

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

COLORADO STATE FISCAL YEAR 1994

December 1994

INTENDED FOR PUBLIC RELEASE

This report has been reproduced from the best available copy. Available in paper copy and microfiche.

Number of pages in this report: 60

DOE and DOE contractors can obtain copies of this report from:

**Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831
(615) 576-8401**

This report is publicly available from:

**National Technical Information Service
Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650**

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

COLORADO STATE FISCAL YEAR 1994

December 1994

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

**Prepared by
Jacobs Engineering Group Inc.
Albuquerque, New Mexico**

MASTER

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED *W/h*

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

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 1994 (1 July 1993 through 30 June 1994). To capture employment information, a questionnaire was distributed to subcontractor employees at the active UMTRA Project sites of Grand Junction, Naturita, Gunnison, and Rifle, Colorado. 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 625 workers; this represents the number of workers hired for either permanent or seasonal work.
- An estimated 78 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 327 workers.
- Total employment (direct and secondary) is estimated at 952 workers for the state fiscal year.

ECONOMIC BENEFITS

- An estimated \$13.9 million was paid in direct wages to UMTRA Project workers in Colorado.
- Secondary wage earnings were estimated at \$8.4 million, for a total earnings of \$22.3 million.
- Income tax payments to the state were estimated at \$505,200.
- The gross economic impact of UMTRA Project activities in the state of Colorado is estimated at \$38 million.
- The net economic benefit to Colorado was estimated at \$31 million, or \$6.08 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 about \$11 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 Bureau of Land Management at Gunnison.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION AND APPROACH	1-1
2.0 UMTRA PROJECT EMPLOYMENT NEEDS	2-1
2.1 Remedial action employment needs	2-1
2.2 Vicinity property employment needs	2-2
2.3 Training	2-2
2.4 Secondary employment	2-3
3.0 UMTRA PROJECT MATERIAL, SERVICES, AND SUPPORT	3-1
3.1 Material and supply needs	3-1
3.2 Support needs	3-1
4.0 UMTRA PROJECT EMPLOYMENT IN COLORADO IN FISCAL YEAR 1994	4-1
4.1 Grand Junction	4-1
4.1.1 Remedial action employment	4-1
4.1.2 Vicinity property program employment	4-2
4.1.3 Secondary employment	4-2
4.1.4 Total employment impact	4-3
4.2 Gunnison	4-3
4.2.1 Remedial action employment	4-3
4.2.2 Secondary employment	4-4
4.3 Naturita	4-4
4.3.1 Remedial action employment	4-4
4.4 Rifle	4-5
4.4.1 Remedial action employment	4-5
4.4.2 Secondary employment	4-5
4.5 Trends in UMTRA Project employment in Colorado	4-6
5.0 ECONOMIC IMPACTS	5-1
5.1 Wages and salaries	5-1
5.2 Other UMTRA Project expenditures	5-3
5.3 Taxes	5-4
5.3.1 Summary cost/benefit	5-5
6.0 LIST OF CONTRIBUTORS	6-1
7.0 REFERENCES	7-1
ATTACHMENT 1 WORKER QUESTIONNAIRE	
ATTACHMENT 2 REPRESENTATIVE UMTRA PROJECT VENDORS AND SUBCONTRACTORS	
ATTACHMENT 3 EMPLOYMENT AND EARNINGS MULTIPLIERS	

LIST OF TABLES

<u>Table</u>	<u>Page</u>
2.1 UMTRA Project training	2-3
4.1 Estimated average remedial action employment at the Grand Junction UMTRA Project site, fiscal year 1994	4-2
4.2 Total estimated employment related to the Grand Junction UMTRA Project activities, fiscal year 1994	4-3
4.3 Estimated average direct remedial action employment, Gunnison	4-4
4.4 Estimated average remedial action employment, Naturita	4-5
4.5 Estimated employment at the Rifle UMTRA Project site	4-6
4.6 Total estimated UMTRA Project employment in Colorado	4-7
5.1 Wages paid at active UMTRA Project sites in Colorado	5-2
5.2 Income impact from UMTRA Project activities in Colorado, 1 July 1993 to 30 June 1994	5-3
5.3 Other UMTRA Project expenditures	5-4
5.4 Income tax payments	5-5
5.5 Summary economic impacts of UMTRA Project at Colorado sites 1 July 1993 to 30 June 1994	5-6
5.6 Direct and secondary income impacts from UMTRA Project activity at Colorado sites and VPs through 30 June 1994	5-7

LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
DOE	U.S. Department of Energy
ESH	environment, safety, and health
ICC	Industrial Constructors Corporation
MK-F	Morrison Knudsen-Ferguson
OSHA	Occupational Safety and Health Administration
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 this 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 1 July 1993 and 30 June 1994. 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. Actual data obtained from sites currently undergoing remedial action have been used as the basis for analyses. If data were not available, 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 1993-1994 state fiscal year. Employment totals are reported in estimated average annual jobs; however, the actual number of workers at the site fluctuates depending on weather and on the status of remedial action activities. In addition, the actual number of people employed on the Project during the year may be higher than the average annual employment reported because of the temporary nature of some of the jobs. For example, several different persons could be employed in different job functions for a few weeks to a few months.

To provide more information on employment, a survey questionnaire was distributed to workers. This survey provided information on place of residence, distance of commute to work, past experience working on UMTRA projects, and classification of the job position (permanent or temporary). Respondents represent those persons working at the sites at a specific time (the day the survey was distributed); consequently, information is only indicative of worker characteristics. Attachment 1 is a copy of the distributed questionnaire. Secondary employment is estimated using a multiplier developed by the Colorado Division of Local Government.

Information on wages, taxes, and subcontract expenditures in combination with estimates and economic multipliers is used to estimate the dollar economic benefits to the Colorado during the state fiscal year. Finally, the fiscal year 1994 estimates are compared to fiscal year 1993 employment and economic information.

This is the third 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 database may vary slightly from 1993 because of refinements made in data collection methods for this report.

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 remedial action site activities. Jacobs Engineering Group Inc., the UMTRA Project Technical Assistance Contractor (TAC) to the DOE, provided program-level information and prepared the analysis. The vicinity property (VP) program is coordinated by Geotech in

Grand Junction, Colorado. Geotech was instrumental in providing data on the VP program employment and economic benefits. 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. More than 4200 VPs were identified for cleanup in Colorado, most of which are located in Grand Junction.

This study assesses benefits associated with the Grand Junction, Gunnison, Naturita, and Rifle UMTRA Project sites for the 1-year period under study. Work at the Naturita site was initiated in April 1994 and involved demolition of buildings at the processing site. Actual start-up of remediation at Naturita is planned to begin in the spring of 1995. Work at the Slick Rock and Maybell sites is expected to begin in 1995. The only current economic benefits associated with these 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 were active at UMTRA Project sites in Colorado during fiscal year 1994:

- 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 1994 state fiscal year.

The VP cleanup programs are managed slightly differently. These subcontracts typically have been awarded to small businesses in the area. Attachment 2 lists the subcontract companies used for VP cleanup in 1994. In Grand Junction, more than 4000 (about 97 percent) of the identified VPs have been cleaned up (Elmer, 1994). In Gunnison and Rifle, remediation of VPs continued in fiscal year 1994. VP cleanup is expected to be complete in fiscal year 1995 at both Rifle and Gunnison. VP cleanup typically requires removal of all contaminated soils and other materials, if present; and restoration of disturbed areas.

2.1 REMEDIAL ACTION EMPLOYMENT NEEDS

UMTRA Project remedial action employment needs are similar to those of large earth-moving projects; that is, 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 (13.8 to 15.3 cubic meters) 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 its

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 depends 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 construction, landscaping, or reclamation jobs. The duration of the subcontracts depends on the amount and type of contamination present on the property. Remediation at some properties may be completed in 1 week, while at others it may take months or years. In fiscal year 1994, Grand Junction VP subcontractors worked most of the year.

2.3 TRAINING

Through its contractors, the DOE provides training for all employees hired for UMTRA Project work. Table 2.1 lists training classes and their applicability to other similar work, particularly to Superfund sites (Dunkley, 1994a).

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 6 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.

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.

2.4 SECONDARY EMPLOYMENT

In addition to employment directly related to the UMTRA Project site or VP remediations, secondary employment occurs as a result of direct employment when 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 the 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); that is, for every direct job, 0.5 of a new job is created. However, because of the largely seasonal nature of most UMTRA Project work, applying the multiplier to all reported jobs for the Gunnison and Rifle sites may result in higher levels of secondary employment than actually occur. No secondary employment is estimated for the Naturita site because work activities were limited to building

demolition and the duration of work was short (i.e., 5 months in the study period).

3.0 UMTRA PROJECT MATERIAL, SERVICES, AND SUPPORT

3.1 MATERIAL AND SUPPLY NEEDS

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 services for the UMTRA Project and the city in which they are located. This list is not intended to be complete, but it indicates 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 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; they may include contracts for laboratory analysis of water samples and field surveys in potentially disturbed areas for cultural resources and threatened or endangered species. Also, supplies may be purchased in the field. Other support activities are more general; they 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 1994

UMTRA Project-related employment in Colorado from 1 July 1993 to 30 June 1994 resulted in an estimated 625 direct and 327 secondary jobs of all kinds. Because of the seasonal nature of remedial action and temporary nature of some jobs, interpreting the numbers of jobs attributed to the UMTRA Project as full-time employment would be misleading. This study estimates the average number of jobs created for fiscal year 1994. Approximately 78 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 who commute daily to the work site from area communities. In rural, western states, workers generally are willing to travel longer distances (more than 60 miles [mi] [96 kilometers (km)]) 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 to specific short-term tasks, such as installing a fence.
- The number of jobs is reported as the average annual work force at each site, regardless of length of job. Because the work force fluctuates throughout the construction year, the peak work force is also noted.

4.1 GRAND JUNCTION

The remedial action contract was awarded to ICC in March 1989. During fiscal year 1994, remedial activities were oriented to completion of the tailings haul, dismantlement of the waste water treatment plant, and final grading of the processing site area. The remedial action was completed in early state fiscal year 1995 (September).

4.1.1 Remedial action employment

During the final phase of work at Grand Junction, employment has shown a gradual decrease, from 322 employees at the beginning of the fiscal year (July 1993) to 89 persons in June 1994 (Dunkley, 1994b). Table 4.1 shows the average number of employees working at the Grand Junction site in fiscal year 1994. Compared to the total number of workers employed on the remedial action in fiscal year 1993 (289 persons), the fiscal year 1994 levels are lower, as expected, because of the general winding down and completion of the project (DOE, 1993).

**Table 4.1 Estimated average remedial action employment at the Grand Junction
UMTRA Project site, fiscal year 1994**

Contractor	Fiscal year 1994	Fiscal year 1993
MK-F	22	24
Subcontractors ^a	80	181
Chem Waste Management	61	84
Total	163	289

^aTotals include ICC and its major subcontractors; fiscal year 1993 number includes six employees of the Denver and Rio Grande Western Railroad.

The 163 average employment during 1994 reflects work related to completion of the tailings haul, final cover placement, and processing site reclamation. Some site restoration work will continue into early fiscal year 1995 (e.g., reseeded).

4.1.2 Vicinity property program employment

In addition to employment related to the remedial action in Grand Junction, the VP program has significantly affected employment. This employment is considered full-time because work on the VP program generally is not subject to weather restrictions. The Geotech direct employment related to program management was 86 jobs; indirect employment was 33 jobs. In this case, indirect employment includes Geotech office support and overhead. Subcontractor employees are estimated at 40. Direct and indirect Geotech workers are all considered local; VP subcontractors are also local workers. The total number of direct jobs related to the VP program is 126. As anticipated, there were 231 fewer jobs in fiscal year 1994 than in fiscal year 1993, when total direct VP employment was estimated at 357 (DOE, 1993). Employment in the VP program has been declining over the last few years as remediation of these properties is completed. Although most of the VPs have been cleaned up (about 97 percent), the program will continue and employment is expected to remain stable through 1996 (Elmer, 1994).

4.1.3 Secondary employment

Using the 1.5 multiplier suggested for determining secondary employment (Section 2.4) results in an additional 81 jobs generated by the site remedial action and 63 jobs related to the VP program. Including the indirect jobs (33) associated with overhead support to Geotech results in a total secondary employment of 177 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 1993, there were 622 fewer jobs in Grand Junction related to the UMTRA Project. This number will decrease further in fiscal 1995 with completion of the processing site remedial action. However, employment in the VP program is expected to remain at its current level through 1996 (Elmer, 1994).

Table 4.2 Total estimated employment related to the Grand Junction UMTRA Project activities, fiscal year 1994

	Direct	Secondary	Total
Remedial action employment	163	81	244
VP employment	126	96 ^a	222
Total employment	289	177	466

^aIncludes indirect Geotech employment.

4.2 GUNNISON

The remedial action contract for Gunnison was awarded to AMES in June 1992. The major work effort during fiscal year 1994 included tailings haul and excavation of subpile materials. Site activities shut down for the winter in November 1993, and startup began in April 1994.

Work was completed in May 1994 on installation of an alternate water supply system for residents of the Dos Rios Subdivision adjacent to the Gunnison processing site.

The Gunnison remedial action is scheduled to be complete in the fall of 1995.

4.2.1 Remedial action employment

Table 4.3 summarizes employment at the Gunnison site. During fiscal year 1994, average annual employment was 96 workers for remedial activities, with a peak of 154 workers in June 1994. An estimated 66 percent of this work force was from the local area, including several who commuted more than 60 mi (96 km) to the site. In fiscal year 1993, 76 workers were employed at the Gunnison site (DOE, 1993). The employment increase in 1994 reflects the tailings transport and excavation activities. Work continued on the airport VP and is expected to be completed in fiscal year 1995.

Table 4.3 Estimated average direct remedial action employment, Gunnison

Subcontractor	Fiscal year 1994	Fiscal year 1993
MK-F	17	18
Subcontractors ^a	32	30
Chem Waste Management	<u>47</u>	<u>28</u>
Total	96	76

^aIncludes AMES and its major subcontractors.

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 96 direct jobs results in an additional 48 jobs generated by the UMTRA Project. This results in a total direct and secondary employment of 144 at the Gunnison site during the fiscal year.

4.3 NATURITA

Initial work began at the Naturita site in state fiscal year 1994. Phase I of the mill site cleanup, which consists of demolition of the 12 buildings remaining on the site and other remnants of the mill operation, began in late May 1994. Demolition is scheduled to be completed in November. Material from the demolition will be stockpiled on the site until remedial action is started in the spring of 1995.

4.3.1 Remedial action employment

An estimated average of 22 persons worked at the Naturita site during the final 3 months of the study period (April through June 1994). These represent RAC and Chem Waste personnel. In addition, the demolition subcontractor, Invirex, employed about 14 persons (Stanford, 1994). Based on survey responses from Naturita workers, about 60 percent of the work force is local, with some of those commuting from as far away as Grand Junction and Cortez, Colorado. Many of the workers were RAC and Chem Waste employees who had transferred from other UMTRA projects (e.g., Grand Junction). Survey responses also indicated that most of the jobs are permanent. This would be consistent with the beginning of activities as the RAC establishes its office and initiates management activities. Table 4.4 summarizes employment at the Naturita site.

Table 4.4 Estimated average remedial action employment, Naturita

Employment	Fiscal year 1994
MK-F	6
Chem Waste	16
Subcontractors ^a	14
Total	36

^aPersonnel involved in building demolition at the site.

In addition to employment associated with Phase I site activities, cleanup at the Nucla elementary school was completed by Francis Constructors. At peak operation, it employed 16 local people (Stanford, 1994).

No secondary employment was estimated for Naturita because of the limited nature and duration of activities. It is likely that some secondary employment will be generated during fiscal year 1995 when the second phase of remedial action is under way. During this second phase, debris from the mill structures will be removed to the disposal cell along with contaminated soil and residual mill tailings.

4.4 RIFLE

The remedial action contract was awarded to Green International in April 1992. During fiscal year 1994, work focused on excavation of the Old and New Rifle sites and on the tailings haul to the Estes Gulch disposal cell. Site activity shut down for the winter in mid-November 1993, and startup began in mid-April 1994. Work on VPs began in July 1993.

4.4.1 Remedial action employment

The average work force during the summer construction season was 204, with a peak of 272 during June 1994. Most of the workers (an estimated 86 percent) are from the area and commute daily to the site, some from as far as Grand Junction. Table 4.5 summarizes employment at the Rifle site. Employment levels have been increasing since remedial action was initiated in 1992. During the first year (1992), employment averaged only 45 workers. In 1993, employment levels increased to 132 and have continued to increase in 1994 with continuation of excavation and the haul phase of remedial action.

4.4.2 Secondary employment

In addition to direct employment, some secondary employment is expected to be occurring. Applying the 1.5 multiplier to 204 results in an estimated 102 additional jobs. Total employment at the Rifle site is estimated at 306 (direct and secondary) during the 1994 study period.

Table 4.5 Estimated employment at the Rifle UMTRA Project site

Company	Fiscal year 1994	Fiscal year 1993
MK-F	24	23
Subcontractors ^a	113	62
Chem Waste Management	67	47
Total	204	132

^aIncludes Green International and other major subcontractors.

4.5 TRENDS IN UMTRA PROJECT EMPLOYMENT IN COLORADO

Table 4.6 summarizes the estimated direct and secondary employment that occurred during fiscal year 1994 in Colorado. With remedial action starts at Slick Rock and Maybell and increased level of activity at Naturita in 1995, employment levels may return to levels similar to 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, for example, has been successfully reassigning its staff. Geotech has an aggressive program to assist workers laid off the UMTRA Project as work is completed (Elmer, 1994). 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. Employee survey respondents also indicate many project workers have previous UMTRA Project experience. Many RAC and Chem Waste workers employed at the Naturita site, for example, have transferred from the Grand Junction site. 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.

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.

Table 4.6 Total estimated UMTRA Project employment in Colorado

Direct employment	Fiscal year 1994	Fiscal year 1993
Grand Junction site remedial action	163	289
Grand Junction VP program	126	357
Gunnison remedial action	96	76
Dos Rios water supply system	-	40
Naturita remedial action	36	-
Rifle remedial action	204	132
Subtotal	625	894
Secondary employment		
Grand Junction site remedial action-related	81	145
Grand Junction VP program-related	96	297
Gunnison remedial action-related	48	38
Rifle remedial action-related	102	66
Subtotal	327	546
Total (all employment)	952	1440

Note: No secondary employment was estimated for Naturita in fiscal year 1994 because the small number employed during start-up would likely not have generated additional jobs.

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 is outlined.

5.1 WAGES AND SALARIES

Total wages paid to personnel working on the UMTRA Project in Colorado were estimated at about \$14 million during the study period. Total wages for employment at the four remedial action sites were an estimated \$9 million. Table 5.1 shows the total wages paid at each site and at the 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 at project sites reflect the activity level at each site. Wages paid at Grand Junction during the current study period represent 25 percent of wages paid at UMTRA Project sites in Colorado, reflecting the wind-down and completion of remedial action at the Grand Junction site. 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 36 percent in fiscal year 1994 compared to 54 percent in the previous year (DOE, 1993). The proportion of wages paid from the VP program has been steadily decreasing as cleanup of VPs is completed. At the Rifle and Gunnison sites, wages paid have remained fairly stable with tailings excavation and haul continuing at these two sites. At Naturita, building demolition began in the spring.

Direct UMTRA Project-related wages associated with the Grand Junction VP program totaled an estimated \$4.97 million and includes Geotech personnel (field personnel, construction supervision, clerical support) and wages paid to subcontract employees. The estimated \$14 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 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

Table 5.1 Wages paid at active UMTRA Project sites in Colorado

Site	Total wages paid in \$ ^a	
	Fiscal year 1994	Fiscal year 1993
Rifle	3,302,200	3,718,600
Gunnison	2,429,500	2,876,400
Grand Junction	2,251,200	4,389,500
Naturita	977,200	—
Subtotal	\$ 8,960,100	\$10,984,500
Grand Junction VPs ^b	\$ 4,968,000	\$13,092,000
Grand total	\$13,928,100	\$24,076,500

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

^bTotal includes about \$1.1 million in labor costs for Geotech VP prime subcontractors.

Note: Numbers recorded to the nearest \$100.

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 of 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 (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. Secondary earnings were not estimated for the Naturita site because work involved only demolition and lasted only a few months. Due to the short duration and limited nature of the work, it is unlikely any secondary earnings would have resulted. Table 5.2 shows estimated direct and secondary earnings at the UMTRA Project sites in Colorado.

As shown in Table 5.2, a total of \$8.4 million was estimated in secondary earnings from UMTRA Project activities at the remedial action sites and Grand Junction VPs. Direct and secondary income totaled \$22.3 million during the study period. This is \$17.6 million less than fiscal year 1993, when an estimated \$39.9 million was generated in direct and secondary wage income (DOE, 1993). Again, this reflects the completion of Grand Junction site work and 97 percent of the Grand Junction VPs.

Table 5.2 Income impact from UMTRA Project activities in Colorado, 1 July 1993 to 30 June 1994

Site	Thousands of dollars		
	Direct earnings	Secondary earnings	Total earnings
Rifle	3,302	2,209	5,511
Gunnison	2,430	1,356	3,786
Grand Junction site	2,251	1,506	3,757
Naturita ^a	977	—	977
Grand Junction VPs	4,968	3,324	8,292
Total	\$13,928	\$8,395	\$22,323

^aSecondary impacts were not anticipated at Naturita because of the limited duration of activities during the reporting period.

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 respnd 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 \$10.7 million was provided for other subcontract (lower tier) and vendor expenditures within Colorado during the study period. These expenditures include the purchase of supplies, materials, and services, dislocation monies, subcontracts, equipment rental, permits and fees, etc. The \$10.7 million includes only subcontractor and vendor expenditures by Geotech, MK-F, and Jacobs Engineering Group Inc. 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 \$15.1 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 MK-F and Geotech 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	\$10,650,150
Administrative/office overhead	4,209,340
Travel costs (motels, meals, auto rental)	128,490
Special study/analyses	69,680
Total	\$15,057,660

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 \$2.6 million was paid in state and federal income taxes. Of this, \$505,200 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 lower than fiscal year 1993, when \$3.7 million was paid, \$843,400 of which was state income tax payments.

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 \$302,790 in income tax payments to the state of Colorado. This is a total of \$808,000 in estimated income tax payments to the state from wages paid for direct and secondary employment. Secondary income tax payments were not estimated for Naturita because the limited type and duration of activities during the 1994 fiscal year make it unlikely that significant secondary impacts occurred.

Table 5.4 Income tax payments

Site	Federal	State	Total
Rifle	\$446,300	\$126,200	\$572,500
Gunnison	307,900	91,600	399,500
Grand Junction remediation	265,800	82,000	347,800
Naturita	122,600	37,400	160,000
Grand Junction VPs	993,000	168,000	1,161,000
Total	\$2,135,600	\$505,200	\$2,640,800

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, etc.) 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 use of land being cleaned up 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 \$45,000 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, \$1256 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 \$38 million during the 1-year study period (Table 5.5). The state funding during the period was \$5.1 million. The net economic benefit to the state of Colorado was about \$31 million, or about \$6.08 per dollar of funding provided

Table 5.5 Summary economic impacts of UMTRA Project at Colorado sites 1 July 1993 to 30 June 1994

Category	Thousands of dollars		
	Direct	Secondary	Total
Labor income	\$13,928	\$ 8,395	\$22,323
Other expenditures	15,058	45 ^a	15,103
Colorado income tax	<u>505</u>	<u>303</u>	<u>808</u>
Total gross economic impact	\$29,491	\$ 8,743	\$38,234
Colorado funding requirement	-5,100		-5,100
Federal income tax ^b	<u>-2,136</u>		<u>-2,136</u>
Net economic benefit	\$22,255		\$30,998

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

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

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 \$5.1 million share been used for other purposes). The gross economic impact considering only direct sources totals \$29.5 million. Accounting for the state's \$5.1 million funding, the direct net benefit is estimated at \$22 million, or about \$4.36 per dollar of funding. Although the total benefit is considerably less than fiscal year 1993 (\$31 million compared to \$58.7 million), the net economic benefit per dollar of funding is about the same as the previous year (\$6.05 per dollar).

During 1994, direct employment at the Gunnison and Rifle UMTRA sites increased 26 and 55 percent, respectively. However, wages paid during the same period showed a slight decrease, with approximately 15 percent at Gunnison and about 10 percent at Rifle. This decrease in wages paid and increase in employment can be attributed to two main factors: changes in the mix of labor categories and in the length of time of employment. During initial stages of the project, most employees are higher-paid, permanent management or senior technical/engineering specialists. During the peak of remedial action, total employment is higher but the percentage of manual labor is greater. These jobs may last only a short time (e.g., a week or a month). The employment figures reported here estimate the total number of employees during the construction period and do not take into account the length of each specific work activity or task.

This study focuses on UMTRA Project-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. Studies prior to state fiscal year 1992 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 \$259.8 million through June 1994. Labor income from the UMTRA Project was estimated to average \$37.5 million annually over the life of the Project (DOE, 1992). The estimated \$22.3 million (Table 5.5) for the fiscal year 1994 period is lower than the projected average. This reflects completion of the Grand Junction remedial action. During 1995, UMTRA Project activities will be conducted at five Colorado sites. Remedial action will continue at Rifle and Gunnison; a full construction season is anticipated at Naturita; and work at the Slick Rock and Maybell sites is expected to begin. In addition, the Grand Junction VP program is expected to remain stable at the current level through 1996 (Elmer, 1994).

Table 5.6 Direct and secondary income impacts from UMTRA Project activity at Colorado sites and VPs through 30 June 1994

Site	Thousands of dollars		
	Cumulative through June 1993	1994	Total
Durango	26,278	0	26,278
Grand Junction	194,159	12,049	206,208
Gunnison	4,885	3,786	8,671
Naturita	—	977	977
Rifle	12,125	5,511	17,636
Total	237,447	22,323	259,770

6.0 LIST OF CONTRIBUTORS

The following individuals contributed to the preparation of this document.

Name	Contribution
L. Ulland	Author
S. Wright, W. Migdal, J. McBee	Document review
L. Keith	Word processing
J. Torline, D. Thalley	Document publication coordination

7.0 REFERENCES

- Couch, E., 1993. Chem Waste Management, Federal Environmental Services, Albuquerque, New Mexico, personal communication with Sandra Beranich, Southwest Environmental, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 26 October 1993.
- DOE (U.S. Department of Energy), 1993. *Colorado Economic Impact Study for the Uranium Mill Tailings Remedial Action (UMTRA) Project, Colorado State Fiscal Year 1993*, DOE/AL/62350-88F, U.S. Department of Energy, 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-400676.000, U.S. Department of Energy, UMTRA Project Office, Albuquerque, Operations Office, Albuquerque, New Mexico.
- Dunkley, W. T., 1994a. Morrison Knudsen-Ferguson, Albuquerque, New Mexico, letter to A. R. Chernoff, U.S. Department of Energy, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 21 September 1994.
- Dunkley, W. T., 1994b. Morrison Knudsen-Ferguson, Albuquerque, New Mexico, personal communication to Rebecca de Neri Zagal, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 26 October 1994.
- Elmer, J., 1994. Chem-Nuclear Geotech, Grand Junction, Colorado, personal communication to Linda M. Ulland, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 13-14 October 1994.
- Larson, D., 1993. Colorado Division of Local Affairs, Denver, Colorado, personal communication to Sandra Beranich, Southwest Environmental, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 28 October 1993.
- Stanford, T. G., 1994. Morrison Knudsen-Ferguson, Naturita, Colorado, memo to Bill Dunkley, Morrison Knudsen-Ferguson, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 20 September 1994.

CODE OF FEDERAL REGULATIONS

29 CFR Part 1910, Occupational Safety and Health Act of 1970 (1994).

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	A2-1
Common Colorado Vendors Used by UMTRA Vicinity Property Subcontractors	A2-8
Colorado Subcontractors Used for the Grand Junction Vicinity Property Program	A2-9
Colorado Vendors Used by Other Prime Subcontractors on Colorado Site Remedial Actions	A2-10

COLORADO VENDORS USED BY MORRISON KNUDSEN-FERGUSON

<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 Institute of Mining	Littleton, CO
American Red Cross	Gunnison, CO
Americom Communications	Grand Junction, CO
Amerigas 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
Bond Sign Company	Rifle, CO
Brookhart's	Rifle, CO
Brookhart's Inc.	Grand Junction, CO
Buck Stove Works	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 - Elec	Gunnison, CO
City of Rifle	Rifle, CO
Clerk of the Water	Montrose, CO
Clerk of the Water Court	Steamboat Springs, CO
Clifton Water District	Clifton, CO

Vendor

Location

Cloyd's Septic Service	Clifton, CO
Colorado State University	Fort Collins, CO
Coast to Coast	Grand Junction, CO
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 Rock Products	Denver, 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
Duran Trucking, Inc.	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
Family Practice Assoc.	Cortez, CO
Family Support Registry	Denver, CO
Flairmont Furniture	Montrose, CO
Four Corners Welding and Gas	Cortez, CO
Four States Tire	Cortez, CO
Francis Constructors, Inc.	Grand Junction, CO

Vendor

Front Range Community College
Fullmer's True Value Hardware
GR Enterprises
Gag Pocket Flight Guide
Garfield County School
Gear's, Inc.
Gene Hollenbeck
Glenwood Medical
Glenwood Post
Glenwood Septic Tank
Golden Software, Inc.
Grand River Institute
Grand Junction Area
Grand Valley Rural Power Lines
Green International
Grand Junction Fire Department
Grand Junction Hilton
GTG-FOX Geotechnical
Gunnison Camera Center
Gunnison Chapter, American Red Cross
Gunnison City Times
Gunnison County
Gunnison Metal Shop, Inc.
Gunnison Trucking
Hansen Weatherport Corporation
Henry's Radio & TV
Hewlett Packard
Hobby Ventures, Inc.
Holland & Hart
Hometown Realty
HY-Way Feed and Ranch
IECA
International Erosion Control
Invirex Demolition, Inc.
IRS
Jack David
Jerry Greene, PE
Jim Dible Oil Co.
John Haines
John A. Wilson
John A & Helen Dix
Johnson Construction Co.
Joyce Woodard
Kelco General Contractor
KLB

Location

Westminster, CO
Gunnison, CO
Grand Junction, CO
Boulder, CO
Rifle, CO
Crested Butte, CO
Montrose, CO
Glenwood Springs, CO
Glenwood Springs, CO
Carbondale, CO
Golden, CO
Grand Junction, CO
Grand Junction, CO
Grand Junction, CO
Denver, CO
Grand Junction, CO
Grand Junction, CO
Wheat Ridge, CO
Gunnison, CO
Gunnison, CO
Gunnison, CO
Gunnison, CO
Gunnison, CO
Gunnison, CO
Gunnison, CO
Denver, CO
Nucla, CO
Denver, CO
Naturita, CO
Silt, CO
Steamboat Springs, CO
Steamboat Springs, CO
Naturita, CO
Denver, CO
Gunnison, CO
Gunnison, CO
Grand Junction, CO
Glenwood Springs, CO
Gunnison, CO
Rifle, CO
Rifle, Co
Slick Rock, CO
Grand Junction, CO
Grand Junction, CO

Vendor

Location

La Plata Electric	Durango, CO
Ladonna Motel	Rifle, CO
Lambert & Associates	Montrose, CO
Landmark Reclamation	Golden, CO
Laser Junction	Grand Junction, CO
Leach's Industrial Service	Grand Junction, CO
Lions Club Intl.	Gunnison, CO
Lotus	Boulder, CO
Lyons Safety	Denver, CO
L. L. Johnson Dist., Inc.	Denver, CO
Magnum Electric	Grand Junction, CO
Maryhannah & Charles	Rifle, CO
Mauch 1 Hour Photo	Grand Junction, CO
Melvin Seevers	Grand Junction, CO
Mesa County Court	Grand Junction, CO
Mesa County Safety Council	Grand Junction, CO
Mesa Extension Fund	Grand Junction, CO
Mesa Family Practice	Grand Junction, CO
Micro Plastics	Rifle, CO
Moffat County Assessor	Graig, CO
Montrose County Land Use Dept.	Montrose, CO
Mountain Communications	Avon, CO
Mountain West Office Products	Grand Junction, CO
Mountain Hotsy 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
Naturita True Value Hardware	Naturita, CO
North Avenue Furniture & Appliances	Grand Junction, CO
Nucla True Value Hardware	Nucla, CO
Nucla-Naturita Telephone Co.	Nucla, 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

Vendor

Location

Randall Industries	Grand Junction, CO
Random Access	Englewood, CO
Ray Motel	Naturita, 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
Rodney L. Whiting	Whitewater, CO
Ronald A. Long	Gunnison, CO
Roseberry Plumbing & Heating	Durango, CO
Routt County Combined Ct.	Steamboat Springs, CO
Roving Maintenance	Whitewater, CO
Royce A. Dix	Rifle, CO
RTG	Denver, CO
Rudd Aviation	Basalt, 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
Schmueser & Associates	Rifle, CO
Schmueser, Gordon, Meyer	Glenwood Springs, CO
Search and Rescue	Wheatridge, CO
Secretarial & Copying	Gunnison, CO
Shaler Motel	Rifle, CO
Signpro	Grand Junction, CO
Slavens, Inc.	Cortez, CO
Spirit Express	Grand Junction, CO
SSD, Inc.	Grand Junction, CO
Stockmasters Corp.	Grand Junction, CO
Summit Supply	Durango, CO
Susan Good Associates	Steamboat Springs, CO
T/J Communications	Grand Junction, CO
The Citizen Telegram	Rifle, CO
The Denver & Rio Grande	Denver, CO

Vendor

Location

The Insulation Company	Rifle, CO
The Norwood Post	Norwood, CO
The Office Supply Store	Rifle, CO
The Paper Clip	Gunnison, CO
The Sign Guys	Crested Butte, CO
The Sign Shop	Nucla, CO
The Sound Company	Grand Junction, CO
The Water Store	Gunnison, CO
Tim's Tools	Silt, CO
Tri County Fire	Rifle, CO
Turning Point Training	Aurora, CO
Two-Way Communications	Grand Junction, CO
U.S. West Cellular	Denver, CO
U.S. Postmaster	Grand Junction, CO
U.S. Postmaster	Gunnison, CO
U.S. Postmaster	Rifle, CO
U.S. West Communications	Denver, CO
U.S. Government Printing	Pueblo, CO
Uncompahgre Combined Clinic	Naturita, CO
UNITEL, Inc.	Grand Junction, CO
Universal Safety Consulting	Trinidad, CO
University of Colorado	Denver, CO
University of Colorado	Boulder, CO
UPS	Arvada, CO
VALCO, Inc.	Gunnison, CO
Valley National Bank	Cortez, CO
Vic's Photos	Cortez, CO
Video Training Source	Lafayette, CO
Vonguten Engineering Software	Ft. Collins, CO
VO-Tech	Delta, CO
Wagner Equipment Co.	Denver, CO
Warning Lites & Equipment	Grand Junction, CO
Waste Tech News	Denver, CO
Water Clerk	Glenwood Springs, CO
Water Court	Montrose, CO
Webb Crane Service	Grand Junction, CO
West End Printing and Office Supply	Nucla, CO
Western Colorado Security	Grand Junction, CO
Western Implement Co.	Grand Junction, CO
Western Slope Connections	Gunnison, CO
Western Slope Fire and Safety	Gunnison, CO
Western Slope Janitorial	Clifton, CO
Western Valley Glass	Rifle, CO
Westhoff Electric	Silt, CO
West-Col Radio Paging	Grand Junction, CO

Vendor

William B. Love Appraisal
Youngs General Contracting
Zee Medical

Location

Cortez, CO
Grand Junction, CO
Aurora, CO

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

<u>Name</u>	<u>Location</u>
Ace Insulators aka Ace Insulation Co.	Grand Junction, CO
Bemis Electric	Grand Junction, CO
Blue Star Construction	Aurora, CO
Cheyenne Mountain Electrical Contractors, Inc.	Calhan, CO
Connaway & Co., Inc.	Grand Junction, CO
Dolan Trucking	Fruita, CO
Eberhart Electrical	Grand Junction, CO
Elam Construction, Inc.	Grand Junction, CO
Falcon Plumbing & Heating	Grand Junction, CO
Goodson Electric	Clifton, 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
Melgares & Co.	Grand Junction, CO
Mesa Temps	Grand Junction, CO
Miracle Roofing	Grand Junction, CO
Monument KDK Trucking	Grand Junction, CO
Morgan Asphalt	Grand Junction, CO
SOS Temporary Services	Grand Junction, CO
Taylor Fence	Grand Junction, CO
Technology Quest	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
MA Concrete
Mac Tools

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 Eq
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
Safety Kleen
Sanders Welding

Name

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 Eq
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

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.

Source of data: U.S. Bureau of Economic Analysis. Table prepared by the Colorado Division of Local Government, September 1993.