ECONOMIC IMPACT STUDY OF THE URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT IN COLORADO

December 1993

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URANIUM MILL TAILINGS REMEDIAL ACTION
PROJECT IN COLORADO**

COLORADO STATE FISCAL YEAR 1993

December 1993

**Prepared for
U.S. Department of Energy
UMTRA Project Office
Albuquerque, New Mexico**

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Albuquerque, New Mexico**

EXECUTIVE SUMMARY

The Colorado economic impact study summarizes employment and economic benefits to the state from activities associated with the Uranium Mill Tailings Remedial Action (UMTRA) Project during Colorado state fiscal year 1993 (July 1, 1992, through June 30, 1993). To capture employment benefits, a questionnaire was distributed to subcontractor employees at the active UMTRA Project sites of Grand Junction, Rifle, and Gunnison, Colorado. An estimated 52 percent of the employees working on the UMTRA Project responded to this information request. Economic data were requested from each site prime subcontractor, as well as from the Remedial Action Contractor. The most significant benefits associated with the UMTRA Project in Colorado are summarized below.

EMPLOYMENT

- Direct employment was estimated at 894 workers; this represents the number of workers hired for either permanent or seasonal work.
- An estimated 89 percent of all direct employment was local. Local is defined as maintaining a permanent residence within a daily commute of work.
- Secondary employment resulting from remedial action at the active Colorado UMTRA Project sites and the Grand Junction vicinity property program is estimated at 546 workers.
- Total employment (direct and secondary) is estimated at 1440 workers for the state fiscal year.

ECONOMIC BENEFITS

- An estimated \$24.1 million was paid in direct wages to UMTRA workers in Colorado.
- Secondary wage earnings were estimated at \$15.8 million, for a total earnings of \$39.9 million.
- Income tax payments to the state were estimated at \$843,400.
- The gross economic impact of UMTRA Project activities in the state of Colorado is estimated at \$70 million.
- The net economic benefit to Colorado was estimated at \$57.5 million, or \$5.90 per dollar of funding provided by the state. This figure includes both direct and secondary benefits.

OTHER BENEFITS

- Employment on the UMTRA Project provides training opportunities that apply to other employment prospects.
- More than 40 communities in the state of Colorado benefited from purchases or provided services related to the UMTRA Project.
- More than 300 subcontractors and vendors within the state supplied services and materials to the UMTRA Project valued at more than \$17 million.

The UMTRA Project provided specific services in some communities. In Gunnison, a permanent alternate water supply system was constructed to serve residents in the Dos Rios subdivision. In addition, the UMTRA Project is restoring and enhancing wetland and riparian areas as mitigation for wetland and wildlife impacts on land administered by the U.S. Bureau of Land Management.

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LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
DOE	U.S. Department of Energy
ICC	Industrial Constructors Corporation
km	kilometer
mi	mile
MK-F	Morrison Knudsen-Ferguson
RAC	Remedial Action Contractor
TAC	Technical Assistance Contractor
UMTRA	Uranium Mill Tailings Remedial Action
VP	vicinity property

1.0 INTRODUCTION AND APPROACH

As required by the Romer-Twining Agreement of 1990, the U.S. Department of Energy (DOE) has prepared the annual economic impact study for the state of Colorado. This report assesses the economic impacts related to the DOE Uranium Mill Tailings Remedial Action (UMTRA) Project in Colorado during the state fiscal year between July 1, 1992, and June 30, 1993. Employment, salaries and wages, and other related economic benefits are discussed, quantified, and then compared to the state's 10-percent share of the remedial action costs to estimate net economic benefit. When possible, actual data have been used to describe the situation; however, due to the complexity of the UMTRA Project and large numbers of subcontractors involved, the data were not always available and estimates were used to derive economic indicators.

This study describes the types of employment associated with the UMTRA Project and estimates of the numbers of people employed by UMTRA Project subcontractors in Colorado during the 1992-1993 state fiscal year. Jobs are described as permanent or seasonal and in terms of benefitting local or out-of-the-area workers and communities. Secondary employment is estimated using a multiplier developed by the Colorado Division of Local Government. Finally, a comparison is made to fiscal year 1992 employment levels and to future UMTRA Project needs. Economic benefits related to the employment, salaries and wages, and purchases of supplies and materials, and other expenditures are derived from the use of actual numbers in combination with estimates and economic multipliers.

This is the second year the annual Colorado economic impact study has used actual information from field data collection to estimate employment and economic benefits. In some instances, the data base may vary slightly from 1992 because of refinements made in data collection methods for this report. These instances are noted in the text.

Most raw data necessary for this report were collected by Morrison Knudsen-Ferguson (MK-F), the UMTRA Project site Remedial Action Contractor (RAC) to the DOE. MK-F obtained information from subcontractors and provided information specific to the MK-F management of the remedial action site activities. The vicinity property (VP) program is coordinated by Rust Geotech, Inc. (Geotech), in Grand Junction, Colorado. Geotech was instrumental in providing data on the VP program employment and economic benefits. Southwest Environmental, an independent contractor, prepared the employment analysis. Jacobs Engineering Group Inc., the UMTRA Project Technical Assistance Contractor (TAC) to the DOE, provided program-level information and prepared the economic analysis.

VPs are properties located outside a designated site boundary that have been contaminated by tailings dispersed by wind or water erosion or used by people before the hazards of the tailings were known. The VP program was initiated to cleanup individual residences, commercial structures, public facilities, and vacant properties. Originally, over 4000 VPs were identified for cleanup in the state of Colorado. Most of these properties are located in Grand Junction.

MK-F requested their prime subcontractors at the Grand Junction, Gunnison, and Rifle UMTRA Project sites to complete questionnaires, in order to have site-specific information for preparing this study. Not all workers were available at the time the information was requested; approximately 52 percent of all workers employed during the study period completed and returned the questionnaires. The responses on the questionnaires substantiate the estimates provided by the subcontract site managers. The questionnaire is provided in Attachment 1.

This study assesses benefits associated with the Grand Junction, Gunnison, and Rifle UMTRA sites for the 1-year period under study. Remedial action at the Naturita UMTRA site is scheduled to begin in 1994. Work at the Slick Rock and Maybell sites is expected to begin in 1995. The only current economic benefits associated with the Slick Rock, Naturita, and Maybell sites are related to UMTRA Project support work (e.g., field studies).

2.0 UMTRA PROJECT EMPLOYMENT NEEDS

MK-F manages each UMTRA Project site surface remedial action and oversees the activities of many subcontractors. A prime subcontractor for each site is selected through a competitive bidding process and must be approved by MK-F and the DOE. The prime subcontractors may hire other subcontractors to perform portions of their contracts. The following prime subcontractors are currently active at UMTRA Project sites in Colorado:

- Grand Junction site: Industrial Constructors Corporation (ICC), of Missoula, Montana.
- Gunnison site: AMES Construction, Inc. (AMES), of Burnsville, Minnesota.
- Rifle sites: Green International, Inc. (Green), of Denver, Colorado.

In addition, portions of the remedial action are not awarded to the prime subcontractor but are independently contracted by MK-F, who manages those contracts. The purpose of hiring many subcontractors is to distribute the economic benefits related to the UMTRA Project and to provide opportunities to small Colorado businesses. More than 300 Colorado subcontractors and vendors supplied services and materials to the UMTRA Project during the 1993 state fiscal year.

The VP cleanup programs are managed slightly differently. The variety of site conditions present often requires more than one contractor to manage cleanup and restoration. These subcontracts typically have been awarded to small businesses in the area. Attachment 2 lists the subcontract companies used for VP cleanup in 1993. In Grand Junction, 50 companies completed cleanup of 193 properties. With 53 properties remaining, an estimated 4141 VPs were completely cleaned up as of July 1993 (Elmer, 1993). In Gunnison and Rifle, remediation of VPs continued in fiscal year 1993. VP cleanup in Gunnison is expected to be complete in 1994. In Rifle, remedial action will begin in fiscal year 1994 on several VPs. VP cleanup typically requires demolition, if buildings are present and contaminated; removal of all contaminated soils and other materials, if present; and restoration of disturbed areas.

In addition to work on the processing/disposal sites and VPs in fiscal year 1993, significant work was completed on providing an alternate water supply system for the residents of the Dos Rios Subdivision adjacent to the Gunnison processing site. The DOE is providing a water supply system to these residents because the groundwater they were using for drinking water was found to contain low levels of contamination related to elements leaching out of a tailings pile approximately 0.5 mile (mi) [0.8 kilometers (km)] east of the subdivision. This tailings pile is on the Gunnison processing site. The contract to provide the water system is managed by Tierdael Construction from Denver and Southwest Contracting from Cortez, Colorado.

2.1 REMEDIAL ACTION EMPLOYMENT NEEDS

UMTRA Project remedial action employment needs are similar to those of large earth-moving projects; i.e., they require large numbers of truck drivers and heavy equipment operators. However, the unique needs of the UMTRA Project often require specific experience that local workers have not obtained through work in the mining or construction industries. The contaminated materials contain low levels of radioactivity; all handling and transportation activities are subject to federal and state regulations. To most efficiently move these large volumes of contaminated materials, trucks with a capacity of 18 to 20 cubic yards are used. For these reasons, area workers who are experienced in driving commercial trucks or operating mining equipment generally are not qualified to immediately assume a truck driver or heavy equipment operator position at an UMTRA Project site. On-the-job training is provided, when possible. In addition to truck drivers and equipment operators, other employment categories typically required include surveyors, mechanics, laborers, health physics monitors, and engineers. Each subcontractor generally relocates experienced managers from other office locations to supervise their contracts. Workers hired for most other job categories, such as truck drivers, laborers, mechanics, or equipment operators, are recruited from local areas. Subcontractors use news releases, local job service offices, company announcements, and local colleges to advertise the need for these positions. Managerial positions are generally permanent for the length of the remedial action (3 to 5 years). Most other positions are seasonal; that is, the duration of employment is dependent on the weather, specific UMTRA Project needs, or permit restrictions. Rifle and Gunnison experience severe winter weather and also have mandatory shutdown periods in the winter and spring for wildlife mitigation. Workers laid off in the fall are encouraged to return in the spring. Some jobs may require only a few weeks (e.g., building a fence). More typically, seasonal workers are hired for 5 to 6 months.

2.2 VICINITY PROPERTY EMPLOYMENT NEEDS

Employment related to the VP program typically uses skills associated with the construction, landscaping, or reclamation jobs. The duration of the subcontracts relates to the amount and type of contamination present on the property. Remediation at some properties may be completed in one week, while at others it may take months or years. In fiscal year 1993, Grand Junction VP subcontractors worked most of the year.

2.3 DOS RIOS WATER SUPPLY SYSTEM EMPLOYMENT NEEDS

Work activities on the water supply system required experience in excavation and trenching, pipe laying, and miscellaneous job skills related to constructing a water supply system (e.g., providing service hookups from the pipes to residences, building a water treatment plant, and installing a water tank). Most of this project was completed during the study period.

2.4 TRAINING

Through its contractors, the DOE provides training for all employees hired for UMTRA work. Table 2.1 lists training classes and their applicability to other similar work, particularly to superfund sites (Logan, 1993).

Table 2.1 UMTRA Project training

Training subject	Superfund site applicability
ESH site indoctrination	No
Respiratory protection	No
Hazard communication	No
Hearing communication	No
Radiation worker	No
Occupational worker ^a	No
Transportation	No
Fire prevention	No
Asbestos abatement	Yes
40-hour OSHA (29 CFR 1910.120)	Yes
24-hour OSHA (29 CFR 1910.120)	Yes
8-hour OSHA annual refresher	Yes
8-hour OSHA for supervisors	Yes
OSHA construction regulations course	Yes
Cardiopulmonary resuscitation/first aid	Yes
Bloodborne pathogens	Yes

^aRadiation training for visitors.

ESH - Environment, safety, and health.

OSHA - Occupational Safety and Health Administration.

Chem Waste Management Federal Environmental Services (Chem Waste Management) provides radiation monitoring training for inexperienced workers. An inexperienced worker is paired with an experienced individual to learn on-site work skills, provided in-class training, and tested. The training takes approximately six months to complete. At the end of the remedial action, these workers generally

find other work opportunities at national laboratories or Superfund sites (Couch, 1993).

In general, employee health, safety, and technical training are provided at the work site. Weekly safety meetings are mandatory for all workers. In addition to formal training, on-the-job training is conducted. An individual with some experience in operating heavy equipment may not have the necessary experience to immediately begin working with the contaminated materials or on the specific construction equipment in use at the site. Through on-site, progressively increasing experience, an individual may acquire the skills required to assume greater project responsibility and to enhance employment potential on other projects.

2.5 SECONDARY EMPLOYMENT

In addition to employment directly related to the UMTRA site or VP remediations, secondary employment occurs as a result of direct employment as a project brings increased money into an economy and the increased demand for workers supports the new purchases. Secondary employment typically occurs primarily in the services sector. Due to the long-term impact of the VP program in Grand Junction, and large remedial action work force, it is assumed that secondary employment has occurred in Grand Junction. It is likely that some secondary employment is occurring in Gunnison and Rifle. The Colorado Division of Local Affairs suggests the use of 1.5 as a multiplier to determine secondary employment related to the UMTRA Project (Larson, 1993). However, because of the unique nature of the UMTRA Project, the secondary employment reported in the following sections should be viewed with caution. The largely seasonal nature of most UMTRA work suggests that applying the multiplier to all reported jobs for the Gunnison and Rifle sites may result in higher levels of secondary employment than actually occur.

3.0 UMTRA PROJECT MATERIAL, SERVICES, AND SUPPORT

3.1 MATERIAL AND SUPPLY NEEDS

As previously described, the UMTRA Project site remediations require work activities that would be considered similar to those used on large earth-moving operations. Typically, supplies, materials, and services are those that would be associated with a large earth-moving project. When they are available and cost-effective, they are purchased locally. These purchases include fuel and oil for equipment, fencing materials, building supplies, laboratory analysis, equipment repair, miscellaneous office supplies, hardware and equipment parts, incidental office supplies, land appraisals, and training. The supplies and materials associated with VP remediations typically include building or construction materials. Purchasing supplies and materials locally is an UMTRA Project priority. If materials and supplies are not available locally, or if it is not cost-effective to purchase them locally, the region and state are evaluated for possible vendors before out-of-state purchases are made. Attachment 2 provides a partial list of vendors and subcontractors used for material, supplies, and service for the UMTRA Project and the city in which they are located. This list is not intended to be complete, but to indicate the extent to which the UMTRA Project benefits businesses in communities throughout the state. As shown in the attachment, materials and supply purchases benefit communities of all sizes within the state of Colorado, including the Denver metropolitan area.

3.2 SUPPORT NEEDS

In addition to direct services, material and supply purchases, and employment directly related to remedial action activities, other activities and purchases occur in Colorado in support of the UMTRA Project. For example, before a disposal site is identified, various field studies must be completed to evaluate the appropriateness of the proposed site (or sites) and to comply with federal and state regulations. These field studies and related laboratory tests usually are contracted to Colorado companies and may include contracts for laboratory analysis of water samples, field surveys in potentially disturbed areas for cultural and similar resources. Also, supplies may be purchased in the field. Other support activities are more general, and may include attending meetings with local planning commissioners to ensure that all necessary permits and local requirements are met. Each of these activities results in purchases and local expenditures (e.g., meals and motels) for nonlocal field personnel.

4.0 UMTRA PROJECT EMPLOYMENT IN COLORADO IN FISCAL YEAR 1993

UMTRA Project-related employment in Colorado from July 1, 1992, to June 30, 1993, resulted in an estimated 894 direct and 546 secondary jobs of all kinds. Because of the seasonal nature of remedial action and the lengthy winter shutdown periods, interpreting the numbers of jobs attributed to the UMTRA Project as full-time employment would be misleading. This study only identifies the number of jobs created for fiscal year 1993. Approximately 794 (89 percent) of the direct jobs were filled by area or local residents. These results are based on the following assumptions:

- Workers from local areas are defined as those workers who commute on a daily basis to the work site from area communities. Generally, "local" includes towns within a 60-mi (96-km) radius of the processing site. In rural, western states, workers generally are willing to travel longer distances for a job than would be true in more densely populated areas.
- "Permanent employment" refers to employment lasting the duration of the remedial action (3 to 5 years). Although many workers are rehired after the winter shutdown, these workers would not be considered permanent. Permanent workers are typically site managers, engineers, and some radiation monitoring staff.
- "Seasonal" or "temporary employment" refers to employment that is tied to the construction season, or that may be tied to specific short-term tasks, such as installing a fence.
- The number of jobs is reported regardless of the length of the job. Using the actual numbers of workers employed by UMTRA Project subcontractors provides a useful assessment of UMTRA-related employment. Workers who have an opportunity for work that was not previously available and who are provided training are better able to find permanent employment than the long-term unemployed.

4.1 GRAND JUNCTION

4.1.1 Remedial action employment

The remedial action contract was awarded to ICC in March 1989. Work at the site shut down December 1, 1992, and started again March 1, 1993. During fiscal year 1993, the main activity consisted of transporting the contaminated materials by train and truck from the processing site to the Cheney disposal site. This activity required large numbers of truck drivers and heavy equipment operators. The transportation phase was finished in August 1993. The remedial action is expected to be complete by June 1994. Although most of the work force were not available to answer the questionnaire, worker characteristics (local versus nonlocal) are expected to be similar to those identified in the fiscal year 1992 study (DOE, 1993). It is estimated that about 90 percent of all workers were from the Grand Junction area. Table 4.1 shows the number of employees working in fiscal year

1993 for each of the major subcontractors at the Grand Junction site. Compared to the total number of workers employed on the remedial action in fiscal year 1992 (360 persons), the fiscal year 1993 levels are lower, as expected, because of the general winding down of the project.

Table 4.1 Estimated average remedial action employment at the Grand Junction UMTRA Project site, fiscal year 1993

Contractor	Fiscal year 1992	Fiscal year 1993
MK-F	22	24
ICC ^a	261	175
Denver and Rio Grande Western Railroad	6	6
Chem Waste Management	71	84
Total	360	289

^aTotals for ICC include their major subcontractors.

Between 50 and 60 people are expected to be employed on remedial activities in 1994. This estimated average employment reflects work related to final cover placement and processing site reclamation.

4.1.2 Vicinity property program employment

In addition to employment related to the remedial action in Grand Junction, the vicinity property program, which is also nearing completion, has significantly affected employment. This employment is considered as full time because work on the VP program generally is not subject to weather restrictions. The direct employment related to program management was 172 jobs and indirect employment was 118 jobs. In this case, indirect employment includes office support and overhead. Subcontractor employees are estimated at 185. The direct and indirect Geotech employment was comprised of all local workers (Elmer, 1993). Because all subcontractors were from the Grand Junction area, they are assumed to be local, as well. The total number of direct jobs related to the VP program is 357. As anticipated, there were 66 fewer jobs in fiscal year 1993 than in fiscal year 1992 when total VP employment was estimated at 423.

4.1.3 Secondary employment

Using the 1.5 multiplier suggested for determining secondary employment (Section 2.5) results in an additional 145 jobs generated by the site remedial action and 179 jobs related to the VP program. Including the indirect jobs (118) associated with overhead support to Geotech results in a total secondary employment of 442 jobs.

4.1.4 Total employment impact

Table 4.2 summarizes the average total estimated employment related to Grand Junction site remedial action and the VP program. Compared to fiscal year 1992, there were 165 fewer jobs in Grand Junction related to the UMTRA Project. Although the transportation phase ended in August 1993, the local Job Service Office did not report changes in the number of applicants. The large work force in Mesa County (greater than 40,000 workers) also suggests that the decreasing UMTRA employment levels represent less than a 1-percent change in employment.

**Table 4.2 Total estimated employment related to the
Grand Junction UMTRA Project activities**

Direct employment	Fiscal year 1993
Remedial action direct employment	289
Geotech direct employment	172
VP subcontracts direct employment	185
Total direct employment	646
Secondary employment	
Remedial action secondary employment	145
VP indirect employment	118
VP secondary employment	179
Total secondary employment	442
Total all employment	1088

4.2 GUNNISON

4.2.1 Remedial action employment

The remedial action contract for Gunnison was awarded to AMES in June 1992. The major work effort during fiscal year 1993 included site preparation and

activities needed to prepare for hauling the tailings. Site activities shut down for the winter at the end of October 1992, and start up began in early April 1993. Table 4.3 summarizes employment at the Gunnison site. During fiscal year 1993, 76 workers were employed on site remedial activities; an estimated 62 percent of this work force was from the local area. The percentage of local employees reflects the smaller size of Gunnison and the rural nature of the surrounding area. In fiscal year 1992, only 17 workers were employed at the Gunnison site, as remedial action was just beginning. Employment is expected to increase in 1994 as tailings continue to be transported to the disposal site. As employment increases in 1994, it is expected most of the new jobs will be filled locally. Although work continued on the airport VP, the cleanup is not complete and only small numbers of workers were used for short periods of time.

Table 4.3 Estimated average remedial action employment, Gunnison

Subcontractor	Fiscal year 1993	Fiscal year 1992
MK-F	18	7
AMES	30	7
Chem Waste Management	<u>28</u>	<u>3</u>
Total	76	17

4.2.2 Secondary employment

In addition to direct employment, secondary employment may be occurring in Gunnison. Applying the 1.5 secondary employment multiplier to the 76 direct jobs results in an additional 38 jobs generated by the UMTRA Project.

4.2.3 Dos Rios water supply employment

In addition to the remedial action, construction began on the Dos Rios water supply system in fiscal year 1992. Most of the work will be completed by December 1993, with the system fully operational by the end of 1994. It is estimated that approximately 40 workers were employed in pipeline, water tank, and water treatment plant construction. Most of these workers were hired locally. Due to the short-term nature of this project it is unlikely that secondary employment was generated.

4.2.4 Total employment impact

Table 4.4 shows the estimated total direct and secondary employment related to the UMTRA Project activities in Gunnison.

Table 4.4 Total estimated employment related to Gunnison UMTRA Project activities

Employment	Fiscal year 1993
Remedial action direct employment	76
Remedial action secondary employment	38
Dos Rios water supply system	40
Total	154

4.3 RIFLE

4.3.1 Remedial action employment

The remedial action contract was awarded to Green International in April 1992. During fiscal year 1993, excavation and preparation of the Estes Gulch disposal cell was completed and the haul phase began. Site activity shut down for the winter by mid-November 1992, and start up began in mid-April 1993. No work on vicinity properties occurred until July 1993.

The average work force during the summer construction season was 132, with a peak of 163 as tailings hauling began. Most of the workers (an estimated 82 percent) are from the local area. Table 4.5 summarizes employment at the Rifle site by major company. In fiscal year 1992, a total of 45 workers were employed in remedial action activities, reflecting the lower levels of employment during start-up. It is estimated that work force levels will increase in 1994 with the continuation of the haul phase.

Table 4.5 Estimated employment at the Rifle UMTRA Project site

Company	Fiscal year 1993	Fiscal year 1992
MK-F	23	11
Green	37	28
Nordic	25	-
Chem Waste Management	47	6
Total	132	45

4.3.2 Secondary employment

In addition to direct employment, some secondary employment is expected to be occurring. Applying the 1.5 multiplier to 132 results in an estimated 66 additional jobs.

4.3.3 Total employment impact

Table 4.6 summarizes the total employment associated with the Rifle UMTRA site in fiscal year 1993. These levels are expected to increase in fiscal year 1994 because of work on VPs and the need for more truck drivers to complete the transportation phase. A total of 198 jobs related to work on the UMTRA Project in Rifle are estimated for fiscal year 1993.

Table 4.6 Total estimated employment related to Rifle UMTRA Project activities

Employment	Fiscal year 1993
Remedial action direct employment	132
Remedial action secondary employment	66
Total	198

4.4 TRENDS IN UMTRA PROJECT EMPLOYMENT IN COLORADO

Table 4.7 summarizes direct and secondary employment that occurred during fiscal year 1993 in Colorado. In spite of work winding down at the Grand Junction site in fiscal year 1993, the increases in work at the Gunnison and Rifle sites resulted in a net increase of 125 workers. With remedial action starts at the Naturita site in Colorado in fiscal year 1994, employment levels should remain similar to those in fiscal year 1993.

Concern has been expressed regarding an anticipated drop in employment in Grand Junction with the completion of both the VP program and remedial action. Geotech has been successfully reassigning their staff. By the end of September 1993, for example, the number of direct jobs had decreased to 72 (down from a peak of 177 in March 1993) and all but 13 employees were reassigned to other projects in Grand Junction. Geotech has an aggressive program to assist workers laid off the UMTRA Project as work is completed (Elmer, 1993). ICC is attempting to place its workers in other ICC projects, which may mean relocation. Finally, the Chem Waste Management employees trained in radiation monitoring are also finding other employment, although they are sometimes required to relocate to other Colorado communities or to other states. In addition, remedial action will continue at Rifle

and Gunnison, and over the next 2 years is scheduled to begin at the Naturita, Slick Rock, and Maybell UMTRA Project sites. Consequently, overall employment levels on UMTRA Project activities in Colorado are expected to remain about the same over the next few years, although the location of work may be redistributed within the Western Slope area.

Table 4.7 Total estimated UMTRA Project employment in Colorado

Direct employment	Fiscal year 1993	Fiscal year 1992
Grand Junction site remedial action	289	360
Grand Junction VP program	357	423
Gunnison remedial action	76	17
Dos Rios water supply system	40	-
Rifle remedial action	132	45
Total	894	845
Secondary employment		
Grand Junction site remedial action-related	145	216
Grand Junction VP program-related	297	254
Gunnison remedial action-related	38	a
Rifle remedial action-related	66	a
Total	546	470
Total all employment	1440	1315

^aNo secondary employment was estimated in fiscal year 1992 because the small number employed during start-up would likely not have generated additional jobs.

In the longer term, completion of remedial action at the Colorado UMTRA Project sites could result in some reduction in economic activities within specific communities and throughout the Western Slope. The extent of this impact depends on the degree to which the UMTRA Project added new jobs, increased sales, and added revenues to local government entities. Underemployment may occur if local residents who had worked on the UMTRA Project take less skilled and lower paying positions to stay in their communities. However, construction in western Colorado has picked up over the past year because of a large influx of people moving to the Western Slope communities of Grand Junction, Montrose, Telluride, and other area communities from California, Texas, and Arizona. Because skilled construction workers are in limited supply, there are other employment possibilities that were not available a few years ago.

5.0 ECONOMIC IMPACTS

Generally, economic benefits accrue from direct UMTRA Project employment, purchase of goods and services to support UMTRA Project activities, and the recirculation of monies by the Project and workers. In addition, monies are returned to the state and local economies in increased tax revenues that include income, property, sales, and use taxes. Economic benefits discussed in this section include employee wages and salaries, subcontract monies, purchase of goods and services to support UMTRA Project activities (vendor information), income taxes paid by UMTRA Project workers in Colorado, and sales tax payments from materials purchased to support remedial action. Where data were unavailable, estimates are provided and the basis for the estimates are outlined.

5.1 WAGES AND SALARIES

Total wages paid to personnel working on the UMTRA Project in Colorado were estimated at about \$24 million during the study period. Total wages for employment at the three remedial action sites were an estimated \$11 million. Table 5.1 shows the total wages paid at each of the three sites and Grand Junction VPs. Wages shown in the table are those paid by MK-F, Chem Waste Management, Geotech, and the prime subcontractors at each site. It does not include wages paid to lower-tier subcontractors (i.e., contractors employed by the prime subcontractor). Wages paid were fairly evenly distributed among the three Colorado UMTRA Project sites, consistent with the activity level at each site. The table also shows wages paid during the previous study period. In the fiscal year 1992 study period, remedial action was in a start-up phase at the Rifle and Gunnison sites and wages were paid at those sites for only a few months. Wages paid during the current study period reflect a full construction season (7 to 10 months). While the VP program still represented the largest single source of wages for the UMTRA Project in Colorado, its portion of total wages paid was 54 percent in fiscal year 1993 compared to 68 percent in the previous year. Remedial action at Grand Junction represents 40 percent of wages paid at UMTRA Project sites in Colorado, down from 85 percent in fiscal year 1992. Again, this reflects the higher level of activity at the Rifle and Gunnison sites during the current period, and the beginning of a wind-down in the activities at Grand Junction.

Direct UMTRA-related wages associated with the Grand Junction VP program totaled an estimated \$13.1 million and includes prime contractor personnel (field personnel, construction supervision, clerical support) and wages paid to subcontract employees. The estimated \$24 million paid in wages and salaries during the study period represents only wages directly attributable to UMTRA Project activities in Colorado.

Secondary labor income results from the direct labor income. This secondary labor income includes indirect income generated by UMTRA Project expenditures for materials, equipment, and supplies and induced income that results from

Table 5.1 Wages paid at active UMTRA Project sites in Colorado

Site	Total wages paid in \$ ^a	
	Fiscal year 1993	Fiscal year 1992
Rifle	3,718,600	726,900
Gunnison	2,876,400	239,000
Grand Junction	4,389,500	5,614,000
Total	\$10,984,500	\$6,580,500
Grand Junction VPs ^b	\$13,092,000	\$13,652,800
Grand total	\$24,076,500	\$20,233,300

^aPayroll information is based on data supplied by site contractors.

^bTotal includes about \$7.9 million in labor costs for Geotech VP prime subcontractors.

Note: Numbers recorded to the nearest \$100.

employment created by respending direct and indirect labor income within the state. While the direct labor income provides economic benefits through the generation of secondary income, not all the direct income remains within the state. Some contractor personnel reside outside the state and a portion of their income probably will return to their states of permanent residence. This would be particularly true of workers who do not bring their families or the workers who remain in the state only during the construction season.

Secondary (indirect and induced) earnings are estimated using multipliers that represent the additional income earned for each direct dollar. Multipliers used in this study are provided by the Colorado Division of Local Government, which has updated and revised multipliers for this year's economic impact study (see Attachment 3). The earnings multipliers used represent the average industry multiplier for the applicable region in Colorado. For example, an earnings multiplier of 1.669 was applied to direct income earnings at the Grand Junction and Rifle sites. This represents an average of the three industry sector multipliers shown in Attachment 3 in the energy and mining region of the state. For the Gunnison site, an earnings multiplier of 1.558 is the average industry multiplier for the ski country region, and that was applied to the direct income to estimate secondary earnings. Table 5.2 shows estimated direct and secondary earnings at the UMTRA sites in Colorado.

As shown in Table 5.2, a total of \$15.8 million was estimated in secondary earnings from UMTRA Project activities at the remedial action sites and Grand Junction VPs. Direct and secondary income totaled \$39.9 million during the study period. This is \$7.8 million higher than fiscal year 1992, when an estimated \$32.1 million was generated in direct and secondary wage income.

Table 5.2 Income impact from UMTRA Project activities in Colorado, July 1, 1992, to June 30, 1993

Site	Thousands of dollars		
	Direct earnings	Secondary earnings	Total earnings
Rifle	3,719	2,488	6,207
Gunnison	2,876	1,605	4,481
Grand Junction site	4,390	2,937	7,327
Grand Junction VPs	13,092	8,759	21,851
Total	24,077	15,789	39,866

Note: Secondary multipliers used were based on the average earnings multiplier applicable to the site areas provided by the Colorado Division of Local Government.

5.2 OTHER UMTRA PROJECT EXPENDITURES

Other expenditures include UMTRA Project resource requirements and linkages that are key to determining the level of secondary effects. Linkages are other businesses within the community that provide resource requirements. The local linkages benefit from UMTRA Project purchases and services. Secondary effects occur when linkages respond these dollars in the community. The level of impact depends on the availability of the businesses required and the extent to which the Project uses them.

Obtaining primary resources from the local communities is preferable. Purchasing construction materials in bulk from local communities is preferred, because of lower transportation costs. If the needed materials are not available locally, purchases are diverted to the nearest available source.

An estimated \$18.4 million was provided for other subcontract (lower tier) and vendor expenditures within Colorado during the study period. These expenditures include the purchase of supplies and materials, dislocation monies, subcontracts, equipment rental, and the like. The \$18.4 million includes only subcontractor and vendor expenditures by Geotech and MK-F for companies located within Colorado. Because Green International, prime subcontractor at the Rifle site, is a Colorado company, payments to them are included in the total estimate. However, payments to ICC and AMES, prime subcontractors at the Grand Junction and Gunnison sites, are not included because these firms are located outside of Colorado. It is likely that these companies return a portion of their payments to the state economy through purchase of materials and supplies from Colorado companies. Lower-tier subcontractor and vendor expenditures represent most of the estimated \$29.6 million in other UMTRA Project expenditures within the state

of Colorado during the study period. Table 5.3 breaks down these categories and estimated expenditures. Other expenditures include administrative and office overhead costs, DOE and TAC expenditures for Project-related travel to Colorado, and monies to Colorado firms that performed special studies or analyses (e.g., cultural resource surveys and water sampling analyses) to meet UMTRA Project requirements during the study period.

Table 5.3 Other UMTRA Project expenditures

Category	Expenditures
Subcontractor/vendor	\$18,389,500
Administrative/office overhead	10,127,900
Travel costs (motels, meals, auto rental)	95,950
Special study/analyses	1,035,200
Total	\$29,648,550

5.3 TAXES

In addition to the UMTRA Project expenditures discussed above, the Project provides economic income to the state through payment of taxes. The primary tax source to the state from the UMTRA Project is income tax payments. During the study period, an estimated \$3.7 million was paid in state and federal income taxes. Of this, \$843,400 was state of Colorado income tax. Table 5.4 shows the income tax payments per site during the study period. Income tax payments shown in Table 5.4 are based on wages paid for direct labor. The data shown in the table include income tax payments made by Geotech and MK-F and estimates of payments made by the prime subcontractors. Estimated income tax payments are slightly higher than fiscal year 1992 when \$3.1 million was paid, \$686,800 of which was state income tax payments.

Table 5.4 Income tax payments

Site	Federal	State	Total
Rifle	\$458,500	\$137,600	\$596,100
Gunnison	354,700	106,400	461,100
Grand Junction remediation	541,200	162,400	703,600
Grand Junction VPs	1,526,000	437,000	1,963,000
Total	\$2,880,400	\$843,400	\$3,723,800

Applying the same multipliers used to project secondary income impacts (i.e., wages generated by secondary employment) to the income tax withholdings results in an additional \$552,324 in income tax payments to the state of Colorado. This is a total \$1.4 million in estimated income tax payments to the state from wages paid for direct and secondary employment.

The type and extent of investment in UMTRA Project facilities is a factor in determining the local public sector revenues generated by the Project. The level and nature of investment refers to the degree to which land purchases or development (i.e., office buildings, and the like) are required. This type of investment is subject to local property taxes. The degree to which this investment occurs determines the amount of local public revenues generated. Unlike other development projects, the UMTRA Project will not acquire or develop any land in the communities that would otherwise be subject to local property taxes. However, remediation may affect the potential future land use of land being remediated and may increase future public revenues generated from the redeveloped land.

A number of other tax sources result (directly and indirectly) from UMTRA Project activities, providing income to state and local governments. Sales taxes generated by the purchase of goods and materials for the Project, as well as by recirculation of monies through the local, regional, and state economies, represent a source of revenue to state and local governments. In Colorado, a 3-percent sales tax is applied to all material purchases. An estimated \$342,000 was paid to the state in sales taxes on materials purchased for the UMTRA Project (this amount was estimated from data provided by Geotech and calculated from subcontractor/vendor information provided by MK-F). Some local governments also assess sales taxes. For example, \$1,256 in sales taxes were paid by the remedial action subcontractor at the Grand Junction site. Use taxes, such as fuel and tobacco taxes, are also returned to state and local governments. Travel to the Colorado sites by the DOE and other UMTRA contractors not located or working directly at the site also generated tax income (e.g., motel and lodging taxes) during the study period.

5.3.1 Summary cost/benefit

The gross economic impact of UMTRA Project activities in Colorado is estimated at \$71 million during the 1-year study period (Table 5.5). The state funding during the period was \$9.7 million. The net economic benefit to the state of Colorado was about \$58.7 million, or about \$6.05 per dollar of funding provided by Colorado. This per-dollar estimate includes both direct and secondary benefits but does not take into account the impact of alternative use of the state funding (income that would have been generated had the state's \$9.7 million share been used for other purposes). The gross economic impact considering only direct sources totals \$54.6 million. Accounting for the state's \$9.7 million funding, the direct net benefit is estimated at \$42 million, or about \$4.33 per dollar of funding.

Table 5.5 Summary economic impacts of UMTRA Project at Colorado sites July 1, 1992, to June 30, 1993

Category	Thousands of dollars		
	Direct	Secondary	Total
Labor income	\$24,077	\$15,789	\$39,866
Other expenditures	29,649	342 ^a	29,991
Colorado income tax	<u>843</u>	<u>552</u>	<u>1,395</u>
Total gross economic impact ^b	54,569	16,683	71,252
Colorado funding requirement	-9,700		-9,700
Federal income tax	<u>-2,880</u>		<u>-2,880</u>
Net economic benefit	\$41,989		\$58,672

^aSecondary impacts represent the estimated sales tax paid on material purchases by MK-F and Geotech.

^bFederal income tax payments were excluded because these payments do not accrue benefit to the state.

This study focuses on UMTRA-related economic impacts to the state of Colorado for a 1-year period. Data used were based on actual expenditures reported by contractors at each active site. Previous studies have estimated impacts for the duration of remedial activities in Colorado, including projections of future activities. Table 5.6 shows the income impacts reported for previous years, plus results from the current study. Total income impacts (direct and secondary) are estimated at \$237.4 million through June 1993. Labor income from the UMTRA Project was estimated to average \$37.5 million annually over the life of the Project (DOE, 1992). The estimated \$39.9 million (Table 5.5) for the fiscal year 1993 period is higher than the projected average.

Table 5.6 Direct and secondary income impacts from UMTRA Project activity at Colorado sites through June 30, 1993

Site	Thousands of dollars		
	Cumulative through June 1992	1993	Total
Durango	26,278	0	26,278
Grand Junction	164,981	29,178	194,159
Gunnison	404	4,481	4,885
Rifle	5,918	6,207	12,125
Total	197,581	39,866	237,447

6.0 REFERENCES

- Couch, Ernie, 1993. Chem Waste Management, Federal Environmental Services, Albuquerque, New Mexico, personal communication with Sandra Beranich, Southwest Environmental, Albuquerque, New Mexico, October 26, 1993.
- DOE (U.S. Department of Energy), 1993. *Final Colorado Economic Impact Study on the Uranium Mill Tailings Remedial Action (UMTRA) Project, Colorado State Fiscal Year 1992*, UMTRA-DOE/AL-400691.0000, DOE UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.
- DOE (U.S. Department of Energy), 1992. *Colorado Economic Impact Study for the Uranium Mill Tailings Remedial Action (UMTRA) Project, Colorado State Fiscal Year 1991*, UMTRA-DOE/AL-400676.0000, DOE UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico.
- Elmer, John, 1993. Chem-Nuclear Geotech, Grand Junction, Colorado, personal communication to Sandra Beranich, Southwest Environmental, Albuquerque, New Mexico, October 25-26, 1993.
- Larson, Dave, 1993. Colorado Division of Local Affairs, Denver, Colorado, personal communication to Sandra Beranich, Southwest Environmental, Albuquerque, New Mexico, October 28, 1993.
- Logan, Vern, 1993. Morrison Knudsen-Ferguson, Albuquerque, New Mexico, personal communication to Sandra Beranich, Southwest Environmental, Albuquerque, New Mexico, October 11 and 25, 1993.

ATTACHMENT 1
WORKER QUESTIONNAIRE

GRAND JUNCTION UMTRA PROJECT EMPLOYEE QUESTIONNAIRE¹

NAME: _____
DATE: _____

- 1) To what city and state do you claim permanent residency?
City _____ State _____
- 2) If you moved to Grand Junction for work on the UMTRA Project, please estimate the month and year of arrival. Month _____ Year _____
- 3) How did you find out about the Uranium Mill Tailings Remedial Action (UMTRA) Project in Grand Junction, Colorado?

____ Grand Junction newspaper advertisement ____ Company announcement
____ Other newspaper advertisement ____ Other (please specify) _____
- 4) Have you worked on other UMTRA Projects? If yes, please list locations.

____ Yes (locations) _____ ____ No
- 5) When did you begin work on the UMTRA Project in Grand Junction, Colorado?

Month _____ Year _____
- 6) What is your job title? (for example, site engineer, laborer, equipment operator)

- 7) What is your employee status?

____ Permanent ____ Seasonal
- 8) Did you bring family members or spouse with you? If yes, how many?

____ Yes ____ No ____ Children ____ Adults
- 9) Did you have difficulty locating housing?

____ Yes ____ No
- 10) Where are you currently residing? (for example, Grand Junction, Fruita, and so on)

City _____ State _____

¹Identical questionnaires were sent to each site; only the site name was changed on each set of questionnaires.

GRAND JUNCTION UMTRA PROJECT EMPLOYEE QUESTIONNAIRE (continued)

11) What type of residence are you living in? Do you rent or own the residence?

☐ Apartment ☐ House
☐ Mobile Home ☐ Other (specify) _____

12) Are you sharing your residence with other UMTRA workers? If yes, how many?

☐ Yes ☐ No (number of roommates/housemates) ____

13) How many miles do you drive to work?

☐ 0 to 2 ☐ 11 to 40
☐ 3 to 10 ☐ 41 to 60
☐ more than 60 (specify) _____

ATTACHMENT 2

REPRESENTATIVE UMTRA PROJECT VENDORS AND SUBCONTRACTORS

TABLE OF CONTENTS

Title

Colorado Vendors Used by Morrison Knudsen-Ferguson and Chem Waste Management
Federal Environmental Systems

Common Colorado Vendors Used by UMTRA Vicinity Property Subcontractors

Colorado Subcontractors Used for the Grand Junction Vicinity Property Program

Colorado Vendors Used by Other Prime Subcontractors on Colorado Site Remedial Actions

**COLORADO VENDORS USED BY MORRISON KNUDSEN-FERGUSON AND
CHEM WASTE MANAGEMENT FEDERAL ENVIRONMENTAL SYSTEMS**

<u>Vendor</u>	<u>Location</u>
5th Street Photo and Music	Rifle, CO
ACS	Grand Junction, CO
Action Shop Services	Rifle, CO
Ahkeah Construction	Cortez, CO
Air & Water Technologies	Gunnison, CO
Albert & Karen O'Toole	Rifle, CO
Allied Carriers Exchange	Denver, CO
Alpine Express, Inc.	Gunnison, CO
Alpine Moving & Storage	Gunnison, CO
American Indian Science	Boulder, CO
American Red Cross	Gunnison, CO
American Propane Service	Grand Junction, CO
Arrow Gas Company	Grand Junction, CO
Audio Visual Ventures	Clifton, CO
A-1 Body Shop	Gunnison, CO
B & B Appraisal	Grand Junction, CO
Barbara Hayes	Grand Junction, CO
Bess Investments	Grand Junction, CO
Bestway Sewer Service	Grand Junction, CO
BFI	Glenwood Springs, CO
Bill Burke	Grand Junction, CO
Bill Hutton	Rifle, CO
Blue Mesa Lumber, Co.	Gunnison, CO
Brookhart's	Rifle, CO
Brookhart's Inc.	Grand Junction, CO
Buck Stove Works	Grand Junction, CO
Bud Franz	Grand Junction, CO
Business Machine Service	Grand Junction, CO
Carol Terrell	Rifle, CO
CASFM c/o Love & Associates	Boulder, CO
CDS Laboratories	Durango, CO
Cecil's Welding	Tomichi, CO
Chelewski Pipe & Supply	Rifle, CO
Chen Northern Inc.	Glenwood Springs, CO
Citizens for Recycling	Grand Junction, CO
City Market	Gunnison, CO
City of Grand Junction	Grand Junction, CO
City of Gunnison	Gunnison, CO
City of Gunnison - Elec	Gunnison, CO
City of Rifle	Rifle, CO
Clerk of the Water Clerk	Montrose, CO
Colorado State University	Fort Collins, CO
Coast to Coast	Grand Junction, CO

Vendor

Location

Colorado Analytical Lab	Brighton, CO
Colorado Department of Health	Denver, CO
Colorado Department of Revenue	Denver, CO
Colorado, Department of Transportation	Durango, CO
Colorado Handyman	Rifle, CO
Colorado Mountain College	Glenwood Springs, CO
Colorado Mountain Water	Durango, CO
Colorado Office Products	Grand Junction, CO
Colorado Recreation Equipment	Grand Junction, CO
Colorado Scale Center	Wheat Ridge, CO
Colorado Silica Sand	Colorado Springs, CO
Colorado Water Court	Montrose, CO
Colorado West Fire Extinguishing	Grand Junction, CO
Complete Archaeological Service	Cortez, CO
Compliance Publishers	Denver, CO
Computer Shopper	Boulder, CO
Conestoga Storage	Rifle, CO
Con-Sy, Inc.	Rifle, CO
CRMCA	Denver, CO
Crested Butte Communications	Avon, CO
Custom Typewriter Service	New Castle, CO
D & G Fencing Co.	Delta, CO
Daily Sentinel	Grand Junction, CO
Dana Helvey-Pennington Studio	Durango, CO
Deep Rock	Grand Junction, CO
Deep Rock	Denver, CO
Dennis Steckle Realtors	Gunnison, CO
Depot Avionics	Gunnison, CO
Dr. Perry L. Rashleigh, MD.	Grand Junction, CO
Durango Office Products	Durango, CO
Electrical Dynamics	Gunnison, CO
Energy Equipment & Supply	Grand Junction, CO
Ernst Engineering Co.	Durango, CO
Family Fair	Rifle, CO
Flairmont Furniture	Montrose, CO
Four Corners Welding and Gas	Cortez, CO
Four States Tire	Cortez, CO
Fullmer's True Value Hardware	Gunnison, CO
Gag Pocket Flight Guide	Boulder, CO
Garfield County School	Rifle, CO
Gear's, Inc.	Crested Butte, CO
Gene Hollenbeck	Montrose, CO
Glenwood Post	Glenwood Springs, CO
Glenwood Septic Tank	Carbondale, CO
Golden Software, Inc.	Golden, CO

Vendor

Location

Grand River Institute	Grand Junction, CO
Grand Junction Area	Grand Junction, CO
Green International	Denver, CO
Grand Junction Fire Department	Grand Junction, CO
Grand Junction Hilton	Grand Junction, CO
GTG-FOX Geotechnical	Wheat Ridge, CO
Gunnison Camera Center	Gunnison, CO
Gunnison Chapter, American Red Cross	Gunnison, CO
Gunnison City Times	Gunnison, CO
Gunnison County	Gunnison, CO
Gunnison Metal Shop, Inc.	Gunnison, CO
Gunnison Trucking	Gunnison, CO
Hansen Weatherport Corporation	Gunnison, CO
Henry's Radio & TV	Gunnison, CO
Hewlett Packard	Denver, CO
Holland & Hart	Denver, CO
HY-Way Feed and Ranch	Silt, CO
IRS	Denver, CO
Jack David	Gunnison, CO
Jerry Greene, PE	Gunnison, CO
Jim Dible Oil Co.	Grand Junction, CO
John Haines	Glenwood Springs, CO
John A. Wilson	Gunnison, CO
John A & Helen Dix	Rifle, CO
Johnson Construction Co.	Rifle, Co
Joyce Woodard	Slick Rock, CO
Kelco General Contractor	Grand Junction, CO
KLB	Grand Junction, CO
La Plata Electric	Durango, CO
Ladonna Motel	Rifle, CO
Lambert & Associates	Montrose, CO
Landmark Reclamation	Golden, CO
Lions Club Intl.	Gunnison, CO
Lotus	Boulder, CO
Lyons Safety	Denver, CO
Magnum Electric	Grand Junction, CO
Maryhannah & Charles	Rifle, CO
Mauch 1 Hour Photo	Grand Junction, CO
Melvin SeEVERS	Grand Junction, CO
Gunnison City Times	Gunnison, CO
Mesa County Safety Council	Grand Junction, CO
Mesa Extension Fund	Grand Junction, CO
Mesa Family Practice	Grand Junction, CO
Mountain Communications	Avon, CO
Mountain West Office Products	Grand Junction, CO

Vendor

Location

Mountain Hotsprings Equipment	Grand Junction, CO
Mr. Carpet Wall to Wall	Grand Junction, CO
MSHA Fiance Branch	Denver, CO
Munro Properties, Inc.	Grand Junction, CO
NAPA Auto Parts-Ace Hardware	Gunnison, CO
Nationwide Advertising	Englewood, CO
North Avenue Furniture & Appliances	Grand Junction, CO
NW Transport Service	Commerce City, CO
OAG Official Airline	Boulder, CO
Office Machine Sales & Services	Montrose, CO
Official Airline Guide	Boulder, CO
P & L Welding	Grand Junction, CO
Palisade Constructors Inc.	Palisade, CO
PC World	Boulder, CO
Plaza Engineering Supply	Grand Junction, CO
Powers Elevation Co.	Aurora, CO
Precision Scale	Englewood, CO
Public Service Co. of Colorado	Denver, CO
QED Surveying Systems	Grand Junction, CO
Randall Industries	Grand Junction, CO
Random Access	Englewood, CO
Reams Construction	Naturita, CO
Recordmaster	Grand Junction, CO
Red Rocks Community College	Lakewood, CO
Reed Constructors, Inc.	Palisade, CO
Reed Miller, Inc.	Grand Junction, CO
Resource Technologies	Denver, CO
Respond Systems	Grand Junction, CO
Rifle Chamber of Commerce	Rifle, CO
Rifle Fire Protection	Rifle, CO
Rifle Fire Side Inn	Rifle, CO
Rifle Medical Association	Rifle, CO
Rifle Realty Inc.	Rifle, CO
Rocky Baldozier	Westminster, CO
Ronald A. Long	Gunnison, CO
Roseberry Plumbing & Heating	Durango, CO
Roving Maintenance	Whitewater, CO
Royce A. Dix	Rifle, CO
RTG	Denver, CO
Rusk & Rusk Court	Grand Junction, CO
S&S Total Car Care	Rifle, CO
Safeway, Inc.	Denver, CO
San Miguel Basin Forum	Nucla, CO
Scherry Simonson	New Castle, CO
Schmalz Construction	Gunnison, CO

Vendor

Schmueser & Associates
Schmueser, Gordon, Meyer
Search and Rescue
Secretarial & Copying
Shaler Motel
Signpro
Slavens, Inc.
Spirit Express
SSD, Inc.
Summit Supply
Susan Good Associates
T/J Communications
The Citizen Telegram
The Denver & Rio Grande
The Insulation Company
The Office Supply Store
The Paper Clip
The Sign Guys
The Sound Company
Tim's Tools
Tri County Fire
Turning Point Training
Two-Way Communications
U.S. West Cellular
U.S. Postmaster
U.S. Postmaster
U.S. West Communications
U.S. Postmaster
U.S. Government Printing
UNITEL, Inc.
University of Colorado
University of Colorado
UPS
VALCO, Inc.
Vic's Photos
Video Training Source
VO-Tech
Wagner Equipment Co.
Warning Lites & Equipment
Waste Tech News
Water Clerk
Water Court
Webb Crane Service
Western Colorado Security
Western Implement Co.

Location

Rifle, CO
Glenwood Springs, CO
Wheatridge, CO
Gunnison, CO
Rifle, CO
Grand Junction, CO
Cortez, CO
Grand Junction, CO
Grand Junction, CO
Durango, CO
Steamboat Springs, CO
Grand Junction, CO
Rifle, CO
Denver, CO
Rifle, CO
Rifle, CO
Gunnison, CO
Crested Butte, CO
Grand Junction, CO
Silt, CO
Rifle, CO
Aurora, CO
Grand Junction, CO
Denver, CO
Grand Junction, CO
Gunnison, CO
Denver, CO
Grand Junction, CO
Pueblo, CO
Grand Junction, CO
Denver, CO
Boulder, CO
Arvada, CO
Gunnison, CO
Cortez, CO
Lafayette, CO
Delta, CO
Denver, CO
Grand Junction, CO
Denver, CO
Glenwood Springs, CO
Montrose, CO
Grand Junction, CO
Grand Junction, CO
Grand Junction, CO

Vendor

Location

Western Slope Connections
Western Slope Fire and Safety
Western Valley Glass
Westhoff Electric
William B. Love Appraisal
Youngs General Contracting
Zee Medical

Gunnison, CO
Gunnison, CO
Rifle, CO
Silt, CO
Cortez, CO
Grand Junction, CO
Aurora, CO

**COMMON COLORADO VENDORS USED BY UMTRA VICINITY
PROPERTY SUBCONTRACTORS**

<u>Name</u>	<u>Location</u>
A&B Asbestos	Grand Junction, CO
Ace Insulators aka Ace Insulation Co.	Grand Junction, CO
Atlas Mechanical Insulators, Inc.	Loma, CO
Bemis Electric	Grand Junction, CO
BG Harrison Masonry	Grand Junction, CO
Brinkley Electric	Grand Junction, CO
Cedaredge Interiors	Cedaredge, CO
Cheyenne Mountain Electrical Contractors, Inc.	Calhan, CO
Connaway & Co., Inc.	Grand Junction, CO
Eberhart Electric, Inc.	Grand Junction, CO
Eberhart Electrical	Grand Junction, CO
Elam Construction, Inc.	Grand Junction, CO
Falcon Plumbing & Heating	Grand Junction, CO
G&G Paving	Grand Junction, CO
Goodson Electric	Clifton, CO
Grasso Masonry, Inc.	Grand Junction, CO
Hazardous Waste Technologies	Colorado Springs, CO
J&S Fence	Grand Junction, CO
Karnes Carpet World, Inc.	Grand Junction, CO
Lane & Company	Grand Junction, CO
Lunsford Brothers Mechanical	Grand Junction, CO
MDR Corporation	Northglenn, CO
Melgares & Co.	Grand Junction, CO
Mike Peterson Masonry	Fruita, CO
Miracle Roofing	Grand Junction, CO
Monument KDK Trucking	Grand Junction, CO
Morgan Asphalt	Grand Junction, CO
Mr. Carpet	Grand Junction, CO
P. W. Stephens Contrators, Inc.	Penrose, CO
Skyline Contracting, Inc.	Grand Junction, CO
SOS Temporary Services	Grand Junction, CO
Taylor Fence	Grand Junction, CO
Technology Quest	Grand Junction, CO
Tematics, Inc.	Grand Junction, CO
United Companies of Mesa County, Inc.	Grand Junction, CO
Whitewater Building Materials Corp.	Grand Junction, CO

**COLORADO SUBCONTRACTORS USED FOR THE GRAND JUNCTION
VICINITY PROPERTY PROGRAM**

<u>Name</u>	<u>Location</u>
Alpine CM	Grand Junction, CO
Bayless & Bayless	Pueblo, CO
CG Construction	Grand Junction, CO
D&L Construction	Grand Junction, CO
Diamond Back Service	Littleton, CO
DLB Unlimited	Grand Junction, CO
Francis Constructors	Grand Junction, CO
Fred Cunningham Construction	Grand Junction, CO
G&G Paving	Grand Junction, CO
Joyner Construction	Grand Junction, CO
Kinder Construction	Grand Junction, CO
M.A. Concrete Construction Co.	Grand Junction, CO
Mays Concrete	Grand Junction, CO
Mountain Region Corporation	Grand Junction, CO
Nelson Engineering	Grand Junction, CO
Parkerson Construction	Grand Junction, CO
Perrin Constructors, Inc.	Grand Junction, CO
Reed Constructors, Inc.	Palisade, CO
Skelton Construction Co.	Grand Junction, CO
Sorter Construction	Grand Junction, CO
Superior Contracting	Grand Junction, CO
West Hazmat Contracting, Inc.	Englewood, CO

**COLORADO VENDORS USED BY OTHER PRIME SUBCONTRACTORS
ON COLORADO SITE REMEDIAL ACTIONS**

Name

A & B Asbestos
Alcan Spring
All Metals Welding
All Seasons Rentals
American Linen
American Office Equipment
Arnhold Kuhlman Sandblasting
Arnhold Welding
Arrow Glass
Art's Mobile Home
Aspen Leaf Builders
B and F Dist.
Bear Automotive
Bestway Sewer Service
BFI
Big Nugget Supply
Big Sky Equipment
Bilbek Sales
Billing's Auto Parts
Bonner Supply
Bookcliff Auto Parts
Boss Discount Office Supply
Boyle Equipment
Bozarth Chevrolet
Bratton Windows
Brewer Tire
Brick Yard
Brookhart's Inc.
Brown Office Supply
Bunning Transfer
Cap Air Freight
Central Motive Power, Inc
Cloyds Septic
Colorado Concrete Assoc.
Colorado Lining Co.
Colorado Printing
Colorado West Fire Ext.
Colorado West Insurance
Colorado West Plumbing and Heating
Crawfords, Red
Crigger, Bob Concrete

Name

Crystal Drop Artesian
D & L Construction
D & L Electric
D C Electric
Deep Rock
Denning Lumber
Dible, Jim Oil Company
Diesel Services
Dodd Diesel
Double D's Cleaning
Doug Jones Saw Mill
E and E Door and Window
Elder Leasing
Energy Equipment & Sales
Fasteners
Filter House
Fuoco, Jim Motor Co.
G & G Paving
Goddwin Septic Tank
GOT Liquidators
Grand Junction Pipe & Supply
Grand Mesa Diesel
Grand Mesa Mechanical
Grand Valley Rural Power
Grand Valley Welding
Grimsleys Upholstery
Haller, W. Concrete
Harbert Lumber
Henderson Heavy Haul
Hensley Battery
Heuton Tire
Honnen Eqt
ICC
Independent Phone Connection
Inland Riggle Oil
Irrigation Systems
Jay Max Sales
Lazy M Machine
Len's Rent All
LK Survey Instruments
M. K. Services

Name

MA Concrete
Mac Tools
Magnum Electric
Mail Managers
Mays Concrete
McMaster Carr
Mesa Auto Parts
Mesa Bearing
Mesa Co. Clerk
Mesa Family Practice
Mesa Feed
Mesa Mack Sales & Serv
Mountain Hotsy
Mountain West Office
Mt. Garfield Plumbing & Heating
Munro Supply
Northwest Machine
NYCO
P & L Welding
Parkerson Const
Plateau Equip. Supply
Plaza Engineering
Plaza Reprographics
Polar Bear Auto
Power Eqt
Power Motive
Pressures Unlimited
Pro Photo
Professional Garage Door
Professional Tool Service
Public Service Co.
QED Survey
Randall Ind.
Resource Tech
Respond Systems
Roberts Elect
Roto Rooter

Name

Safety Kleen
Sanders Welding
Scotty Muffler
Service Master of Grand Junction
Sherwin Williams
Simmons Lock & Key
Skyline Contracting
Small Engine Dist.
Solid Systems
Standard Tire
Taylor Fence
Taylors, Gene Sports
Telephone Express
Two Way Communication
United Companies
United Waste Systems
UPS
US West
Velvet Hammer Body Shop
VT Assoc.
Wagner Equipment
Warning Lights
Webb Crane
Wee-Pak
West Col Paging
Western Colorado Testing
Western Implement
Western Neon Sign
Western Slope Auto
Western Slope Iron
Western Slope Chry Ply Dodge
Western Slope Radiator
Western Slope Scale
Whitewater Building
Widdico Inc.
Zee Medical

ATTACHMENT 3
EMPLOYMENT AND EARNINGS MULTIPLIERS

EMPLOYMENT AND EARNINGS MULTIPLIERS

Region/industry	Earnings	Employment
Energy and mining region^a		
New highways and streets	1.959	2.222
Personnel supply services	1.423	1.314
Engineering and architectural services	1.625	1.924
Southwest agriculture and recreation^b		
New highways and streets	1.674	1.917
Personnel supply services	1.374	1.276
Engineering and architectural services	1.557	1.842
Ski country region^c		
New highways and streets	1.746	1.969
Personnel supply services	1.327	1.255
Engineering and architectural services	1.601	1.875
State of Colorado		
New highways and streets	2.610	2.967
Personnel supply services	1.674	1.481
Engineering and architectural services	2.207	2.588

^aConsists of Grand Junction, Maybell, Naturita, and Rifle.

^bIncludes Durango and Slick Rock.

^cIncludes Gunnison.

Note: These multipliers were developed at the state and regional level using 1989 employment and earnings data compiled by the U.S. Bureau of Economic Analysis. They are based on interindustry relationships contained in the most recent (1982) input-output accounts.

END

**DATE
FILMED**

2/11/94