by interest from funds remaining in the Uranium Mill Tailings Remedial Action Trust Fund after it was absorbed into the Mineral Severance Tax Fund. This report shows all the involved parties have worked cooperatively to achieve program goals.

# Fiscal Year 2012 Budget Request

The spreadsheet on page 8 presents the 2012 budget request, which basically is the same as 2011, as no increases in personnel costs are expected. The budget remains insufficient to cover various routine and special costs. For example, when the division allocates costs across programs, the UMTRCA Program is left out due to lack of funds, and other programs must pick up the slack.

The program began digitizing the microfilm in 2010 and was able to fund this work by having staff assist other programs and using the resulting UMTRA program cost savings. However, much work is still needed to be able to use these newly digitized records. The digitized files comprise 70,000 records that must be indexed. The department is digitizing new property reports and need to create a database to track these files and to integrate them with the newly digitized microfilm files. Scanning old paper records and adding these to the database began in 2011. Currently, staff work on these tasks as they have available time. Using existing budget and staff, it is estimated it will take several years to get all the files indexed and into an electronic database.

# Fiscal Year 2012 Budget Request (July 2011-June 2012)

| a. Personnel | | | POST-UMTRA (7X2) | | Groundwater (RJ2 & 7J2) | | TOTAL |
|---|---|---|---|---|---|---|---|
| Title | Task | Salary* | FTE | Cost | FTE | Cost | |
| Program Manager | Policy | $ 133,880 | 0.03 | $4,016 | 0.00 | $0.00 | $4,016 |
| Professional Engineer | Technical review | $ 103,329 | | $0 | 0.15 | $15,499.35 | $15,499 |
| Env. Protection Spec. | Technical review | $ 97,010 | 0.97 | $94,100 | 0.03 | $2,910.30 | $97,010 |
| Env. Protection Spec. | Technical review | $ 97,734 | 0.06 | $5,864 | | | $5,864 |
| Program Assistant I | Staff support | $ 61,607 | 0.93 | $57,295 | 0.02 | $1,232.14 | $58,527 |
| Administration | Budget management | | 0.39 | $32,371 | | $9,425.06 | $41,796 |
| | Retirement payouts | | | $0 | | | $0 |
| | **Personal services subtotals** | | **2.38** | **$193,645** | **0.20** | **$29,066.85** | **$222,712** |
| | | | **2.38** | **$193,645** | **0.20** | **$29,066.85** | **$222,712** |
| **b. Travel** | | | | $210 | | $1,297.80 | $1,508 |
| **c. Operating** | Supplies | | | $5,200 | | $1,297.80 | $6,498 |
| | Vehicle Lease & Mileage | | | $3,200 | | $1,081.50 | $4,282 |
| **Contractual** | Legal Services | | | | | $5,360.00 | $5,360 |
| **Other** | Training | | | $525 | | $648.90 | $1,174 |
| | Medical Monitoring | | | $525 | | $420.00 | $945 |
| | OIT | | | $2,500 | | $500.00 | $3,000 |
| | | **Total Direct Charges** | | **$205,805** | | **$39,672.85** | **$245,478** |
| **INDIRECT** | | | | | | | |
| Federal On-site @: | 19.60% | | | | | $5,004.93 | $5,005 |
| Federal Off-site @: | 14.00% | | | | | $521.95 | $522 |
| Federal Flow-thru @: | 1.70% | | | | | $82.01 | $82 |
| State Cash Onsite @: | 17.20% | | | $7,887 | | $510.33 | $8,397 |
| State Cash Offsite @: | 17.50% | | | $27,520 | | $72.49 | $27,593 |
| State Cash Flow-thru @: | 2.00% | | | $0 | | $10.72 | $11 |
| Planned Indirect | | | | $35,407 | | $6,202.43 | $41,610 |
| | | **Total Cost** | | **$241,213** | | **$45,875.28** | **$287,088** |
| | | | | $241,213 | | $45,875.00 | |
| | | **Total State Share** | | **$241,213** | **a** | **$4,560.83** | $245,773 |
| | | **Total Federal Share** | | **$0** | **b** | **$41,314.45** | $41,314 |

* Salaries include base salary plus benefits.

a - equal to 10% of Total Direct Charges plus State Cash Indirect

b - equal to 90% of Total Direct Charges plus Federal Cash Indirect