RECEIVED
JAN 19 1995
OSTI

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

COLORADO STATE FISCAL YEAR 1995

December 1995

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: 62

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**

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.

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

COLORADO STATE FISCAL YEAR 1995

December 1995

**Prepared for
U.S. Department of Energy
Environmental Restoration Division
UMTRA Project Team
Albuquerque, New Mexico**

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

DISCLAIMER

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

EXECUTIVE SUMMARY

This 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 (FY) 1995 (1 July 1994 through 30 June 1995). To capture employment information, a questionnaire was distributed to subcontractor employees at the active UMTRA Project sites of Grand Junction, Gunnison, Maybell, Naturita, Rifle, and Slick Rock, Colorado. Economic data were requested from the Remedial Action Contractor (RAC), the Technical Assistance Contractor (TAC) and the U.S. Department of Energy (DOE). The most significant benefits associated with the UMTRA Project in Colorado are summarized below.

EMPLOYMENT

The following employment benefits can be associated with UMTRA Project-related activities in Colorado:

- Direct employment was estimated at 527 workers; this represents the number of workers hired for either permanent or seasonal work.
- An estimated 87 percent of all direct employment was local. Local is defined as workers who maintain a permanent residence within a daily commute of work. About 19 percent of these workers commuted daily from residences more than 60 miles (100 kilometers) from the job site.
- About 36 percent of those employed during FY1995 had worked on other UMTRA Project sites.
- Secondary employment resulting from remedial action at the active Colorado UMTRA Project sites and the Grand Junction vicinity property program is estimated at 324 workers.
- Total employment (direct and secondary) is estimated at 851 workers for the state fiscal year.

ECONOMIC BENEFITS

The economic benefits below can be associated with UMTRA Project-related activities in Colorado:

- An estimated \$9 million was paid in direct wages to UMTRA Project workers in Colorado.
- Secondary wage earnings were estimated at \$4.9 million, for total earnings of \$13.8 million.

- Income tax payments to the state were estimated at \$508,100.
- The gross economic impact of UMTRA Project activities in the state of Colorado is estimated at \$34 million.
- The net economic benefit to Colorado was estimated at \$28 million, or \$6.51 per dollar of funding provided by the state. This figure includes both direct and secondary benefits.

OTHER BENEFITS

The state of Colorado benefits from UMTRA Project-related activities, as follows:

- Employment on the UMTRA Project provides training opportunities that apply to other employment prospects.
- More than 30 communities in the state of Colorado benefited from purchases or provided services related to the UMTRA Project.
- More than 400 subcontractors and vendors within the state supplied services and materials to the UMTRA Project valued at about \$15 million.

The UMTRA Project provides specific benefits to some communities. For example, the UMTRA Project is restoring and enhancing wetland and riparian areas as mitigation for wetland impacts at the Gunnison and Rifle sites. Threatened and endangered species studies have been ongoing at the Slick Rock and Naturita sites, and historic resource documentation of the Naturita processing site was conducted in FY1995.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
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 FY1995	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	4-3
4.3 Maybell.....	4-3
4.4 Naturita	4-4
4.5 Rifle.....	4-5
4.5.1 Remedial action employment.....	4-6
4.5.2 Secondary employment	4-6
4.6 Slick Rock	4-6
4.7 Trends in UMTRA Project employment in Colorado	4-7
5.0 ECONOMIC IMPACTS.....	5-1
5.1 Wages and salaries	5-1
5.2 Other UMTRA Project expenditures.....	5-3
5.3 Taxes	5-5
5.3.1 Summary cost/benefit	5-6
6.0 LIST OF CONTRIBUTORS.....	6-1
7.0 REFERENCES	7-1
ATTACHMENT 1 UMTRA PROJECT EMPLOYEE QUESTIONNAIRE	
ATTACHMENT 2 EMPLOYMENT AND EARNINGS MULTIPLIERS	
ATTACHMENT 3 REPRESENTATIVE UMTRA PROJECT VENDORS AND SUBCONTRACTORS	

LIST OF TABLES

<u>Table</u>	<u>Page</u>
2.1 UMTRA Project training.....	2-3
4.1 Estimated average remedial action employment, Grand Junction, Colorado, site	4-2
4.2 Total estimated employment related to the Grand Junction, Colorado, UMTRA Project activities, FY1995	4-4
4.3 Estimated average direct remedial action employment, Gunnison, Colorado, site	4-4
4.4 Estimated average direct remedial action employment, Maybell, Colorado, site	4-5
4.5 Estimated average remedial action employment, Naturita, Colorado, site	4-6
4.6 Estimated average remedial action employment, Rifle, Colorado, site	4-7
4.7 Estimated average employment, Slick Rock, Colorado, site	4-7
4.8 Total estimated UMTRA Project-related employment in Colorado	4-8
4.9 Summary of worker survey responses	4-10
5.1 Wages paid at active UMTRA Project sites in Colorado.....	5-2
5.2 Estimated UMTRA Project expenditures in Colorado	5-3
5.3 Income impact from UMTRA Project activities in Colorado, 1 July 1994 to 30 June 1995.....	5-4
5.4 Income tax payments	5-6
5.5 UMTRA Project economic impacts at Colorado sites, 1 July 1994 to 30 June 1995.....	5-7
5.6 Direct and secondary income impacts from UMTRA Project activity at Colorado sites and VPs through 30 June 1995	5-8

LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
DOE	U.S. Department of Energy
FY	fiscal year
MK-F	MK-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 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 (FY) between 1 July 1994 and 30 June 1995. To estimate net economic benefit, 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. Actual data obtained from sites currently undergoing remedial action were 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 state FY1995. 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 due to 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 work experience on UMTRA Projects, and job classification (permanent or temporary). The questionnaire also included information about the use of community services by UMTRA workers. Respondents represent those persons working at the sites at the specific time the survey was distributed (September 1995); consequently, information is only indicative of worker characteristics. Approximately 370 questionnaires were completed and returned for use in this study. Attachment 1 is a copy of the questionnaire. Secondary employment is estimated using multipliers developed by the Colorado Division of Local Government (see Attachment 2).

Information on wages, taxes, and subcontract expenditures, in combination with estimates and economic multipliers, is used to estimate the economic benefits in dollars to Colorado during the state fiscal year. Finally, the FY1995 estimates are compared to FY1994 employment and economic information.

This is the fourth year the annual Colorado economic impact study has used actual information from field data to estimate employment and economic benefits. In some instances, the database may vary slightly because of refinements made in data collection methods or variations in data supplied by contractors.

Most raw data needed for this report were collected by MK-Ferguson (MK-F), the UMTRA Project Remedial Action Contractor (RAC) to the DOE (Dunkley, 1995a; 1995b). MK-F obtained information from subcontractors, providing information specific to the MK-F remedial action site activities and non-Grand Junction vicinity properties (VP). Jacobs

Engineering Group Inc., the UMTRA Project Technical Assistance Contractor (TAC) to the DOE, provided program-level information and prepared the analysis (Muniz, 1995a; 1995b). The Grand Junction, Colorado VP program is coordinated by RUST Geotech. RUST Geotech was instrumental in providing data on the VP program employment and economic benefits (Elmer, 1995). 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 tailings-related hazards were known. VP cleanup typically requires removal of all contaminated soils and other materials, if present; and restoration of disturbed areas. More than 4200 VPs, most of which are located in Grand Junction, have been identified for cleanup in Colorado.

This study assesses benefits associated with the Grand Junction, Gunnison, Maybell, Naturita, Rifle, and Slick Rock, Colorado, UMTRA Project sites for the 1-year period under study. Work at the Maybell site was initiated in April 1995 and at the Slick Rock site in January 1995; consequently, activities associated with remedial action at these sites represent only 3 and 6 months, respectively, of state FY1995. At Naturita, work was limited to completion of building demolition at the processing site and VP cleanup. Full construction season is expected for these sites during FY1996.

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 FY1995:

- Grand Junction site: Industrial Construction Corp (ICC) of Missoula, Montana.
- Gunnison site: AMES Construction, Inc. (AMES), of Burnsville, Minnesota.
- Maybell site: Landmark Reclamation (Landmark) of Littleton, Colorado.
- Naturita site: Invirex Demolition, Inc. (Invirex), of Huntington Station, New York.
- Rifle sites: Green International, Inc. (Green), of Denver, Colorado.
- Slick Rock sites: Ground Improvement Techniques, Inc. (GIT) of Woodland, Washington.

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 400 Colorado subcontractors and vendors supplied services and materials to the UMTRA Project during the state FY1995.

The VP cleanup programs are managed slightly differently. These subcontracts typically have been awarded to small businesses in the area. Attachment 3 lists the subcontract companies used for VP cleanup in 1995. In Grand Junction, more than 4000 VPs have been cleaned up and additional VPs are being identified for remediation. In Gunnison and Rifle, VP remediation continued in FY1995, with cleanup completed at Gunnison. Some VP cleanup continues at Rifle and should be complete in FY1996.

2.1 REMEDIAL ACTION EMPLOYMENT NEEDS

UMTRA Project remedial action employment needs are similar to those of large earthmoving 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 about 20 cubic

yards (15 cubic meters) are used. Therefore, 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. For example, most Colorado sites experience severe winter weather, which halts construction for extended periods. Mandatory shutdown periods in the winter and spring to mitigate the impact on wildlife also affect the construction season at some sites. Seasonal workers typically are hired for 5 to 6 months, and workers laid off in the fall are encouraged to return in the spring, although some jobs may require only a few weeks (e.g., building a fence).

2.2 VICINITY PROPERTY EMPLOYMENT NEEDS

Employment related to the VP program typically requires 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.

2.3 TRAINING

Through its contractors, the DOE provides training for all employees hired for UMTRA Project work. Table 2.1 lists training provided to workers; most training is applicable to other similar work, including Superfund sites (Ross, 1995).

RUST Federal Services Inc., MK-F's RAC teaming partners, trains inexperienced workers in radiation monitoring by pairing an inexperienced worker with an experienced individual to learn on-site work skills. In-class training is provided and the worker is tested. The complete training takes approximately 6 months. At the end of the remedial action, these workers generally find 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. Through on-site, progressively increasing experience, a worker may acquire the skills needed for positions of

Table 2.1 UMTRA Project training

Subject
ES&H site indoctrination
Respiratory protection
Emergency response
Lockout/tagout
Hazard communication
Hearing protection
Radiation worker
Confined space
Occupational worker*
Transportation/hazardous material shipping
Fire prevention
MSHA nonmetal surface miner
Asbestos abatement
40-hour OSHA (29 CFR §1910.120)
24-hour OSHA (29 CFR §1910.120)
8-hour OSHA annual refresher
8-hour OSHA for supervisors
OSHA construction regulations course
Cardiopulmonary resuscitation/first aid
Bloodborne pathogens

*Radiation training for visitors.

ES&H - Environment, safety, and health.
MSHA - Mining Safety and Health Administration
OSHA - Occupational Safety and Health Administration

greater project-related responsibility and to enhance employment potential on other projects.

2.4 SECONDARY EMPLOYMENT

In addition to employment directly related to the UMTRA Project site or VP remediation, secondary employment occurs as a result of direct employment when the UMTRA Project brings increased money into an economy and increases the demand for workers. Secondary employment typically occurs primarily in the services sector. The VP program in Grand Junction is assumed to have generated secondary employment in Grand Junction as a long-term impact. It is likely that some secondary employment also has occurred in Gunnison and Rifle. The Colorado Division of Local Government has identified multipliers that represent additional employment generated by each direct job. These multipliers represent the industry average multiplier for the applicable region in Colorado. For example, an employment multiplier of 1.82 was applied

to direct employment at Grand Junction and Rifle; this represents an average of the three industry sector multipliers shown in Attachment 2. For the Gunnison site, an employment multiplier of 1.70 is the average industry multiplier for the ski country region, and that was applied to the direct employment to estimate secondary employment. The secondary multiplier shows how every direct job creates 0.82 new jobs for Grand Junction and Rifle or 0.70 new jobs for Gunnison. However, because of the largely seasonal nature of most UMTRA Project work, applying the multiplier to all direct jobs may overestimate the levels of secondary employment. Secondary employment is not estimated for the Naturita, Maybell, or Slick Rock sites because work activities were limited (primarily VP cleanup at Naturita) and the duration of work at Maybell and Slick Rock was short (i.e., 3 to 6 months in the study period). In addition, secondary employment related to Grand Junction site remediation was not estimated for FY1995 because remedial action was completed and Grand Junction site employment was limited to workers needed to maintain and operate the disposal cell.

3.0 UMTRA PROJECT MATERIAL, SERVICES, AND SUPPORT

3.1 MATERIAL AND SUPPLY NEEDS

UMTRA Project site remediation requires activities, supplies, materials, and services that would be associated with a large earthmoving project: land appraisals, training, laboratory analysis, equipment repair, fuel and oil for equipment, fencing materials, building supplies, miscellaneous office supplies, hardware and equipment parts, and incidental office supplies. 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 3 lists some of the vendors and subcontractors the UMTRA Project uses for materials, supplies, and services. This list is incomplete, but it indicates the extent to which the UMTRA Project material and supply purchases benefit communities of all sizes throughout the state, including the Denver metropolitan area.

3.2 SUPPORT NEEDS

In addition to 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 more general support activities may include: meetings with local planning commissioners to ensure that all necessary permits and local requirements are met; arranging for equipment, supplies and facilities for public meetings; and traveling to and from Colorado sites. Each of these activities results in purchases and local expenditures (e.g., meals, motels, and rentals) for nonlocal field personnel.

4.0 UMTRA PROJECT EMPLOYMENT IN COLORADO IN FY1995

UMTRA Project-related employment in Colorado from 1 July 1994 to 30 June 1995 resulted in an estimated 527 direct and 323 secondary jobs of all kinds. Because of the seasonal nature of remedial action and the 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 FY1995. Approximately 87 percent of the direct jobs were filled by area or local residents who commuted daily to the job site.

These estimates 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] [100 kilometers (km)]) to a job site than workers 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 are not considered permanent. Permanent workers typically are 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 job length. Because the work force fluctuates throughout the construction year, the peak work force is noted also.

4.1 GRAND JUNCTION

The remedial action contract was awarded to Industrial Construction Corp in March 1989. The surface remedial action was completed in early state fiscal year 1995 (September). Operation and maintenance activities continue at the Cheney disposal cell for receipt of VP materials (Migdal, 1995).

4.1.1 Remedial action employment

During the final phase of work at Grand Junction, employment has decreased gradually, from 89 employees at the end of the FY1994 to 17 in June, the end of FY1995 (Dunkley, 1995a). Table 4.1 shows the average number of employees working at the Grand Junction site in FY1995. Compared to the average total number of workers employed for remedial action in FY1994 (163), the FY1995 levels have significantly declined as expected, because remedial action was completed at the Grand Junction processing site (DOE, 1994).

Table 4.1 Estimated average remedial action employment, Grand Junction, Colorado, site

Contractor	FY1995	FY1994
MK-F	10	22
Subcontractors ^a	6	80
RUST Federal Services	8	61
Total	24	163

^aThe average subcontractor employment is for only four months of the fiscal year (through October 1994).

Employment levels should remain stable because the disposal cell is expected to remain open for continued receipt of VP materials through 1998 (Migdal, 1995). The average employment during 1995 reflects work related to site restoration, maintenance, and operation of the disposal cell for receipt of VP materials.

4.1.2 Vicinity property program employment

In addition to employment related to the remedial action in Grand Junction, the VP program has affected employment significantly. 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 69 jobs; indirect employment was 24 jobs. Geotech indirect employment also includes office support and overhead. Subcontractor employees are estimated at 13. 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 82. As anticipated, there were 44 fewer jobs in FY1995 than in FY1994, when total direct VP employment was estimated at 126 (DOE, 1994). Employment in the VP program has declined over the last few years as remediation of these properties is completed. Although most VPs have been cleaned up, the program will continue as new VPs are identified; employment is expected to remain stable through 1998 (Migdal, 1995).

4.1.3 Secondary employment

Using the 1.82 average industry multiplier suggested for determining secondary employment (Attachment 2) results in an additional 67 jobs generated by the VP program. Including the indirect jobs (24) associated with overhead support to Geotech results in a total secondary employment of 91 jobs. No secondary employment was estimated at the Grand Junction site for FY1995 because remedial action was completed and activities associated with cell operation and maintenance were limited.

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 in FY1995. Compared to FY1994, there were 269 fewer jobs in Grand Junction related to the UMTRA Project. The number of jobs is expected to remain stable through FY1998 because of continuing VP work and operation and maintenance of the Cheney disposal cell for receipt of VP materials (Migdal, 1995).

4.2 GUNNISON

The remedial action contract for Gunnison was awarded to AMES in June 1992, and the tailings haul was completed in October 1994. Following the winter shutdown in November, site activities resumed in mid-April with cover placement, radon barrier placement, and initiation of site restoration. Remedial action at Gunnison is expected to be complete in FY1996. Wetland mitigation monitoring was also conducted during the FY1995 (McBee, 1995).

4.2.1 Remedial action employment

Table 4.3 summarizes employment at the Gunnison site. During FY1995, average annual employment was 63 workers for remedial activities, with a peak of 133 workers in August 1994. An estimated 79 percent of this work force was from the local area, including several workers who commuted more than 60 mi (100 km) to the site. In FY1994, an average of 96 workers were employed at the Gunnison site (DOE, 1994). The 1995 employment decrease reflects the completion of tailings transport and excavation activities. Work also was completed on VP cleanup during FY1995.

4.2.2 Secondary employment

In addition to direct employment, secondary employment may occur in Gunnison. Applying the 1.70 secondary employment multiplier to the 63 direct jobs results in an additional 44 jobs generated by the UMTRA Project. This results in a total direct and secondary employment of 107 at the Gunnison site during the fiscal year.

4.3 MAYBELL

Work was initiated on cleanup at the Maybell site in April 1995. Work activities during the last 3 months of the fiscal year (April through June 1995) focused on mobilization and installing security fences and retention basins. Cleanup of some windblown materials was also conducted and excavation and demolition of foundations began (McBee, 1995).

On average, 31 persons were employed at the Maybell site during the last 4 months of FY1995. While remedial action began in April, some RAC personnel began work associated with initial mobilization in March 1995.

Table 4.2 Total estimated employment related to the Grand Junction, Colorado, UMTRA Project activities, FY1995

	Direct	Secondary	Total
Remedial action employment	24	a	24
VP employment	82	91 ^b	173
Total employment	106	91	197

^aSecondary employment was not estimated at the Grand Junction site because remediation is complete and only limited cell operation activities were conducted.

^bIncludes indirect Geotech employment.

Table 4.3 Estimated average direct remedial action employment, Gunnison, Colorado, site

Subcontractor	FY1995	FY1994
MK-F	18	17
Subcontractors ^a	35	32
RUST Federal Services	10	47
Total	63	96

^aIncludes AMES and its major subcontractors.

Subcontractor employment began in April with 5 workers and increased to 17 in June. Total employment ranged from 15 workers in March to 39 in June (Dunkley, 1995a). Employment at the Maybell site is expected to increase in FY1996, as remedial action activity levels increase.

Responses to employee survey questionnaires indicate about 88 percent of the workers were local, commuting daily to the job site, most within 60 mi (100 km). Some (12 percent) of the survey respondents maintain temporary residences in the area; 49 percent of the respondents had worked at other UMTRA Project sites.

Secondary employment was not estimated for the Maybell site during FY1995 because of the short duration of work and the limited activities associated with start-up. Table 4.4 summarizes employment at the Maybell site during FY1995.

4.4 NATURITA

Initial work began at the Naturita site in state FY1994. 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 and was completed during FY1995. Other site-related activities at Naturita included

Table 4.4 Estimated average direct remedial action employment, Maybell, Colorado, site

Company ^a	FY1995
MK-F	7
Subcontractors ^{a,b}	11
RUST Federal Services	13
Total	31

^aAverage employment for MK-F and RUST Federal Services is for 4 months (March - June 1995); subcontractor employment is for 3 months (April - June 1995).

^bIncludes Landmark and its major subcontractor.

continued planning for cell cleanup and removing materials to the Umetco site. About 60 VPs have also been identified for cleanup in the Naturita site area. This work was conducted during FY1995 and is expected to continue through FY1996 (Migdal, 1995). Material from the demolition and VP cleanup is being stockpiled on the site until remedial action begins in FY1996.

An estimated average of 20 RAC personnel worked at the Naturita site during FY1995. In addition, the demolition subcontractor (Invirex), employed about 16 persons for the first 7 months of the FY1995. Survey responses from Naturita workers show about 79 percent of the work force is local, with some workers commuting from as far away as Grand Junction and Cortez, Colorado. Many of the workers (about 68 percent) were RAC employees who had transferred from other UMTRA projects (e.g., Grand Junction). Survey responses also indicated that most of these jobs are permanent. This finding is consistent with the beginning of activities as the RAC establishes an office and initiates management activities. Table 4.5 summarizes employment at the Naturita site.

Secondary employment was not estimated for Naturita because of the limited nature and duration of activities. Some secondary employment likely will be generated during FY1996 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. VP cleanup also will continue through FY1996.

4.5 RIFLE

The remedial action contract was awarded to Green in April 1992. During FY1995, the tailings haul from Old Rifle to the Estes Gulch disposal cell was completed. New Rifle was about 96 percent complete. Work began on placement of the radon barrier during the year. Site activity stopped for winter in mid-November 1994, and began in mid-April 1995. Work on VPs began in July 1993 and continued through FY1995. Remedial action at the Rifle site is scheduled for completion in July 1996 (Cox, 1995).

Table 4.5 Estimated average remedial action employment, Naturita, Colorado, site

Employment	FY1995	FY1994
MK-F	11	6
RUST Federal Services	9	16
Subcontractors ^a	16	14
Total	36	36

^aAverage subcontractor personal are for 7 months; no subcontractors were employed after January 1995, when building demolition was completed; includes Invirex and its major subcontractor.

4.5.1 Remedial action employment

The average work force during the summer construction season was 230, with a peak of 354 during April 1995. Most of the workers (an estimated 92 percent) are from the area and commute daily to the site, some from as far as Grand Junction. Table 4.6 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 1994, employment levels increased to 204 and continued to increase in 1995 as the excavation and haul phase of remedial action was completed and radon barrier placement began.

4.5.2 Secondary employment

In addition to direct employment, some secondary employment is expected. Applying the 1.82 multiplier to 230 results in an estimated 189 additional jobs. Total employment at the Rifle site is estimated at 419 (direct and secondary) during the 1995 study period.

4.6 SLICK ROCK

Work at the Slick Rock site began in January 1995 with mobilization and start-up activities. During the last 5 months of the fiscal year (February through June 1995) cell excavation at Burro Canyon and tailings haul at the North Continent site began. Site preparation at the Union Carbide site was initiated and road and bridge improvements began in preparation for the tailings haul to the Burro Canyon disposal site 2 mi (3 km) north of the sites (Leaf, 1995).

Employment at Slick Rock averaged 61 persons during the last 6 months of the fiscal year (January through June 1995). In January, 11 RAC employees were at the site. Employment at the site generally increased through the 6-month period, with 106 employed at the site at the end of the fiscal year (June 1995). Subcontract employment began with 7 persons in February and increased to 61 in June (Dunkley, 1995a). Table 4.7 summarizes average employment during

Table 4.6 Estimated average remedial action employment, Rifle, Colorado, site

Company	FY1995	FY1994
MK-F	24	24
Subcontractors ^a	169	113
RUST Federal Services	37	67
Total	230	204

^aIncludes Green and other major subcontractors.

Table 4.7 Estimated average employment, Slick Rock, Colorado, site

Company ^a	FY1995
MK-F	14
Subcontractors ^b	31
RUST Federal Services	16
Total	61

^aEmployment is for 6 months of the fiscal year (January through June 1995)

^bIncludes GIT and other major subcontractors.

the 6-month period. Secondary employment was not estimated for Slick Rock because of the limited duration of activities.

Employee questionnaire responses indicate that 80 percent of the workers permanently reside in area communities and commute daily to the Slick Rock site. Of the respondents, 44 percent commute distances greater than 60 mi (100 km), and 20 percent have established temporary residences in area communities. About 37 percent of the respondents had worked at other UMTRA sites.

4.7 TRENDS IN UMTRA PROJECT EMPLOYMENT IN COLORADO

Table 4.8 summarizes the estimated direct and secondary employment that occurred during FY1995 in Colorado. During full remedial action at Slick Rock, Maybell, and Naturita in 1996, employment levels may be similar to FY1994 levels.

Concern has been expressed regarding the drop in employment in Grand Junction with the completion of remedial action. Geotech has been successfully reassigning its staff in an aggressive program to assist workers laid off as UMTRA Project work is completed (Elmer, 1994). RUST Federal Services employees trained in radiation monitoring are also finding other employment,

Table 4.8 Total estimated UMTRA Project-related employment in Colorado

Direct employment	FY1995	FY1994
Grand Junction site remedial action	24	163
Grand Junction VP program	82	126
Gunnison remedial action	63	96
Maybell remedial action	31	-
Naturita remedial action	36	36
Rifle remedial action	230	204
Slick Rock remedial action	61	
Subtotal	527	625
Secondary employment		
Grand Junction site remedial action-related	--	81
Grand Junction VP program-related	91	96
Gunnison remedial action-related	44	48
Rifle remedial action-related	189	102
Subtotal	324	327
Total (all employment)	851	952

Note: Secondary employment was not estimated for Grand Junction, Naturita, Maybell, or Slick Rock sites in FY1995 because the small number employed during start-up at Maybell and Slick Rock, the limited activities at Naturita, and completion of site remediation at Grand Junction probably generated no additional jobs.

although they sometimes are required to relocate to other Colorado communities or to other states. Employee surveys indicate about 40 percent of workers have previous UMTRA Project experience. Many RAC 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 not expected to change during 1996, but will decline as surface remediation is completed.

In the longer term, completed 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 accept less skilled and lower paying positions to stay in their communities. However, construction in western Colorado has increased over the past 2 years due to the influx of people moving to the Western Slope communities of Grand Junction,

Montrose, Telluride, and other area communities. Because the supply of skilled construction workers is limited, other employment possibilities may become available.

In response to concerns that an influx of remedial action workers at rural sites such as Naturita and Slick Rock could adversely affect limited housing resources and strain other community services (e.g., schools, and police and fire departments), the employee questionnaire was revised to include information about the use of community services, as well as place and type of residence. Site workers completed and returned 368 questionnaires for use in this evaluation. According to the survey responses, most workers at the new UMTRA Project sites (Maybell, Naturita, and Slick Rock) live in area communities and commute daily to the job site (Table 4.9). At the Slick Rock site, about 44 percent of workers commute more than 60 mi (100 km) per day from such communities as Cortez, Whitewater, Norwood, and Paradox in Colorado, and from Blanding and Monticello, Utah. At Naturita, 37 percent of the workers commute more than 60 mi (100 km) and 79 percent of workers are local. At Maybell, 88 percent live within a daily commute from the site. Only about 12 percent of the workers at these three sites have temporarily moved to an UMTRA site area. These workers live in rental units such as apartments, rooms, and homes, in mobile homes, or with relatives who live in the area; few have been accompanied by families that include school-age children. The residence locations of workers at these sites is distributed throughout the region; consequently, a disproportionate number is not relocating or temporarily residing in any one of these smaller communities.

Medical facilities were the primary community service that had been used by new and temporary workers; a few respondents used police services and one respondent used local schools (Table 4.9). The use of community services is noted here only for the respondents who identified themselves as temporary residents because they would add to the existing service base. Because remedial action at these sites during FY1995 was of short duration or included only limited actions, the use of community services, as well as the number and residence of temporary or relocating employees may change during FY1996 when a full construction season is expected at these sites.

Table 4.9 Summary of worker survey responses

Site (total responses)	Percent of workers responding (number of responses)				
	Local ^a	Temporary residents ^b	Commute > 60 mi	Past UMTRA experience	Nonlocal use of local services ^c
Gunnison (19)	79 (15)	21 (4)	5 (1)	58 (11)	16 (3)
Maybell (41)	88 (36)	12 (5)	2 (1)	49 (20)	7 (3)
Naturita (19)	79 (15)	21 (4)	37 (7)	68 (13)	16 (3)
Rifle (191)	92 (176)	8 (15)	11 (21)	28 (54)	0 (0)
Slick Rock (98)	80 (78)	20 (20)	44 (43)	37 (36)	9 (9)
All sites (368)	87 (320)	13 (48)	20 (73)	36 (134)	5 (18)

^aSite workers who commute from permanent residences.

^bSite workers who established temporary residences in local communities.

^cTemporary residents using local services such as medical, police, schools. Fifteen workers used medical, two used police, and one used schools.

5.0 ECONOMIC IMPACTS

Generally, economic benefits accrue from direct UMTRA Project employment, goods and services purchased in support UMTRA Project activities, and money recirculated by the UMTRA Project and its workers. In addition, money is returned to the state and local economies in increased tax revenues that include income, property, sales, and use taxes. Economic benefits discussed below include employee wages and salaries, subcontract monies, goods and services purchased to support UMTRA Project activities (see Attachment 3), income taxes paid by UMTRA Project workers in Colorado, and sales taxes paid on 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 RAC personnel working on the UMTRA Project in Colorado were estimated at \$9 million during the study period. Total wages for employment at the six remedial action sites were an estimated \$5.5 million. Table 5.1 shows the total RAC and Geotech wages paid at each site and at the Grand Junction VPs. It does not include wages paid to subcontractors (i.e., contractors employed by the RAC and Geotech or by the prime subcontractor). These wages reflect the activity level at each site. At the Grand Junction site, wages paid decreased 75 percent from FY1994 when site remedial action was completed. RAC UMTRA Project activities during the FY1995 were for operation and maintenance of the Cheney disposal site.

At Gunnison, wages paid decreased by about 53 percent, reflecting the completion of the tailings haul in October 1994 and the winter shutdown. Current work at Gunnison includes cover, rock and radon barrier placement, and site restoration. Work was initiated at the Slick Rock and Maybell UMTRA Project sites during FY1995. However, this work began in the spring of 1995 and wages paid reflect only about 3 to 6 months of work during FY1995 (through June 1995). Most activities related to mobilization and site preparation, upgrading roads, installation of security fences and retention basins, initial site excavation, and cleanup of some wind-blown materials. At Naturita, activities involved stockpiling materials from VP cleanup and planning for site cleanup and removal of materials to the Umetco site.

The VP program at Grand Junction continues to represent the largest single source of wages for the UMTRA Project in Colorado: 38 percent of total wages paid in FY1995 and 36 percent in FY1994 (DOE, 1994). UMTRA Project-related wages associated with the Grand Junction VP program totaled an estimated \$3.36 million to Geotech personnel (field personnel, construction supervision, clerical support) and subcontract employees.

The estimated \$9 million paid during the study period represents only wages that were paid to RAC and Geotech personnel that were directly attributable to UMTRA Project activities in Colorado. In addition to these direct wage

Table 5.1 Wages paid at active UMTRA Project sites in Colorado

Site	Total wages paid in \$ ^a	
	FY1995	FY1994
Rifle	2,420,800	3,302,200
Gunnison	1,134,700	2,429,500
Grand Junction	564,000	2,251,200
Naturita	759,300	977,200
Maybell	239,400	--
Slick Rock	426,700	--
Subtotal	5,544,900	8,960,100
Grand Junction VPs ^b	3,357,000	4,968,000
Grand total	8,901,900	13,928,100

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

^bTotal includes \$876,000 for Geotech employees working part-time on the Project.

- Notes: 1. Numbers recorded to the nearest \$100.
2. Dash indicates no activity at this site.

payments shown in Table 5.1, the RAC and Geotech estimate wage payments of almost \$9 million to subcontractor employees. These wages are not reflected in Table 5.1 because not all subcontractors are Colorado companies. However, RAC and Geotech subcontract payments (shown in Table 5.2) to Colorado companies includes money these subcontractors pay in wages. For example, RAC payments to Green, the prime subcontractor at the Rifle site, are part of the total Colorado subcontractor/vendor payments included in Table 5.2. Green pays a portion of the payment it receives to its UMTRA Project employees.

Direct labor income produces secondary labor income generated by UMTRA Project expenditures for materials, equipment, and supplies. Induced income results from employment created by respending direct and indirect labor income within the state. While direct labor income provides economic benefits through the generation of secondary income, not all direct income remains within Colorado. Some contractor personnel reside outside the state and a portion of their income probably returns 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 generated by direct employment. The earnings multipliers used in this study were provided by the Colorado Division of Local Government (see Attachment 2), and represent the average industry multiplier

Table 5.2 Estimated UMTRA Project expenditures in Colorado

Category	Expenditures
Subcontractor/vendor	\$15,056,240
Administrative/office overhead	4,000,950
Travel costs (motels, meals, auto rental, airfare)	167,540
Special study/analyses/miscellaneous purchases	128,790
Total	\$19,353,520

for the applicable region in Colorado. For example, the earnings multiplier of 1.669, applied to direct income earnings at the Grand Junction and Rifle sites, represents an average of the three industry sector multipliers shown in Attachment 2 for the energy and mining region of the state. For the Gunnison site, the 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, Slick Rock, and Maybell sites. The short duration and limited nature of the work at these sites make secondary earnings unlikely. Table 5.3 shows estimated direct and secondary earnings at the UMTRA Project sites in Colorado.

As shown in Table 5.3, a total of \$4.9 million was estimated in secondary earnings from UMTRA Project activities at the remedial action sites and Grand Junction VPs. Direct and secondary income totaled \$13.8 million during the study period. This is \$8.5 million less than fiscal year 1994, when an estimated \$22.3 million was generated in direct and secondary wage income (DOE, 1994). This reflects the completion of work at the Grand Junction site, wind-down of activities at Gunnison, and the limited work that was performed at Naturita, Slick Rock, and Maybell. During FY1996, the greater level of work expected at the three newly started sites should reflect higher earning levels next fiscal year.

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. 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.

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

Table 5.3 Income impact from UMTRA Project activities in Colorado, 1 July 1994 to 30 June 1995

Site	Thousands of dollars		
	Direct earnings	Secondary earnings	Total earnings
Rifle	2,421	1,620	4,041
Gunnison	1,135	633	1,768
Grand Junction site	564	377	941
Naturita	759	—	759
Maybell	239	—	239
Slick Rock	427	—	427
Grand Junction VPs	3,357	2,247	5,604
Total	\$ 8,902	\$ 4,877	\$13,779

- Notes: 1. Secondary impacts were not anticipated at Naturita, Slick Rock, or Maybell because of the limited nature and duration of activities at these sites during the reporting period.
2. Secondary multipliers used were based on the average earnings multiplier applicable to the site areas provided by the Colorado Division of Local Government.

During the study period, subcontractor and vendors expended within Colorado an estimated \$15.1 million for supplies, materials, and services; dislocation monies; subcontracts; equipment rental; and permits and fees. This \$15.1 million includes only subcontractor and vendor expenditures by Geotech, RAC, and Jacobs Engineering Group Inc. for companies located within Colorado. This includes Green, the prime subcontractor at the Rifle site; Invirex, subcontractor at Naturita; Landmark, the Maybell subcontractor; and other RAC and Geotech subcontractors at the UMTRA sites. The payments do not include monies these subcontractors distribute to lower-tier subcontractors (that is, subcontracts held by the prime site subcontractor); these payments are made from the monies paid by the RAC and Geotech to their prime subcontractors. Similarly, payments (for example, to AMES, prime subcontractor at the Gunnison site) would not be included because AMES is located outside Colorado. Out-of-state companies likely return a portion of their payments to the state economy through wage payments to Colorado employees and through materials and supplies purchased from Colorado companies. Subcontractor and vendor expenditures represent most of the estimated \$19.4 million in other UMTRA Project expenditures within the state of Colorado during the study period. Table 5.2 breaks down these categories and estimated expenditures. Other expenditures include RAC and Geotech administrative and office overhead costs; DOE, TAC, and Geotech 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.

5.3 TAXES

In addition to the UMTRA Project expenditures discussed above, the UMTRA Project provides economic income to the state through tax payments. The primary tax source to the state from the UMTRA Project is via income tax payments. During the study period, an estimated \$2.3 million was paid in state and federal income taxes. Of this, \$508,100 was state of Colorado income tax. Table 5.4 shows by site the income tax payments during the study period, based on wages paid for direct labor. These data include income tax payments by Geotech and the RAC. Total estimated income tax payments of \$2.3 million are slightly lower than the \$2.6 million paid in FY1994. However, income tax payments of \$508,100 to the state of Colorado during this study period, were slightly higher than payments in FY1994.

Applying the same multipliers used to project secondary income impacts (i.e., wages generated by secondary employment) to the income tax withholdings would result in an additional \$272,000 in income tax payments to the state of Colorado. This is a total of \$780,000 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, Maybell, or Slick Rock because the limited type and duration of activities during the FY1995 make significant secondary impacts unlikely.

The type and extent of investment in UMTRA Project facilities is a factor in determining the local public sector revenues generated by the UMTRA Project. The level and nature of investment refers to the degree to which land purchases or development (e.g., office buildings) 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 monies recirculated through the local, regional, and state economies, represent a source of revenue to state and local governments. Colorado has a 3-percent sales tax for all material purchases. Some local governments also assess sales taxes. Use taxes, such as fuel and tobacco taxes, also are 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 generate tax income (e.g., meals, car rental, airline, and lodging taxes).

Table 5.4 Income tax payments

Site	Federal	State	Total
Rifle	\$536,840	\$154,952	\$691,792
Gunnison	244,933	71,912	316,845
Grand Junction remediation	112,204	33,603	145,807
Naturita	166,185	47,456	213,641
Maybell	56,678	15,549	72,227
Slick Rock	91,649	26,655	118,304
Grand Junction VPs	553,000	158,000	711,000
Total	\$1,761,489	\$508,127	\$2,269,616

5.3.1 Summary cost/benefit

The gross economic impact of UMTRA Project activities in Colorado is estimated at \$34 million during the 1-year study period (Table 5.5). The state funding during the period was \$4.3 million. The net economic benefit to the state of Colorado was about \$28 million, or about \$6.51 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 \$4.3 million share been used for other purposes). The direct-source gross economic impact totals \$28.8 million. Accounting for the state's \$4.3 million funding, the direct net benefit is estimated at \$23 million, or about \$5.35 per dollar of funding. Although the total benefit is slightly less than fiscal year 1994 (\$28 million compared to \$31 million), the net economic benefit per dollar of funding is higher than the previous year (\$6.08 per dollar).

During FY1995, direct employment at the Rifle UMTRA site increased slightly (13 percent). However, wages paid during the same period decreased by 27 percent. 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 employment time. As a local project begins, 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 FY1992 estimated impacts for the duration of remedial activities in Colorado and

Table 5.5 UMTRA Project economic impacts at Colorado sites, 1 July 1994 to 30 June 1995

Category	Thousands of dollars		
	Direct	Secondary	Total
Labor income	\$ 8,902	\$ 4,877	\$13,779
Other expenditures	19,354	--	19,354
Colorado income tax	<u>508</u>	<u>272</u>	<u>780</u>
Total gross economic impact	\$28,764	\$ 5,149	\$33,913
Colorado funding requirement	-4,268		-4,268
Federal income tax ^a	<u>-1,761</u>		<u>-1,761</u>
Net economic benefit	\$22,735		\$27,884

^aFederal income tax payments are excluded because they do not directly benefit the state.

projected the impacts of future activities. Table 5.6 shows the income impacts reported for previous years, as well as results from the current study. Total income impacts (direct and secondary) are estimated at \$273.6 million through June 1995. Labor income from the UMTRA Project was estimated to average \$37.5 million annually over the life of the Project (DOE, 1992). The estimated \$13.8 million (Table 5.5) for FY1995 is lower than the projected average. This reflects completion of the Grand Junction remedial action wind-down of activities at Gunnison, and limited activities at Naturita, Slick Rock, and Maybell. During FY1996, 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 the Naturita, Slick Rock, and Maybell sites. In addition, the Grand Junction VP program is expected to remain stable through 1998 (Migdal, 1995).

Table 5.6 Direct and secondary income impacts from UMTRA Project activity at Colorado sites and VPs through 30 June 1995

Site	Thousands of dollars		
	Cumulative through June 1994	1995	Total
Durango	26,278	0	26,278
Grand Junction ^a	206,208	6,545	212,753
Gunnison	8,671	1,768	10,439
Maybell	--	239	239
Naturita	977	759	1,736
Rifle	17,636	4,041	21,677
Slick Rock	--	427	427
Total	259,770	13,779	273,549

^aIncludes both site and VP activities.

6.0 LIST OF CONTRIBUTORS

The following individuals contributed to the preparation of this document.

Name	Contribution
R. Neri Zagal	Document sponsor; review
A. Vollmer	Document coordinator; review
L. Ulland	Author
W. Migdal, J. McBee, M.B. Leaf, S. Cox, J. Elmer, E. Artiglia, W.Dunkley, J. Deckler	Document review
L. Sanchez, Word Center Inc.	Word processing
J. Torline	Technical editing

7.0 REFERENCES

- Couch, E., 1993. Chem Waste Management Federal Environmental Services, Albuquerque, New Mexico, personal communication with S. Beranich, Southwest Environmental, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 26 October 1993.
- Cox, S., 1995. Jacobs Engineering Group Inc., personal communication with L. Ulland, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 17 October 1995.
- DOE (U.S. Department of Energy), 1994. *Colorado Economic Impact Study for the Uranium Mill Tailings Remedial Action (UMTRA) Project, Colorado State Fiscal Year 1994*, DOE/AL/62350-174, 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., 1995a. Morrison Knudsen-Ferguson, Albuquerque, New Mexico, personal communication with A. Vollmer, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 6 October 1995.
- Dunkley, W. T., 1995b. Morrison Knudsen-Ferguson, Albuquerque, New Mexico, personal communication with S. C. Hamp, U.S. Department of Energy, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 8 September 1995.
- Elmer, J., 1995. Rust Geotech Inc., Grand Junction, Co., personal communication with S. C. Hamp, U.S. Department of Energy, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 1 September, 1995.
- Elmer, J., 1994. RUST Geotech, Grand Junction, Colorado, personal communication with L. Ulland, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 13 through 14 October 1994.
- Leaf, M. B., 1995. Jacobs Engineering Group Inc., personal communication with L. Ulland, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 10 October 1995.
- McBee, J., 1995. Jacobs Engineering Group Inc., personal communication with L. Ulland, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 10 October 1993.

- Migdal, W., 1995. Jacobs Engineering Group Inc., personal communication with L. Ulland, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 10 and 16 October 1995.
- Muniz, R. P., 1995a. Jacobs Engineering Group Inc., Albuquerque, New Mexico, personal communication with S. C. Hamp, U.S. Department of Energy, UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 8 September 1995.
- Muniz, R. P., 1995b. Jacobs Engineering Group Inc., Albuquerque, New Mexico, personal communication with A. Vollmer, Jacobs Engineering Group Inc., UPDCC File Location No. 016.1, Albuquerque, New Mexico, 11 October 1995.
- Ross, Larry, 1995. Jacobs Engineering Group Inc., personal communication with L. Ulland, Jacobs Engineering Group Inc., UPDCC File Location No. 0.16.1, Albuquerque, New Mexico, 16 October 1995.

CODE OF FEDERAL REGULATIONS

- 29 CFR Part 1910, *Occupational Safety and Health Standards*, Occupational Safety and Health Administration.

ATTACHMENT 1

UMTRA PROJECT EMPLOYEE QUESTIONNAIRE

UMTRA PROJECT EMPLOYEE QUESTIONNAIRE

Please provide the following information about yourself.	
Name:	Date:
UMTRA Site Where Employed:	
Employer: ☐ MK-F ☐ Rust FS ☐ Geotech ☐ Other _____	
Please provide the following information about your permanent residence.	
City:	State: Zip:
☐ Apartment ☐ Mobile Home/Trailer ☐ House ☐ Room	
☐ Own ☐ Rent Number of family members living here: _____	
Number of school-age children living here: _____	
Do you live at this address while working on the UMTRA project? ☐ Yes ☐ No	
If you do not live at the above location while working on the UMTRA Project, please answer the following about your temporary residence.	
City:	State: Zip:
☐ Apartment ☐ Mobile Home ☐ House ☐ Travel trailer/Camper ☐ Room	
☐ Own ☐ Rent Number of family members living here: _____	
Number of children attending school here: _____	
Share residence with other UMTRA employees. ☐ Yes ☐ No. If yes, number of roommates: _____	
Have you used any local community services since living here? ☐ Yes ☐ No	
Which Ones? ☐ Police ☐ Fire ☐ Medical ☐ Schools	
☐ Others (specify) _____	
When the UMTRA project is completed, do you expect to	
☐ Work in the site area ☐ Work on the Western Slope ☐ Relocate elsewhere within Colorado ☐ Relocate outside Colorado ☐ Other (specify) _____	
Have you learned new job skills on the UMTRA Project? ☐ Yes ☐ No	
Will your UMTRA work aid you in finding your next job? ☐ Yes ☐ No	
Please describe your employment on the UMTRA Project.	
When did you begin working at this site: _____ month _____ year	
How many miles do you travel to work? _____	
What is your job title?	
Is your employment: ☐ hourly or ☐ salaried	
☐ year-round or ☐ seasonal	
☐ full time (40 hrs/wk +) or ☐ part-time (less than 40 hrs/wk)	
Have you worked at other UMTRA sites? ☐ Yes ☐ No.	
If yes, where: _____	

ATTACHMENT 2

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.

ATTACHMENT 3

REPRESENTATIVE UMTRA PROJECT VENDORS AND SUBCONTRACTORS

TABLE OF CONTENTS

Title

Colorado Vendors Used by Morrison Knudsen-Ferguson	A3-1
Common Colorado Vendors Used by UMTRA Vicinity Property Subcontractors	A3-7
Colorado Subcontractors Used for the Grand Junction Vicinity Property Program	A3-8
Colorado Vendors Used by Other Prime Subcontractors on Colorado Site Remedial Actions	A3-9
Colorado Vendors Used by Jacobs Engineering Group Inc.	A3-11

COLORADO VENDORS USED BY MORRISON KNUDSEN-FERGUSON

Vendor

Location

A&B Asbestos Abatement, Inc.	Grand Junction, CO
Action Electric & Farm	Durango, CO
Action Shop Services	Rifle, CO
Adolphus Moore	Naturita, CO
American Northwest Realty	Craig, CO
American Sign Company	Cortez, CO
Americom Communications	Grand Junction, CO
Amerigas Propane Service	Grand Junction, CO
Analytical Technologies, Inc.	Fort Collins, CO
Arnie Butler & Co.	Grand Junction, CO
Arrowhead Ind., Inc.	Grand Junction, CO
Art's Mobile Home Transport	Fruita, CO
Artesian Water Service	Grand Junction, CO
AT&T	Denver, CO
B & B Plumbing	Rifle, CO
B & H Supply	Cortez, CO
Barringer Laboratories	Golden, CO
Basin Clinic, Inc.	Naturita, CO
Becks 5th Street Photo	Rifle, CO
BFI	Glenwood Springs, CO
BFI Waste Systems	Grand Junction, CO
Bill Hutton	Rifle, CO
Blake Mining Co.	Nucla, CO
Blue Mesa Lumber, Co.	Gunnison, CO
Bond Sign Company	Rifle, CO
Brookhart's	Rifle, CO
Brookhart's Inc.	Grand Junction, CO
Bureau of Land Management	Craig, CO
Business Machine Service	Grand Junction, CO
Carey McNider	Arvada, CO
CDS Laboratories	Durango, CO
Cellularone	Durango, CO
Central Distributing, Inc.	Grand Junction, CO
Chelewski Pipe & Supply	Rifle, CO
Chuck Wagon Cafe	Slick Rock, CO
City Market	Gunnison, CO
City Market	Grand Junction, CO
City of Grand Junction	Grand Junction, CO
City of Gunnison	Gunnison, CO
Clerk of County Court	Grand Junction, CO
Clerk of District Court	Durango, CO
Clerk of the Water Court	Montrose, CO

Vendor

Clifton Water District
Cloyd's Septic Service
Coast to Coast Hardware
Colorado Cartage, Inc.
Colorado Department of Agriculture
Colorado Department of Health
Colorado Department of Revenue
Colorado Department of Transportation
Colorado Handyman
Colorado Mountain College
Colorado Office Products
Colorado Recreation Equipment
Colorado Safety Association
Colorado Scale Center
Colorado Silica Sand
Colorado West Fire Extinguishing
Complete Archaeological Service
Conestoga Storage
Cortez Camera
Cortez Wood Shoppe
Craddock Develop. Co.
Crested Butte Communications
Culligan Water Conditioning
D. Blake Couture
Daily Sentinel
Deep Rock
Division of Water Resources
Electrical Dynamics
Energy Equipment & Supply
Escalante Lumber & Supply
F Bar Catering
Family Practice Assoc.
Flame Out
Four Corners Photographics
Four Corners Welding and Gas
Four States Tire
Francis Constructors, Inc.
Front Range Community College
GR Enterprises
Garfield County Social Services

Location

Clifton, CO
Clifton, CO
Craig, CO
Gunnison, CO
Lakewood, CO
Denver, CO
Denver, CO
Denver, CO
Rifle, CO
Glenwood Springs, CO
Grand Junction, CO
Grand Junction, CO
Denver, CO
Wheat Ridge, CO
Colorado Springs, CO
Grand Junction, CO
Cortez, CO
Rifle, CO
Cortez, CO
Cortez, CO
Colorado Springs, CO
Avon, CO
Gunnison, CO
Littleton, CO
Grand Junction, CO
Grand Junction, CO
Durango, CO
Gunnison, CO
Grand Junction, CO
Cortez, CO
Gunnison, CO
Cortez, CO
Whitewater, CO
Cortez, CO
Cortez, CO
Cortez, CO
Grand Junction, CO
Westminster, CO
Grand Junction, CO
Glenwood Springs, CO

Vendor

Gene Taylor's Sporting Goods
Glenn's Scaffolding
Glenwood Medical
Grand Junction Pipe & Supply
Grand River Institute
Grand River Medical Assoc.
Grand Valley Rural Power
Great Western Airgas
Great Western Airgas
Great Western Airgas
Green International
Gunnison Camera Center
Henry's Radio & TV
Hobby Ventures, Inc.
Huntingdon Engineering
Information Technologies
Invirex Demolition, Inc.
J&S Fence Company
Jack David
Jackson's Office Supply
Jerry Greene, PE
Johnson Construction Co.
Joyce Woodard
Kelco General Contractor
KLB
Kroegers
Landmark Reclamation
Laser Junction
Lions Club Intl.
Magnum Electric
Main Supply
Maness & Associates
Maryhannah & Charles
Mauch 1 Hour Photo
Maxim Technologies
McCarter Consulting
Mesa Family Practice
Micro Plastics
Moffat County Lumber
Mountain Bell

Location

Grand Junction, CO
Clifton, CO
Glenwood Springs, CO
Grand Junction, CO
Grand Junction, CO
Rifle, CO
Grand Junction, CO
Craig, CO
Grand Junction, CO
Glenwood Springs, CO
Denver, CO
Gunnison, CO
Gunnison, CO
Nucla, CO
Denver, CO
Grand Junction, CO
Naturita, CO
Grand Junction, CO
Gunnison, CO
Craig, CO
Gunnison, CO
Rifle, CO
Slick Rock, CO
Grand Junction, CO
Grand Junction, CO
Durango, CO
Littleton, CO
Grand Junction, CO
Gunnison, CO
Grand Junction, CO
Dove Creek, CO
Cortez, CO
Rifle, CO
Grand Junction, CO
Denver, CO
Aurora, CO
Grand Junction, CO
Rifle, CO
Craig, CO
Denver, CO

Vendor

Mountain Environmental
Mountain Region Corporation
Mountain West Office Products
Munro Properties, Inc.
Munro Supply
NAPA Auto Parts-Ace Hardware
Nancy Newman
National Propane
Nationsway Transport
Naturita Tire & Service
Naturita True Value Hardware
Northwest Engineering
Northwest Storage
Northwood Hardware
Nucla True Value Hardware
Nucla-Naturita Telephone Co.
OAG Pocket Flight Guide
Office Machine Sales & Services
Office of State Engineering
Office Outpost
Palisade Constructors Inc.
Parkers Copier Service
Pentecostal Church
Pinkerton Floors, Inc.
Pinon Electrical
Plaza Reprographics
Public Service Co. of Colorado
QED Surveying Systems
Ramada
Ray Motel
Reams Construction
Recordmaster
Remington Square Vision
Respond Systems
Rifle Amoco Service
Rifle Chamber of Commerce
Rifle Fire Side Inn
Rifle Lock and Safe
Rodney L. Whiting
Ronald A. Long

Location

Dolores, CO
Grand Junction, CO
Grand Junction, CO
Grand Junction, CO
Grand Junction, CO
Gunnison, CO
Steamboat Springs, CO
Grand Junction, CO
Denver, CO
Naturita, CO
Naturita, CO
Maybell, CO
Craig, CO
Norwood, CO
Nucla, CO
Nucla, CO
Boulder, CO
Montrose, CO
Denver, CO
Cortez, CO
Palisade, CO
Cortez, CO
Naturita, CO
Clifton, CO
Nucla, CO
Grand Junction, CO
Denver, CO
Grand Junction, CO
Grand Junction, CO
Naturita, CO
Naturita, CO
Grand Junction, CO
Rifle, CO
Grand Junction, CO
Rifle, CO
Rifle, CO
Rifle, CO
Rifle, CO
Whitewater, CO
Gunnison, CO

Vendor

Rudd Aviation
Samuelson Hardware
San Juan Basin Vo-Tech
San Miguel County Planning
San Miguel Power Association
Scherry Simonson
Schmueser, Gordon, Meyer
Sequoia Publishing Inc.
Servicemaster
Slavens, Inc.
SME
Sokkia Measuring Systems
Southwest Hearing Services
Spallone Construction Inc.
St. Mary's EMS Office
Stockmasters
Storms Mobile Home Service
Superior Alarm
Sutherland Brothers
Technology Training Systems
The Apothecary Shoppe
The Denver & Rio Grande
The Empire Express
The Mountain States Co.
The Office Supply Store
The Palace Grill
The Paper Clip
The Water Store
Tim's Tools
Tri County Fire
Tripple "R" Towing
Two-Way Communications
U.S. Geological Survey
U.S. Postmaster
U.S. Postmaster
U.S. West Cellular
U.S. West Communications
U.S. West Direct
UNC Technical Services

Location

Basalt, CO
Craig, CO
Cortez, CO
Telluride, CO
Nucla, CO
New Castle, CO
Glenwood Springs, CO
Littleton, CO
Glenwood Springs, CO
Cortez, CO
Littleton, CO
Denver, CO
Montrose, CO
Gunnison, CO
Grand Junction, CO
Grand Junction, CO
Fruita, CO
Grand Junction, CO
Nucla, CO
Aurora, CO
Nucla, CO
Denver, CO
Craig, CO
Craig, CO
Rifle, CO
Durango, CO
Gunnison, CO
Gunnison, CO
Rifle, CO
Rifle, CO
Cortez, CO
Grand Junction, CO
Denver, CO
Dove Creek
Gunnison, CO
Denver, CO
Littleton, CO
Aurora, CO
Grand Junction, CO

Vendor

Uncompahgre Combined Clinic
United Companies
United States Welding
VALCO, Inc.
Valley Supply
Vonguten Engineering Software
VWR Scientific, Inc.
Warning Lites & Equipment
Water Clerk
Water Court
Water Court
West Divide Water Conservancy
West End Express
West End Printing and Office Supply
Western Engineers
Western Implement Co.
Western Office Products
Western Slope Connections
Western Slope Fire and Safety
Western State College
Westran, Inc.
Zee Medical
Zee Medical

Location

Norwood, CO
Grand Junction, CO
Grand Junction, CO
Gunnison, CO
Nucla, CO
Ft. Collins, CO
Denver, CO
Grand Junction, CO
Glenwood Springs, CO
Montrose, CO
Steamboat Springs, CO
Rifle, CO
Naturita, CO
Nucla, CO
Grand Junction, CO
Grand Junction, CO
Cortez, CO
Gunnison, CO
Gunnison, CO
Gunnison, CO
Grand Junction, CO
Aurora, CO
Denver, CO

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

<u>Name</u>	<u>Location</u>
A&B Asbestos	Grand Junction, CO
Bemis Electric	Grand Junction, CO
Clarke & Co.	Grand Junction, CO
Connaway & Co., Inc.	Grand Junction, CO
Eberhart Electrical	Grand Junction, CO
Elam Construction, Inc.	Grand Junction, CO
Falcon Plumbing & Heating	Grand Junction, CO
Goodson Electric	Clifton, CO
Grand Junction Pipe & Supply	Grand Junction, CO
J&S Fence	Grand Junction, CO
Lunsford Brothers Mechanical	Grand Junction, CO
MDR Corporation	Northglenn, CO
Mesa Temps	Grand Junction, CO
Morgan Asphalt	Grand Junction, CO
Nyko, Inc.	Grand Junction, CO
Skill Staff of Colorado	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**

Name

Location

CG Construction
Diamond Back Service
Mountain Environmental, Inc.
Mountain Region Corporation
Nelson Engineering
Parkerson Construction
Sorter Construction

Grand Junction, CO
Littleton, CO
Dolores, CO
Grand Junction, CO
Grand Junction, CO
Grand Junction, CO
Grand Junction, CO

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

Name

A&B Asbestos
A to Z Industries
Action Shop Services
Alcan Spring
All Phase Electric
Arma Coatings
ATCO Space Rentals
Avert
B&B Plumbing
BCS
Basalt Construction
Battlement Mesa Partners
Berthod Motors
BFI
Big and Little Tractors
Blackmore Metals
BMC West
Bogue Construction
Brookhart's Inc.
Bud's Small Engine
Busy Bee Floral
Cap Air Freight
Capital Business Systems
Casey Concrete
Central Aggregates
Center Rental
Chelewski Pipes
Colorado Lining Co.
Colorado Mountain College
Colorado State University
Columbine Ford
Community Hospital
Con-Sy Inc.
Construction Surveys
Copeland Concrete
Copy Copy
Custom Communications
D. Johnson/J. Bauer
D&M Wire Rope

Name

DRG Inc.
DTS Fluid Power
Davis Lumber
Diesel Services
Dodson Products
Down Valley Tires
Drive Train Industries
Eaton Metal Products
Earth Load Machinery
Elder Equipment
Elmer Glass
Environmental Training Center
Fair & Square Tire Shop
Faris Machinery
Fifth Street Photo
Flag Sand and Gravel
GE Capital Modular Space
Giradi's Towing
Glenwood Medical Assoc.
Gallagher Agri Service
Grand Junction Lab
Grand Mesa Diesel
Grand River Construction
Grand River Medical
Grand Valley Equipment
Grand Western Airgas
H&H Bentonite & Salt
H&K Frame and Body Shop
Hanson Equipment
Harry's Heavy Haulers
Henderson and Son
Hertz Equipment Rental
Holy Cross Electric
Honnen Eqt
Hy-Way Feed & Ranch
Irrigation Systems
JW Brewer Tire
Jay Max Sales

Name

Jean Printing
Johnson Construction
K&J Appliance
Kenny's Tire Service
Laser Junction
Lawson Welding
Liesure Carpet Mart
Mesa Mack Sales & Serv
Micro Plastics
Midwest Rubber
Mile High Eng. Supply
Moore Bearing
Mountain Clear Water
Mountain Hotsy
Mountain Scales
Munro Supply
Murdock's Concrete
NAPA Auto
Naturita Tire and Service
Northwest Machine
O'Brien Concrete Pumping
Office Services Unlimited
Office Supply Store
Old West Travel
Palisade Constructors
Parker Machine Works
Pinon Electric
Pioneer Machine & Tool
Plateau Equip. Supply
Plaza Reprographics
Porman Auto
Power Equipment Co.
PSCO
Pyramid Environmental
RBCS Electronics
Reams Construction
Red Crawford's
Red Mountain Computer
Red Rocks College

Name

Rifle Lock and Safe
Rifle Super Lube
Rio Construction
Roaring Fork Co-op
Roberts Elect
Rocky Mountain Electronic Motors
Runyan Sand & Gravel
SGM
Sanders Hydraulics
Severson Supply
Southwest Abatement
Sprint Express
Stample Construction
Stoneman Drilling
Sundance Travel
Supplies Unlimited
Survey Instruments
Swallow Oil
The Best Radiator Service
The Doctor's Office
The Spring Works
Tim's Tools
Todd Smith, O.D.
TriCounty Fire Extinguisher
Two Way Communication
United Companies
Universal Inspections
Uravan Supply
US West
Valley Electric
Wagner Equipment
Warning Lights
Webb Crane
West Divide Water
Western Colorado Testing
Western Implement
Western Petroleum
Western Pump & Dredge
Western Slope Radiator
Western Slope Scale

COLORADO VENDORS USED BY JACOBS ENGINEERING GROUP INC.

<u>Vendor</u>	<u>Location</u>
Core Laboratories	Aurora, CO
Complete Archaeological Services	Cortez, CO
Andrews and Anderson, P.C.	Golden, CO
D and H Surveys, Inc.	Grand Junction, CO
ACZ Laboratories, Inc.	Steamboat Springs, CO
Huntingdon Engineering and Environmental, Inc.	Denver, CO
Eastman Kodak Co.	Englewood, CO
Hack Company	Loveland, CO
Accu Labs	Golden, CO
Rainbow Catering	Grand Junction, CO
Minolta Leasing	Denver, CO
Rock Works Software	Wheat Ridge, CO
Lynn and Bonnie Wilson	Gunnison, CO
Geotech Environmental Equipment	Denver, CO
Fire Hawk Construction	Durango, CO