DEPARTMENT OF THE INTERIOR
(INT FES 76-50)

FINAL
ENVIRONMENTAL STATEMENT

Authorized

DALLAS CREEK PROJECT
COLORADO

Prepared by

Bureau of Reclamation
Department of the Interior
(September 28, 1976)

G. G. Stamm
Commissioner

SUMMARY

( ) Draft (X) Final Environmental Statement

Department of the Interior, Bureau of Reclamation, Upper Colorado Region

1. Type of Action: Administrative (X) Legislative ( )

2. Description of the proposal: The Dallas Creek Project in the Uncompahgre River Basin in western Colorado would involve construction of Ridgway Reservoir on the Uncompahgre River to provide water for supplemental irrigation and municipal and industrial use. The project would include recreational facilities in connection with the reservoir and mitigation and enhancement measures for aquatic and terrestrial wildlife. Flood control would also be provided. A 5-year construction period is anticipated.

3. Summary of environmental impacts and unavoidable adverse effects: About 4.6 miles of poor stream fishery in the Uncompahgre River would be inundated by Ridgway Reservoir. In about 12 miles of the river below the reservoir aquatic habitat would be improved by moderation of water fluctuations and water temperatures and by improved water quality. Also fishing opportunities would be increased by access easements to be provided along the river. Limited fishing opportunities would be lost on upstream tributaries from which supplemental irrigation diversions would be made in exchange for reservoir releases downstream.

   Wildlife habitat and hunting opportunities would be reduced by the inundation of 1,030 acres in the reservoir basin and the use of other lands for rights-of-way and recreation. The losses would be largely mitigated by the acquisition of 1,000 acres of land for an intensive wildlife management area. A deer fence to be constructed along a relocated section of U.S. Highway 550 would prevent an increase in deer-auto collisions and reduce the existing high kill rate on the highway.

   Local residents would be provided dependable water supplies for existing and projected needs. Increased employment and economic opportunities would be accompanied by some social adjustments. Snowmelt floods would be reduced on the Uncompahgre River below Ridgway Dam. Flows of the lower Uncompahgre, Gunnison, and Colorado Rivers would be reduced by an estimated 17,100 acre-feet annually. Salinity at Imperial Dam would be increased by 1.8 mg/l as a result of stream depletions and 0.9 mg/l as a result of salt loading.

   The natural setting of the project area would be intruded upon by man-made structures, and exposure of mud flats and reservoir foreshore would be necessary for project operation. Most dam embankment borrow areas would be inundated by the reservoir. Eleven families living in Ridgway Reservoir Basin would be required to relocate.

4. Alternatives considered:
   1. Ridgway Reservoir at Cow Creek axis.
   2. Uncompahgre Project Westside extension.
   3. Water savings program on Uncompahgre Project.
   4. Weather modification.
   5. Plan at time of authorization.
   6. Plan in Draft Environmental Statement.
   7. Plan including water for energy development.
   8. Importation of water from the Gunnison River.
   9. Nondevelopment as a Federal project.

5. List of entities from whom comments have been requested or received: See list on next page.

6. Date made available to C.E.Q. and the public:
   Draft statement: March 8, 1976
   Final statement: September 28, 1976

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*Delta County Commission, Delta, Colo.
*Montrose County Commission, Montrose, Colo.
*Ouray County Commission, Ouray, Colo.
Tri-County Planner, Montrose, Colo.

*Ridgway Town Government, Ridgway, Colo.
*City of Montrose, Colo.
Olathe Town Government, Olathe, Colo.
Delta Town Government, Delta, Colo.
*Ridgway Schools, Ridgway, Colo.

Upper Colorado River Commission, Salt Lake City, Utah
*Tri-County Water Conservancy District, Montrose, Colo.
*Colorado River Water Conservation District, Glenwood Springs, Colo.
*Uncompahgre Valley Water Users Association, Montrose, Colo.
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Rocky Mountain Center on the Environment, Denver, Colo.
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*Sierra Club, Gunnison Chapter, Gunnison, Colo.
Sierra Club, Uncompahgre Chapter, Grand Junction, Colo.
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*Uncompahgre Valley Cattlemen and Horsegrowers Assocation, Montrose, Colo.
*United Bank of Montrose, Montrose, Colo.
*Western Community Planners, Inc., Montrose, Colo.
*Western Slope Wool Growers, Montrose, Colo.

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*Willian W. and Louise L. Jutten, Montrose, Colo.
*Willian B. Lomax, Montrose, Colo.
*Fisher Ranch, Ridgway, Colo.
*Joyce Jorgensen, Ouray, Colo.
*Florence L. Landon, Glendora, Calif.

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*Kent Nelson, Ridgway, Colo.
*Bill Ponce, Ridgway, Colo.
*Kathleen M. Quadri, Ouray, Colo.
*Ruth N. Siemer, Ouray, Colo.
*Mr. and Mrs. G. V. Weber, Ouray, Colo.

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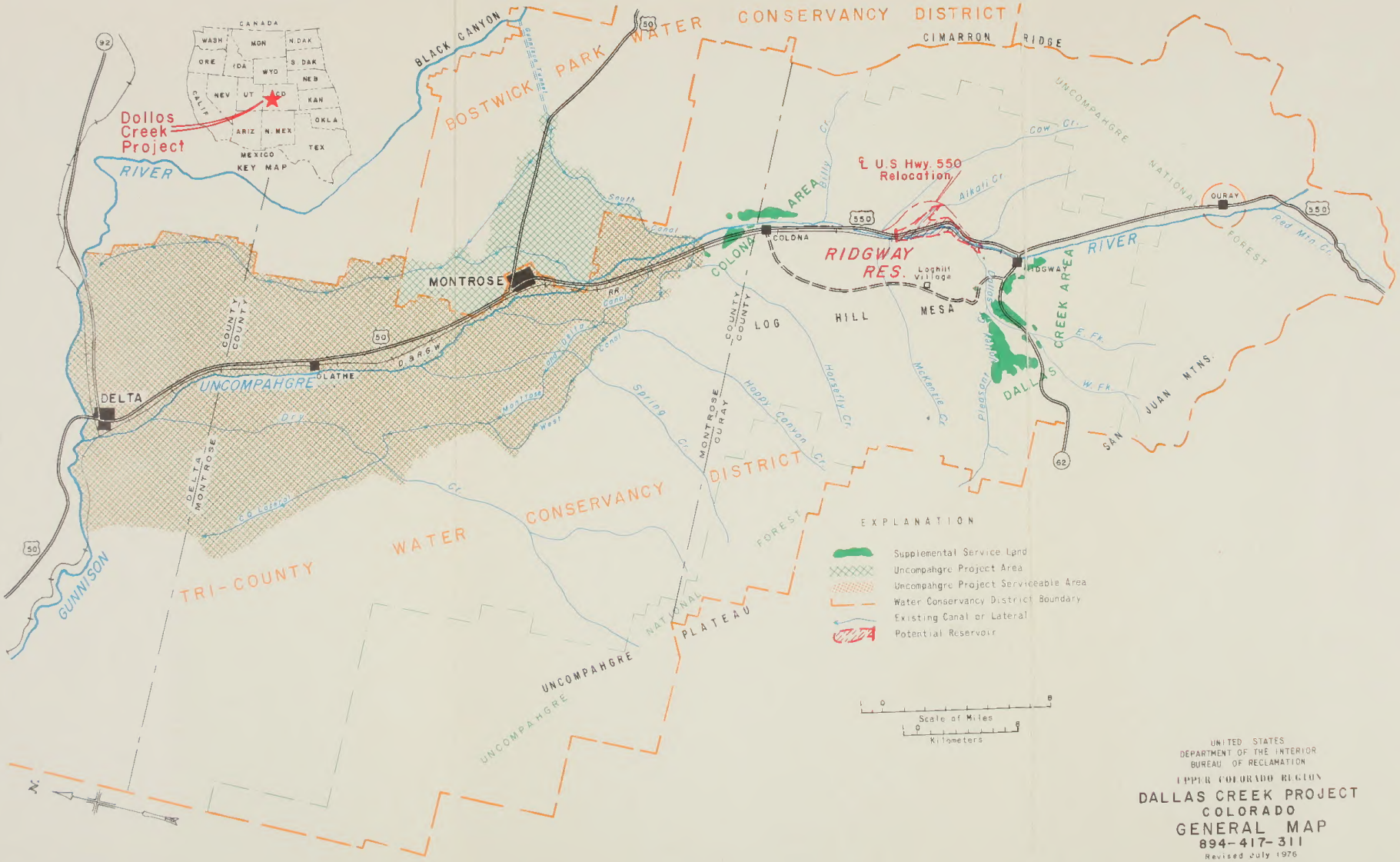

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
UPPER COLORADO REGION

DALLAS CREEK PROJECT
COLORADO
GENERAL MAP

894-417-311
Revised July 1976

CHAPTER A

DESCRIPTION OF THE PROPOSAL

A. DESCRIPTION OF THE PROPOSAL

1. Introduction

This Final Environmental Statement on the proposed Dallas Creek Project is submitted in compliance with the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190). A Draft Environmental Statement was filed with the Council on Environmental Quality March 8, 1976. A public hearing on the draft statement was held April 17, 1976, in Montrose, Colo.

This statement presents a project plan of considerably smaller scope than that presented in the draft statement. The present plan includes only Ridgway Reservoir and associated recreational and fish and wildlife facilities. It excludes the Dallas Divide segment of the previous plan, including Dallas Divide Reservoir, a feeder canal, and extensive pumping and distribution systems, that was designed primarily to serve Log Hill Mesa. The only new feature in the present plan is a deer fence along a section of U.S. Highway 550 which has been added in response to a recommendation made by the Fish and Wildlife Service. Although the present plan has been greatly reduced in scope, the Bureau of Reclamation believes that a new draft environmental statement is not warranted since the nature of the environmental impacts remains substantially the same, only their magnitude is reduced.

The reduction in the project scale of development has resulted from a reduction in requests for project municipal and industrial water on Log Hill Mesa as well as from public concern regarding certain project features in the Dallas Creek Segment as expressed in comments on the draft statement. The new plan is presented in this chapter, and the proposed plan from the draft statement is now presented as an alternative plan in Chapter H. Chapter I contains a summary of oral testimony given at the April hearing on the draft statement. It also includes written comments received on that statement and responses to the comments where appropriate.

The Dallas Creek Project was authorized by the Colorado River Basin Act of September 30, 1968, (Public Law 90-537) as a participating project under the Colorado River Storage Project Act of April 11, 1956, (Public Law 84-485). The project would represent a commitment of part of Colorado's share of the Upper Colorado River Basin streamflows pursuant to the Colorado River Compact of 1922 and the Upper Colorado River Basin Compact of 1948.

The Dallas Creek Project is being sponsored and actively supported by the Tri-County Water Conservancy District. The plan being proposed is a result of cooperative planning by the Bureau of Reclamation, the Tri-County Water Conservancy District, and various Federal, State, and local entities.

2. Location

The Dallas Creek Project would be located in the Uncompahgre River Valley in western Colorado. The project area includes portions of Montrose, Delta, and Ouray Counties and the towns of Delta, Olathe, Montrose, and Ridgway and the small rural community of Colona. Also, the privately financed community of Loghill Village (formerly called Loghill Mesa Community) is being developed in the project area.

3. Interrelationship with Other Projects and Units

Lands in the Uncompahgre Valley are served by the Uncompahgre Project which was constructed by the Bureau of Reclamation and which is operated by the Uncompahgre Valley Water Users Association. Part of the supply for the Uncompahgre Project is obtained from natural flows of the Uncompahgre River, minor tributaries, and return flows. The remainder is obtained from flows of the Gunnison River east of the Uncompahgre Valley and is conveyed to the valley through the 6-mile-long Gunnison Tunnel. Taylor Park Reservoir was constructed on the tributary Taylor River to provide regulation for part of the Gunnison River flow. Distribution of the project supply is provided by numerous canals. The South Canal conveys water from the Gunnison Tunnel to the Uncompahgre River for rediversion into canals downstream. Among the major canals diverting from the river are the West and Montrose and Delta (M and D) Canals. The project works in the Uncompahgre Valley were constructed principally in the period of 1904 to 1912 and Taylor Park Reservoir was completed in 1937.

The Bostwick Park Project, completed in 1974, is located to the east of the Dallas Creek Project area. It provides irrigation for about 6,100 acres of land with water from the Cimarron River, a tributary of the Gunnison River. Water from the river is stored in the recently completed Silver Jack Reservoir.

The Curecanti Unit of the Colorado River Storage Project is nearing completion on the Gunnison River about 20 miles east of Montrose. This unit consists of three segments. Blue Mesa and Morrow Point Dams, Reservoirs, and Powerplants have recently been completed and are in operation. A third dam and a powerplant, located at the Crystal site, are under construction with completion scheduled for 1977. The operations center for the Curecanti Unit and other power features of the Colorado River Storage Project is located in Montrose.

As more fully discussed in Chapter H, two projects in the vicinity of the Dallas Creek Project are currently under investigation. The Uncompahgre Improvement Project would improve existing facilities and thus help relieve irrigation shortage on the Uncompahgre Project. The Lower Gunnison Unit of the Colorado River Water Quality Improvement Program provides for irrigation scheduling to aid in control of salinity in the Colorado River Basin and provide for more efficient water use.

4. Project Plan

The Dallas Creek Project would consist of Ridgway Reservoir on the Uncompahgre River, two public recreation areas at the reservoir, and measures to enhance fishing opportunities, improve wildlife habitat, and mitigate wildlife habitat losses caused by the reservoir development. No distribution facilities would be constructed as part of project development. Water supplies would be distributed through existing facilities or facilities constructed by the Tri-County Conservancy District or the water users.

Through storage regulation at Ridgway Reservoir, the project would increase usable water supplies by an average of 39,400 acre-feet annually. The supply would include 11,200 acre-feet for irrigation of farm land which is inadequately irrigated, 22,600 acre-feet for municipal use, 5,500 acre-feet for light industrial use, and 100 acre-feet as a reserve by the United States for use at the recreational area at Ridgway Reservoir. The municipal and industrial supplies would be constant each year but some variations would occur from year to year in the irrigation supplies.

The average annual irrigation supplies would include 900 acre-feet of water for supplemental service of 2,850 acres in the Colona and Dallas Creek areas. The remaining 10,300 acre-feet of the irrigation supply would be sold to water users for supplemental use in the part of the Uncompahgre Project which for the purpose of this statement has been designated the Uncompahgre Project Serviceable area. Within this serviceable area, 61,810 acres qualify under Bureau of Reclamation standards for additional water. It is not likely that all of this acreage would be served with the water to be made available, and the exact acreage would be determined when subscriptions were made for water. The irrigation supplies for the Colona and Uncompahgre Project areas would be made available by releases from Ridgway Reservoir. The supply for the Dallas Creek area would be obtained by direct diversions from the Dallas Creek system, including Dallas Creek, the East and West Forks, and Pleasant Valley Creek, and in exchange the water diverted would be replaced to existing downstream uses by storage releases from Ridgway Reservoir. Locations of the irrigation service areas are shown on the frontispiece map.

Irrigation water deliveries would be limited to 160 acres of land in single ownership in the Colona area and Uncompahgre Project Serviceable area. Because of a shorter growing season in the Dallas Creek area, project water in that area could be delivered to single ownerships of 225 acres of class 2 land or 250 acres of class 3 land. These acreages are the equivalent of 160 acres of class 1 land and are permitted service by the project authorizing legislation which gave the Secretary of the Interior authority to deliver water to single ownership farms of more than 160 acres as long as those farms were roughly equivalent to 160 acres of class 1 land in agricultural production potential. Like the present water supplies, the project-developed irrigation supplies would be used primarily for production of livestock feeds, but they would also

be used to some extent for production of other crops such as barley, sugar beets, and fruit.

The municipal and industrial water supplies would be available for use within the boundaries of the Tri-County Water Conservancy District shown on the frontispiece map. The municipal water would be made available to residential users, and the industrial water would be provided for light industrial uses similar to those already in the valley. Most of the supply is planned for use in Montrose, Olathe, Delta, and surrounding rural areas under the piped system of the Tri-County Water Conservancy District. The remaining supply would be available for use anywhere in the district, the only restrictions being that only 5,100 acre-feet of the supply could be diverted above the M and D Canal in order that adequate fishery flows would be available in the river between the reservoir and the canal. No commitments could be made for any water uses that have not yet been identified without prior approval of the Department of the Interior and compliance with the National Environmental Policy Act.

The supplies for project municipal and industrial uses in the vicinity of Montrose, Olathe, and Delta could be diverted directly from the Uncompahgre River, or if agreements could be obtained by the Tri-County Water Conservancy District with the Uncompahgre Valley Water Users Association, the Dallas Creek Project water could be made available for irrigation on the Uncompahgre Project, and in exchange, the project municipal and industrial water users could obtain supplies from the South Canal of the Uncompahgre Project. The supply in the South Canal, which is obtained from the Gunnison River through the Gunnison Tunnel, is of higher quality for municipal and industrial use than the Uncompahgre River water. Treatment and distribution of all the municipal and industrial water supplies would be the responsibility of the conservancy district or the water users.

The water reserved for recreation use at the Ridgway Reservoir would be used for irrigation of trees, shrubs, and lawns. It would also be used for drinking water and for sanitary facilities there.

Table A-1 on the following page summarizes water use for the project.

Table A-1
Dallas Creek Project water use

Use	Average annual acre-feet	Land area (acres)
Supplemental irrigation		
Dallas Creek area	720	2,100
Colona area	180	750
Uncompahgre Project		
Serviceable area	10,300	
Subtotal	11,200	1/2,850
Municipal use	22,600	
Industrial use	5,500	
Recreation use	100	
Total	39,400	1/2,850

1/ The land area does not include the Uncompahgre Project Serviceable area since it is impossible at this time to determine the portion of the area that would actually receive project water.

5. Project Features

a. Ridgway Reservoir

Ridgway Reservoir would be formed by Ridgway Dam which would be located on the Uncompahgre River about 6 miles north of Ridgway and about a mile upstream from the river's confluence with Cow Creek. The dam would be an earthfill structure with a height of 227 feet above streambed, a crest length of 2,430 feet, and a total material volume of 9,191,000 cubic yards.

Dual outlets would be constructed in the dam structure to moderate water temperatures and water quality for downstream aquatic life. The lower outlet would be located 60 feet above the streambed and would have a discharge capacity of 1,300 second-feet. The upper outlet would be located approximately 170 feet above the streambed and would have a discharge capacity of 500 second-feet. During periods of maximum drawdown, however, the upper outlet would be inoperative since it would lie above the water line. Operation studies made by the Bureau of Reclamation for the 1952 through 1970 period show that the upper outlet would have been inoperative during all or part of 16 months of the 228-month period, or 7 percent of the time, with the highest incidence occurring in the late fall and early winter months.

A spillway would lead to a stilling basin through a buried conduit in the left abutment of the dam. The inlet to the spillway would be of the uncontrolled glory hole type. It would have a discharge capacity of 8,660 second-feet. Had the spillway been in operation during the 19-year study period, spilling would have occurred in 15 of those years. In lean water years there would have been no spilling, but in 2 very wet years spilling would have been almost continuous. Some spilling is desirable in a river with the Uncompahgre's sedimentation

problem, for periodic scouring and flushing tend to improve aquatic habitat downstream. Excessive spilling, however, erodes river banks and carries off aquatic invertebrates. It is believed that with actual reservoir operation proper management would maintain desirable spillage levels in most instances.

Ridgway Reservoir would extend 4.6 miles up the Uncompahgre River with an arm also extending up Alkali Creek. It would have a total capacity of 80,000 acre-feet. An additional surcharge capacity of 9,230 acre-feet would be provided to temporarily contain flood flows until discharged through the spillway. At total capacity the reservoir would have a surface area of approximately 1,030 acres and a shoreline of 13.2 miles.

The reservoir would have a dead and inactive storage of 25,000 acre-feet including 20,900 acre-feet specificially for recreation and 4,100 acre-feet for sediment retention. With the water surface at the top of the dead and inactive level, the reservoir would have a surface area of 525 acres and a shoreline of 6.2 miles. During the prime recreation months of June, July, and August, however, the reservoir would contain, on the average, 69,400 acre-feet of water with a surface area of 938 acres and a shoreline of about 10.9 miles. The Bureau of Reclamation operation studies show that the reservoir would have reached or exceeded the 938 acres of surface area for the total recreational period in 7 of the 19 years studied. In the other 12 years the surface area would have varied from about 540 to 1,030 acres. The operation study for Ridgway Reservoir is summarized in Attachment 1.

Approximately 4.4 miles of U.S. Highway 550, the main north-south artery in the area, would be relocated above the high water line along the eastern boundary of the reservoir. The relocated section would be about 5 miles long, extending from a point near the mouth of Cow Creek to a point about a half a mile upstream of the mouth of Dallas Creek. It would have two 12-foot lanes and would require a right-of-way about 200 feet wide, most of which would be included in the reservoir take line. The new section would cross both Cow and Alkali Creeks, and bridges would be constructed at these points. The new section would be constructed to current design standards and thus would be improved from its existing condition. Access to the Alkali Creek Recreation Site would be provided just south of the Alkali Creek crossing. Acceleration and deceleration lanes would be provided at this access point to facilitate traffic flow into and out of the recreation site. Approximately one-half mile of Cow Creek would be realigned along the relocated highway. The streambanks in this one-half mile section would be shaped and re-vegetated to restore a natural appearance.

A livestock fence would be built along the entire Ridgway Reservoir right-of-way boundary, except for stretches where deer fencing would be constructed as discussed in the following section. Construction of the livestock fence would require the clearing of a lane not to exceed 12 feet in width in heavily vegetated areas for the movement of equipment and material.

It is anticipated that no new access roads to Ridgway Dam and Reservoir would have to be built during the construction period as the existing Highway 550 would provide adequate access to the reservoir and dam site.

b. Fish and Wildlife Development

For fishery maintenance on the Uncompahgre River, minimum flows of 75 second-feet from May 16 to October 31 and 45 second-feet from November 1 to May 15 would be maintained below the confluence of Cow Creek and the Uncompahgre River to the Montrose and Delta Canal Diversion. Flows of 30 second-feet would be maintained between Ridgway Dam and Cow Creek. The flows would be maintained at all times except during extremely dry years when the flow from Ridgway Reservoir would be restricted to inflow to the reservoir. Overall average monthly flows on the Uncompahgre River would be reduced with project operation. Maximum daily flows would also be reduced as would extremes in streamflow fluctuation. Minimum daily flows would be less erratic, and some increase in streamflows would occur in the late summer and early fall months. Table A-2 shows comparative streamflows of the Uncompahgre River at Colona with and without the project. The figures are averages and extremes based on 19 years of streamflow records. The post-project figures are derived from simulated operation of the Ridgway Reservoir.

Table A-2
Comparison of Uncompahgre River flows at Colona
with and without the project
(Unit--second-feet)

	Preproject			Post-project		
Monthly	Average monthly	Maximum daily	Minimum daily	Average monthly	Maximum daily	Minimum daily
November	102	240	50	69	148	45
December	84	194	42	63	107	45
January	72	300	30	57	81	45
February	76	334	35	57	92	45
March	96	346	50	68	128	45
April	215	861	36	158	408	57
May	501	2,170	12	426	1,282	107
June	794	2,600	132	753	1,329	203
July	396	2,370	70	505	1,236	259
August	215	916	32	252	532	104
September	125	1,420	12	108	400	35
October	108	364	16	90	228	33

The average runoff of Dallas Creek would be reduced by 720 acre-feet annually as a result of direct flow diversions made for supplemental irrigation in the Dallas Creek area. The reductions in flow would normally be made during the latter part of July and throughout August. The effect would be to reduce present limited streamflows and lengthen the period in which the lower portion of Dallas Creek was dewatered.

Fishing easements on a "willing seller" basis would be acquired along both sides of the Uncompahgre River for about 12 miles below Ridgway Dam. Generally, the easements would be about 25 feet wide and would be selected and maintained to allow fishermen to utilize the river and at the same time prevent undue hardship to the landowners. Negotiations between the Bureau of Reclamation and several State agencies are underway to determine who would administer the easement lands in the event of project development.

Because the Fish and Wildlife Service has concluded that the costs of stocking Ridgway Reservoir would not be warranted for the benefits received,(32)* the Bureau of Reclamation has not included fish stocking of the reservoir in the project plan. This, however, would not preclude other agencies or organizations from assuming the financial obligation for stocking the reservoir. During construction streamflows would be maintained and consideration would be given to flows for fish.

Project funds would be used for acquisition and initial development of approximately 1,000 acres of land in the vicinity of Ridgway Reservoir for intensive management as a wildlife resource area. Subsequent development and management would be undertaken by the Colorado Division of Wildlife. The area is planned to mitigate losses of deer winter range and other wildlife habitat that would be attributable to project development. With the exception of the two planned recreation sites, all lands not inundated within the reservoir right-of-way boundary would also provide improved wildlife habitat.

To reduce the incidents of auto-deer collisions, an 8-foot high woven-wire fence would be built along both sides of an 8.2-mile section of U.S. Highway 550, including the section that would be relocated. Underpass structures would also be provided to allow deer passage beneath the highway right-of-way.

Details concerning the fishing access easements, the wildlife mitigation area, and the deer fence are presented in Section D.

c. Recreation Facilities

Recreation developments are planned for Ridgway Reservoir in accordance with recommendations jointly made by the National Park Service, the Bureau of Outdoor Recreation, the Bureau of Reclamation, and a private planning consultant. From these cooperative studies, it was determined that the reservoir area holds potential for recreational activities such as picnicking, camping, boating, swimming, water skiing, hiking, and sightseeing.

Cooperating agencies estimated that when construction of the reservoir and recreational facilities was completed the annual recreational use of Ridgway Reservoir, exclusive of fishing, would be 348,000

*Numbers in parentheses refer to information source in References, Section I-4.

recreation days each year.1/ Two major developments are planned for the reservoir in light of these estimates and are shown on Figure A-1. These developments would be administered by the Colorado Division of Parks and Outdoor Recreation.

The largest recreational development, the Alkali Creek Recreation Area, would be on a peninsula between the main body of the reservoir and the Alkali Creek arm. Visitation would be controlled at an entrance station. A 169-unit campground and a picnic area would be developed. A boat marina would be located at the Alkali site and would include a launching ramp, parking areas, a storage yard, courtesy docks, and concession facilities. The bay at which the marina would be located was selected because it also affords good protection from prevailing southeast summer winds. Electric power, flush toilets, and a pressure water system would be provided for the facilities at the Alkali Creek area. A landscape improvement program at the area would include planting, irrigation, and maintenance of grass, trees, and shrubs on about 80 acres. The sides and top of a small mesa above the development site would be utilized for walking trails, vista overlook points, and open space.

The other development, the Cow Creek Recreation Area, would be located below the dam near the confluence of the Uncompahgre River and Cow Creek. A 105-unit campground and a picnic area would be developed. Water, electrical power, and chemical recirculating toilets would be provided. As at the Alkali Creek site, a planting, irrigation, and maintenance program would be included. Other facilities would include a pedestrian bridge across the Uncompahgre River and hiking trails providing access to the river and stilling basin.

All water supplies, sanitary, and solid waste disposal facilities at each site would be constructed and operated to meet all Federal, State, and local standards. The water for drinking would be delivered from the reservoir and the necessary treatment provided to meet Colorado drinking water standards.

Minor development areas would consist of highway pullout for orientation and interpretation, fisherman access points, and a high lookout for viewing and photographing the San Juan Mountains and the reservoir. Proposed recreation administration facilities would be separated from the prime recreational-use areas, and the maintenance and storage facilities would be largely concealed from public view. Trail systems at both recreation areas would provide scenic vistas and access to the water for fishing.

6. Rights-of-Way

Approximately 3,830 acres would be set aside for construction and operation of project features. This land would include an estimated

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1/ Recreation days as used in this statement mean any reasonable portion or all of a 24-hour period for recreational activities.

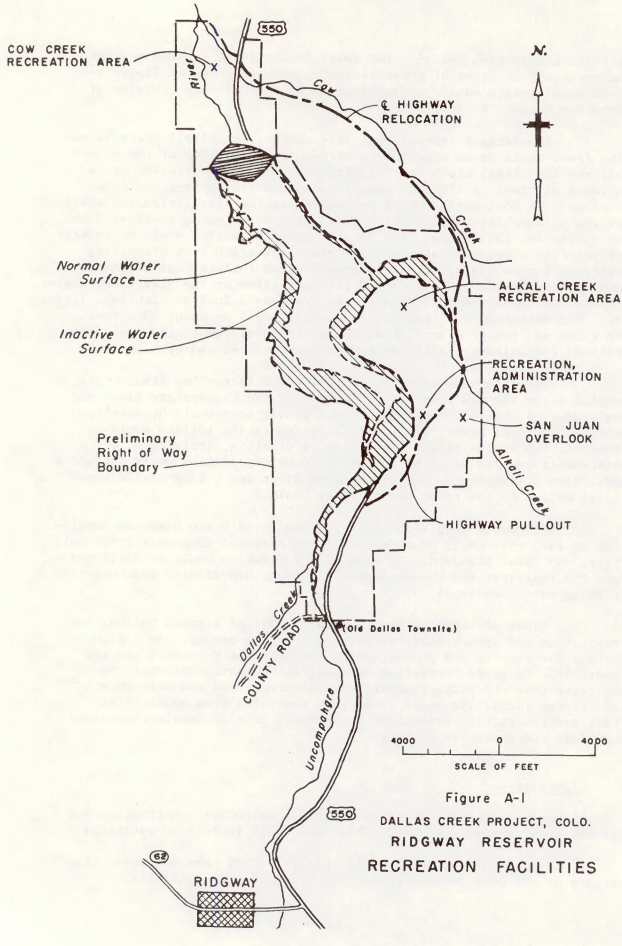


Figure A-1

DALLAS CREEK PROJECT, COLO.

RIDGWAY RESERVOIR

RECREATION FACILITIES

1,030 acres in the reservoir basin, approximately 2,750 acres for recreation, wildlife habitat, and as a buffer zone to protect the dam and reservoir, and 50 acres for highway right-of-way outside of the reservoir takeline. At present 985 acres are Federally owned and 2,845 acres are privately owned.

Eleven families (six renting and five permanent) now live within the proposed right-of-way for the reservoir. The Bureau of Reclamation would, through negotiations with the involved parties, reach an equitable and fair settlement on the purchase price of their lands and properties. Once negotiations reached resolution the families involved would be required to resettle. All structures and farm dwellings would then be removed from the basin. These actions would be accomplished in accordance with provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies of 1970.

The reservoir would inundate about 4.5 miles of the little-used Denver and Rio Grande Western Railroad right-of-way on the line between Montrose and Ridgway. The railroad, in its own economic self interest, filed for abandonment with the Interstate Commerce Commission in 1974. The abandonment was approved in August 1976, and it is expected that the track would be removed from the reservoir basin before construction began.

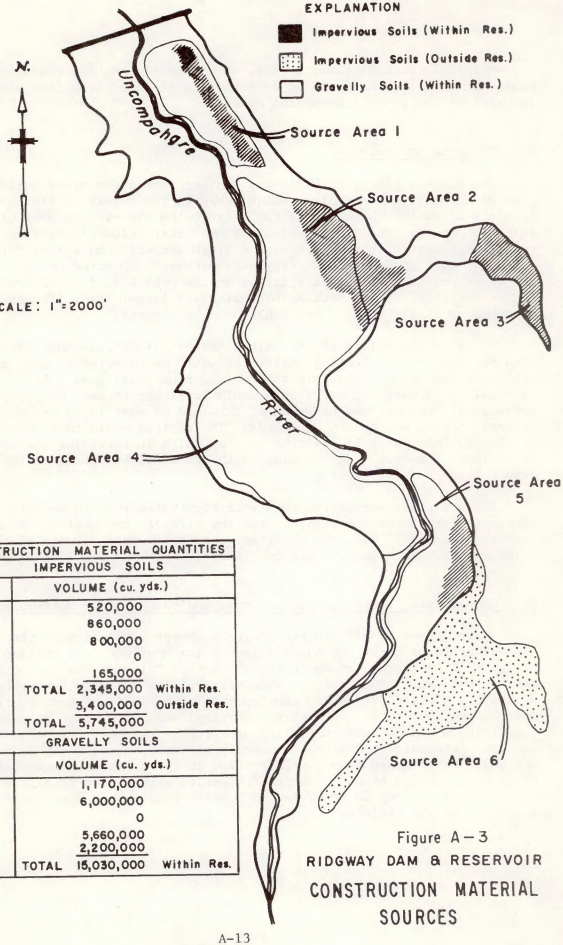
7. Material Sources

The primary sources of embankment materials for dam and highway construction are in five areas in the reservoir basin below the potential high water line. A reserve materials source site, which lies above the high water line, has also been identified, but it would be used only in the event the others proved to have insufficient quantities of materials. Material sources are shown on Figure A-3. The source areas numbered 3, 4, and 5 on the map would be largely exposed during periods of extreme reservoir drawdown. Sites numbered 1 and 2, on the other hand, would be only slightly exposed during like periods. The five source areas below the high water line would be shaped before inundation of the reservoir basin.

If it became necessary to use the reserve site located above the high water line and numbered 6 on Figure A-3, a number of precautions would be taken to protect the environment. The topsoil would be removed and stockpiled, and after excavation was completed, the area would be reshaped to conform to the immediately surrounding surface contours. The topsoil would then be replaced, and the entire area affected by the excavation would be revegetated.

The planned riprap source for Ridgway Dam is an outcropping of igneous rock low on the sides of McKenzie Butte. This source is not shown on Figure A-3 but is about 1.5 miles north of Ridgway Dam site and completely out of sight from Highway 550.

Figure A-2--The Denver and Rio Grande Western Railroad tracks at Ridgway Dam site.



CONSTRUCTION MATERIAL QUANTITIES		
IMPERVIOUS SOILS		
AREA NO.	VOLUME (cu. yds.)	
1	520,000	
2	860,000	
3	800,000	
4	0	
5	165,000	
TOTAL	2,345,000	Within Res.
6	3,400,000	Outside Res.
TOTAL	5,745,000	
GRAVELLY SOILS		
AREA NO.	VOLUME (cu. yds.)	
1	1,170,000	
2	6,000,000	
3	0	
4	5,660,000	
5	2,200,000	
TOTAL	15,030,000	Within Res.

Figure A-3
RIDGWAY DAM & RESERVOIR
CONSTRUCTION MATERIAL SOURCES

Materials such as cement, pipe, steel structures, and operating equipment that are manufactured or processed at other locations would be imported to the project by trucks or rail.

8. Clearing and Salvage

The Ridgway Reservoir basin and project recreation areas would be cleared according to standards established by the Bureau of Reclamation. From the streambed in the basin to 5 feet below the minimum pool all saleable material would be cleared. From 5 feet below the minimum pool to the high water line, all trees and brush measuring more than 5 feet in height or 2 inches in diameter would either be uprooted or cut off so as not to protrude more than 6 inches on the uphill side. All downed timber and floatable or combustible materials larger than 2 inches in diameter or longer than 5 feet would also be cleared.

As it is the policy of the United States to seek maximum utilization of timber, the clearing contractor would be expected to make every effort to channel merchantable timber into beneficial use. The cleared materials that were not marketable would be either burned, chipped, or buried. If burning were undertaken, it would be done in accordance with Federal, State, and county standards. The residue would then be buried. If chipped, the material could be used as mulch in reseeding operations or buried. Some materials such as sagebrush could be buried in the reservoir basin without burning.

The buildings within the reservoir right-of-way would be sold to their present owners for removal from the site if they desired to maintain ownership. If not, the clearing contractor would dispose of the buildings by either public sale or dismantling.

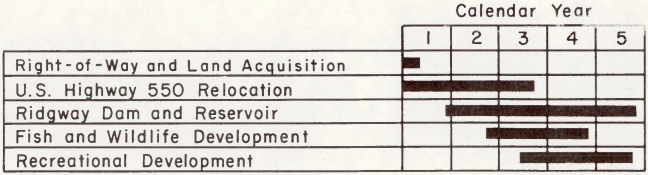
9. Construction Program, Headquarters, and Manufactured Materials

Construction of all project features except relocation of the highway would be under the supervision of the Montrose Construction Division of the Bureau of Reclamation, Western Colorado Projects Office. The highway relocation would be supervised by the Colorado Department of Highways. A field office and construction shops would be constructed near Ridgway Dam site. All water, sanitary, and solid waste disposal facilities would be constructed and operated to meet all Federal, State, and local standards. The small quantity of water required for domestic use would be obtained from a well drilled in the alluvium of the valley floor. At the end of the construction period some of the facilities would be turned over to the Tri-County Water Conservancy District for operation of the project.

The construction time for the project would extend over a period of 5 years. Figure A-4 shows the proposed construction schedule. At peak periods the project would provide an estimated 415 jobs for contractor and government employees, including 380 at Ridgway Dam and associated recreational features, and 35 for the highway relocation. Once the project was completed, one full-time reservoir operator would be employed for operation and maintenance. The Colorado Division of Parks and Outdoor Recreation would, in addition, employ about 4 full-time and 11 seasonal personnel at the recreation sites.

Figure A-4

PROPOSED DALLAS CREEK PROJECT CONSTRUCTION SCHEDULE



CHAPTER B

DESCRIPTION OF THE ENVIRONMENT

B. DESCRIPTION OF THE ENVIRONMENT

1. General

The Uncompahgre River Basin, which contains the entire Dallas Creek Project area, is defined by natural physical features and provides a convenient base for description of the local environment. The basin is bordered on the south and west by the Uncompahgre Plateau, on the north by the Gunnison River, on the southeast by Cimarron Ridge, and on the south by the San Juan Mountains. It includes all of Ouray County and parts of Delta and Montrose Counties.

Encompassed within the project area are the communities of Delta, Olathe, Montrose, Colona, and Ridgway, the proposed community of Loghill Village, and farming areas in the Uncompahgre Valley and on Log Hill Mesa. The town of Ouray is within the project area but has voted to be excluded from the project development. The water needs of the area are presently being served by the Tri-County Water Conservancy District, as well as other water systems unassociated with the project. Elevations in the area immediately affected by the project range from 4,900 feet at Delta to about 7,500 feet in the upper reaches of the Dallas Creek Valley. The Uncompahgre National Forest lies south and west of the project area but would not be affected by the project.

2. Climate

Most of the Uncompahgre River Basin is semiarid, but rainfall and temperature vary widely as a function of elevation. The prevailing wind is from the west, but a wide range of surface wind conditions exists as influenced by specific topographic features. Average annual precipitation ranges from 8 inches at Delta and 13 inches in the Colona-Ridgway area to as much as 40 inches in the mountainous areas. The frost-free period (consecutive days with minimum temperatures above 32° F.) averages about 127 days annually and varies from 112 days in the Dallas Creek area to 148 days in the Uncompahgre Project area.

Table B-1 summarizes climatological data for the area which was derived from readings taken from weather stations at Montrose and Delta. The Colona-Ridgway area does not have meteorological stations, and therefore climatic data for the area was estimated by the Bureau of Reclamation from available data for the towns of Montrose and Ouray adjusted to the elevation of the Colona-Ridgway area.

Table B-1
Selected climatological data (1952-72)

	Delta	Montrose	Colona-Ridgway
Elevation (feet)	4,961	5,794	6,390-7,000
Temperature (° F.)			
Average July maximum	93	89	82
Average January minimum	14	14	15
Average annual	50	49	46
Extremes			
High	106	100	94
Low	-27	-23	-22
Annual precipitation (inches)	8	10	13

3. Geology

a. Topography

The San Juan Mountains at the south end of the Uncompahgre Basin are a well defined group of high peaks, many of which rise above 14,000 feet in elevation. The Uncompahgre River heads in these mountains and has eroded a canyon varying greatly in width as it flows north to join the Gunnison River at Delta.

The valley bottom along the Uncompahgre River south of Ridgway and along Dallas Creek to the west, which includes the Dallas Creek area, is slightly rolling because of irregular surface weathering and stream erosion of the soft underlying Mancos Shale. Relatively smooth, flat terraces of alluvium up to 1 mile in width parallel these two streams. The terraces are from 5 to 50 feet above the stream channels. Near the confluence of Dallas Creek and the Uncompahgre River, a large terminal moraine marks the northern extremity of the glacial advance which formed the valley bottom north from Ridgway.

North of Ridgway at the confluence of Dallas Creek and the Uncompahgre River, the valley constricts to form two subdivisions separated by a canyon which extends to a point near Colona. The Uncompahgre Project Serviceable area is in the large lower valley carved by the Uncompahgre River. West of the river is a series of nearly level stream terraces of varying elevations separated by small valleys carved by tributaries moving to the northeast. The terraces range from 1 to 7 miles in width. Several smaller terraces are found east of the river, but most of this area is undulating to rolling because of the irregular erosive forces on the soft underlying Mancos Shale Formation.

Log Hill Mesa is located at the southeastern corner of the Uncompahgre Plateau. The mesa ranges up to 1,000 feet above the adjacent Uncompahgre and Dallas Creek Valleys. Drainageways ranging from 10 to 300 feet in depth divide the mesa into strips 2 to 3 miles long and up to a mile in width. The surface relief of these elongated strips is undulating to slightly rolling.

Figure B-1--Looking southwest across the upper Uncompahgre Valley at the town of Ridgway and the San Juan Mountains.

Figure B-2--River terrace lands near Colona.

b. Geologic Formations

The surface formations in the San Juan Mountains and Uncompahgre Valley are composed of both igneous and sedimentary rock, with the igneous material predominating in the mountains and the sedimentary in the valley. Downstream from Ridgway in the Uncompahgre Valley there are large volumes of gravelly material which were deposited by glacial meltwaters.

Ridgway Dam site is located in a valley constriction eroded by the Uncompahgre River from the Morrison, Burrow Canyon, and Dakota Formations which are composed primarily of mudstone, shale, and sandstone in alternating layers. The upper sandstone member of the Dakota Formation forms a rim about 30 feet high near the top of both sides of the canyon. Several landslides are found in the reservoir basin. No evidence of recent movement has been observed in any of the landslides but renewed movement in the landslide areas is possible. The alignment for the relocated Highway 550 has been selected to avoid slide areas.

A major east-west fault is located about 3,000 feet at its nearest point from the southern boundary of the reservoir. Two small faults are located along the eastern side of the reservoir. One of the small faults forms a narrow saddle between Alkali and Cow Creeks. The relocated Highway 550 would pass through this saddle and across the two small faults. Figure B-3 shows the location of geologic surface formations in the vicinity of Ridgway Reservoir.

Lands in the Dallas Creek drainage have shallow soils over Mancos Shale and greatly varying slopes. Log Hill Mesa is a gently sloping highland which is part of the Uncompahgre Plateau. It has gentle slopes of sand and clay lying over sandstone.

c. Soils

The Dallas Creek area contains both fine- and coarse-textured soils, mostly of alluvial origin. In the Dallas Creek Valley most of the soils are fine-textured, having been derived from Mancos Shale. They are somewhat impermeable and of medium saline-sodic content. Soils adjacent to the Uncompahgre River in the Dallas Creek area are generally coarser because of the influence of stream alluvium and glacial deposits. Therefore they are more permeable and less saline-sodic.

The soils on the east side of the Uncompahgre Serviceable area are mostly alluvial, derived from the Mancos Shale Formation. They are fine-textured and are referred to locally as "adobe" soils. They are slightly impermeable and moderately saline-sodic. The soils in large portions of the area are shallow over the shale bedrock. The terrace soils on the west side of the Uncompahgre Serviceable area and in the Colona area are generally deeper and lighter in texture than the soils of the east side of the valley. They are moderately permeable and of low saline-sodic content. The west side soils are mostly of alluvial origin although there are small areas of shallow residual soils.

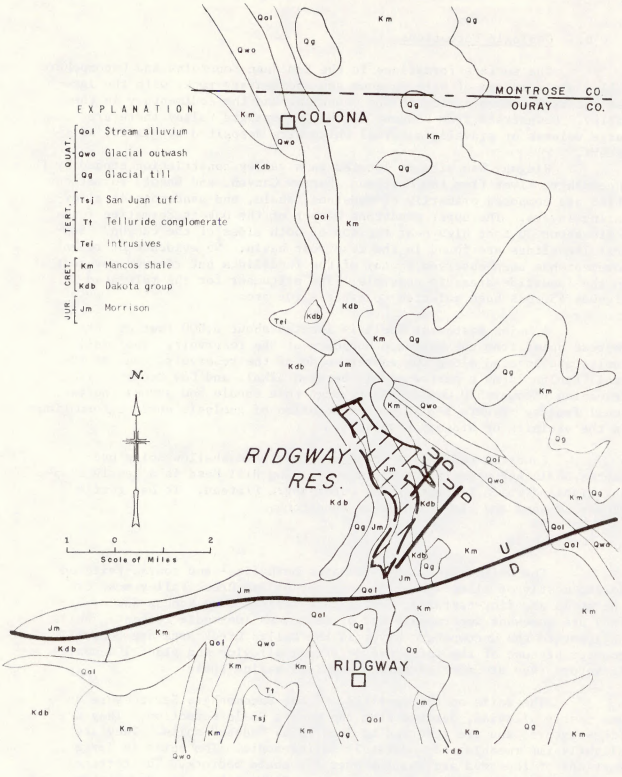


Figure B-3

GENERAL GEOLOGY, DALLAS CREEK PROJECT, COLO.

The Log Hill Mesa soils are residual, formed on and from the Dakota Formation. The soils have moderate permeability and a low saline-sodic content, both favorable conditions for irrigation farming.

d. Mineral Resources

Extensive mineral deposits are present in the San Juan Mountains south of the project area. Limited amounts of gold, silver, lead, copper, and zinc are produced from these deposits by two large base metal operations. Sand and gravel deposits along the Uncompahgre River through the project area contain insignificant amounts of placer gold. The gold deposits at Ridgway Reservoir are too small for economical placer gold mining according to the Bureau of Mines.

Uranium and vanadium are mined from the basal member of the Morrison and Entrada Formations on the western edge of the Uncompahgre Plateau. No extensive deposits of these minerals have been found in the project area although, according to the Bureau of Mines, there is a remote possibility that vanadium ores may occur in the Entrada Formation which lies deep below the Uncompahgre Plateau.

Coal is mined in quantity in nearby areas but there are no known deposits of usable quality or quantity in the project irrigation service area nor near any of the proposed feature sites. The bulk of present production is from the North Fork coal field east of Delta, some distance from the project area. There are large deposits of coal on Cimarron Ridge (Tongue Mesa coal field) east of the proposed Ridgway Reservoir which are being considered for future development by private interests.

There is no commercial oil or gas production in the area at the present time. Several wells drilled approximately 1 mile east of the town of Ridgway have yielded only enough gas for very localized domestic use. There are strata in the area which might be reservoirs for oil and gas, but they are mostly unexplored.

e. Seismicity

The Dallas Creek Project area is located in Zone 1 on the ESSA/ Coast and Geodetic Survey seismic risk map of the western United States. Regions of Zone 2 seismic risk are also located within a 100-mile radius of the project area. Structures located in Zone 1 can expect minor damage in the event of earthquake activity, while Zone 2 areas can expect moderate damage.

The seismic history of the project area was determined from data supplied by the National Geophysical and Solar-Terrestrial Data Center, Boulder, Colo. All earthquake activity on record within a 100-mile radius of the proposed Ridgway Dam was considered. The closest significant earthquake in the project area occurred on October 11, 1960, and had a Modified Mercalli Intensity of VI.1/ This earthquake was located 8.5 miles east

1/ The modified Mercalli Scale is one of the earthquake intensity scales, having 12 divisions ranging from I (not felt by people) to XII (damage nearly total). Earthquakemagnitudes also are given on the Richter Scale with variations expressed in Arabic numbers.

of the proposed dam site near High Park Lake on Cimarron Ridge. Foundations were damaged in Montrose and minor damage was reported at Cimarron, Lake City, Ophir, Ouray, Placerville, Powerhorn, Ridgway, and Telluride. This earthquake activity may have been related to tectonic action on the axis of the Uncompahgre Uplift and associated fault areas. Four other earthquakes within a 10-mile radius of the proposed Ridgway Dam and possibly associated with the Uncompahgre Uplift have been recorded with slight damage reported.

Most of the earthquakes in the 100-mile radius of the proposed Ridgway Dam have been located near Pagosa Junction, Colo., 95 miles to the southeast. Thirty-six events were recorded in this area in 1966 ranging from slightly felt to intensity VII. The Pagosa Junction area is in seismic risk Zone 2, and earthquake activity in this area is probably associated with tectonic movements in the synclinal axis of the San Juan Basin.[20]

The seismic history of the area will be used in conjunction with geological data to determine the maximum credible earthquake, and Ridgway Dam will be designed to resist that level of activity.

The locations of recorded earthquakes within a 100-mile radius of Ridgway Reservoir are shown on Figure B-4.

4. Water Supply

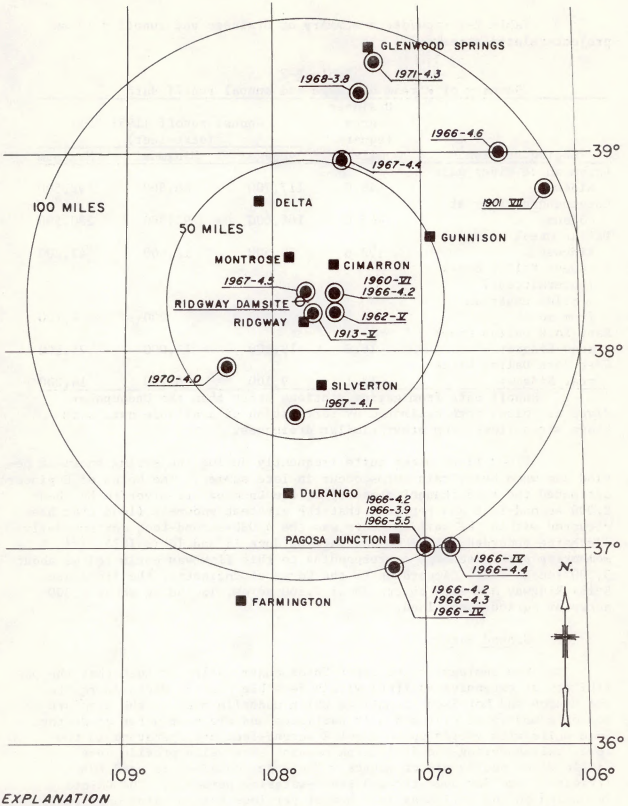
a. Stream System

Major streams in the vicinity of the project head in the San Juan Mountains in deep canyons cut from volcanic rocks by glaciation. The Uncompahgre River heads south of the town of Ouray and flows northward approximately 70 miles to its junction with the Gunnison River near Delta. The Gunnison flows from this confluence to its junction with the Colorado River at Grand Junction.

The main tributary of the Uncompahgre River above the town of Ouray is Red Mountain Creek. Between Ouray and Delta, the Uncompahgre River receives flows from several streams including Dallas, Alkali, Cow, McKenzie, and Horsefly Creeks. Dallas Creek is fed by Pleasant Valley Creek and the East and West Forks of Dallas Creek.

b. Streamflows

Streamflows in the project area vary with the season, and snowmelt provides the bulk of the surface water. During the spring and early summer runoff periods, stream channels are subjected to high flows and extensive scouring. In the fall and winter months, flows decline considerably. The average ratio of mean monthly flows in June to mean monthly flows in January in Dallas Creek and the Uncompahgre River is about 14:1. Irrigation diversions during the summer and early fall reduce the natural flow of the river at Colona by about 6 percent.



EXPLANATION

1966-4.0 Earthquake Epicenter With Magnitude given on Richter scale.

1913-V Earthquake Epicenter with Magnitude given on Mercalli scale.

0 33
SCALE OF MILES

Source: National Geophysical and Solar-Terrestrial Data Center, Boulder, Colorado

Figure B-4
DALLAS CREEK PROJECT
SEISMIC MAP

Table B-2 provides a summary of drainage and runoff data on project-related streams.

Table B-2
Summary of stream drainage and annual runoff data

Gaging station 1/	Drainage area (square miles)	Annual runoff (1951-70) (acre-feet) Average	Minimum	Maximum
Uncompahgre River near Ridgway	149.0	117,700	66,800	192,500
Uncompahgre River at Colona	443.0	168,600	92,300	280,500
Dallas Creek near Ridgway	92.6	22,500	12,600	42,200
Pleasant Valley Creek (intermittent) 7 miles upstream from mouth	9.8	1,800	200	4,100
East Fork Dallas Creek near Ridgway	16.8	18,300	13,000	24,800
West Fork Dallas Creek near Ridgway	13.1	9,100	6,200	14,000

1/ Runoff data from gaging stations other than the Uncompahgre River at Colona were estimated by correlation of available data with known streamflows from other similar drainages.

Flood flows occur quite frequently during the spring snowmelt period and when heavy rainstorms occur in late summer. The Corps of Engineers estimated the safe channel capacity of the Uncompahgre River to be about 2,000 second-feet and reported that the greatest snowmelt flood that has occurred within the past 70 years was the 4,080-second-foot maximum daily discharge recorded at the Colona gage on June 13 and 14 in 1925.[25] A momentary peak discharge corresponding to this flow was estimated at about 5,200 second-feet. According to the Corps of Engineers, the flood area below Ridgway Dam site covers about 7,500 acres, including about 1,300 acres of agricultural land.

c. Ground Water

The geology of the upper Uncompahgre Valley is such that the possibility of extensive aquifers within feasible pumping depth is remote. The Mancos and Morrison Formations which underlie much of the area are composed mostly of clay and silt particles and are poor water conductors. Some wells with yields up to about 2 second-feet are operating in the lower valley during the irrigation season. The wells provide very little water during winter months. The water obtained is used for irrigation and for domestic and stock-watering purposes. The Dakota Formation on Log Hill Mesa is somewhat pervious but contains only small amounts of water. Alluvial and glacial deposits are not extensive enough to contain substantial ground water. The water now in these deposits has resulted from percolation from adjacent streams, natural precipitation, and irrigation.

d. Water Quality

Although most of the surface water in the Uncompahgre drainage is derived from snowmelt, the quality deteriorates as the water flows downstream. Above Ridgway Reservoir site the Uncompahgre River and its tributaries are subject to pollution from mine drainage, highly mineralized natural runoff, agriculture, and occasional construction activity.

Heavy metals and toxic chemicals that originate from mining activities and natural runoff include copper, iron, aluminum, zinc, manganese, arsenic, selenium, silver, lead, chromium, and cyanide. One of the primary sources of these pollutants is Red Mountain Creek, which flows through an area of historically intense mining activity and enters the Uncompahgre River upstream from the town of Ouray and about 15 miles upstream from the Ridgway Reservoir site. The diluting effects of cleaner tributaries entering the river at and below Ouray tend to decrease overall heavy metal concentrations. Except for Red Mountain Creek, waterways associated with the project have alkaline pH ranges. This alkaline characteristic decreases the overall heavy metal threat to biological activity throughout the aquatic ecosystem. Under this alkaline condition, a tendency exists for the heavy metals and other toxic substances to precipitate into forms unavailable for biological uptake. As long as the water remains in an alkaline condition, the threat of heavy metal contamination to the food chain is decreased.

A number of State and Federal agencies have analyzed the water quality of the Uncompahgre River at Ridgway. These agencies include the Colorado Department of Health, the Bureau of Reclamation, the Environmental Protection Agency, the Colorado River Water Conservation District, and the Colorado Division of Wildlife. Because of the agencies' differences in duration and period of sampling, methodology, and constituents tested, a combined table of their results would be next to meaningless; therefore, only the data collected by the Colorado Department of Health is presented in Table B-3. Data collected by the other agencies if important in reaching a better understanding of the character of the Uncompahgre River at Ridgway is presented in the narrative.

Data obtained from the Colorado Department of Health for the Uncompahgre River at Ridgway show that concentrations of sulphates, ammonia nitrogen, iron, and manganese occasionally meet or exceed the limits recommended for drinking water by the U.S. Public Health Service (see Table B-3). For aquatic life, such as fish, these data indicate that zinc and ammonia nitrogen concentrations generally exceed recognized limits. At Ridgway water quality sampling done by the other agencies previously mentioned shows a concentration of aluminum as high as 5.2 mg/l on one occasion prior to 1968, arsenic as high as 0.03 mg/l, selenium as high as 0.01 mg/l, and lead as high as 0.03 mg/l. These data indicate that periodically the concentrations of arsenic, cyanide, and selenium have exceeded or equaled the U.S. Public Health standards for drinking water and that concentrations of aluminum, cyanide, and lead have exceeded the generally recognized standards for aquatic life. Because the high concentrations of heavy metals and toxic elements

Table B-3
Water quality data[1]

Parameter	Recommended limit for drinking water[2]	Recommended limit for aquatic life[3]	Uncompahgre River at Ridgway (reservoir area)				Uncompahgre River at Delta (40 miles downstream from dam site)			
			Number of samples	Low	High	Mean	Number of samples	Low	High	Mean
Calcium (mg/l)	**	**	22	88	392	243	39	239	775	510
Magnesium (mg/l)	50	100-400	22	3	18	9	39	19	162	60
Sodium (mg/l)	**	**	25	5	39	19	65	36	250	134
Chloride (mg/l)	250	**	22	2	16	8	62	7	34	17
Sulfate (mg/l)	250	**	25	3	344	195	35	268	1,248	829
pH (units)	5.0-9.0	6.0-9.0	33	7.2	9.0	8.1	69	7.3	9.5	8.3
Conductivity (micromhos)	**	**	35	280	912	589	74	725	2,858	1,675
Turbidity (FTU)	**	**	26	3.5	330	40	61	12	1,600	197
Dissolved oxygen (mg/l)	**	4.0	33	5.5	11.2	8.4	72	4.9	13.7	8.9
Ammonia nitrogen (mg/l)	0.5	0.02	25	0	.7	.06	58	0	.4	.03
BOD, 5-day (mg/l)	**	**	15	.3	1.6	.8	46	.4	3.2	1.86
Nitrate (mg/l)	10	**	25	0	.8	.18	60	0	13	2.9
Fecal coliform (colony/100 ml)	2,000	**	30	0	330	77	70	1	10,900	870
Phosphate (mg/l)	50	**	24	0	.3	.09	31	0	1.0	.15
Fluoride (mg/l)	5/1.3	1.5	23	.4	1.0	.6	21	.4	1.2	.8
Cyanide (mg/l)	.2	0.025	22	0	0	0	21	0	0	0
Arsenic (mg/l)	0.01	1.0	21	0	4/0	0	21	0	0	0
Mercury (mg/l)	0.002	0.001	5	0	0	0	1	0	0	0
Boron (mg/l)	**	**	24	0	0.12	.02	28	0	0.54	.15
Cadmium (mg/l)	0.01	0.01	22	0	0.002	0.0001	20	0	0.002	0.0001
Chromium hexavalent (mg/l)	0.05	0.05	22	0	0	0	21	0	0	0
Copper, total (mg/l)	1.0	0.01-0.02	22	0	0	0	21	0	0	0
Iron, total (mg/l)	0.3	0.3	22	0	.3	0.12	32	0	2.2	0.24
Lead, total (mg/l)	0.05	0.1	22	0	0	0	21	0	0	0
Manganese, total (mg/l)	0.05	1.0	23	0	0.25	.08	33	0	.1	0.008
Molybdenum, total (mg/l)	**	**	5	0	0.005	0	6	0	0.01	0.002
Silver, total (mg/l)	0.05	0.1	5	0	0	0	9	0	0	0
Zinc, total (mg/l)	5.0	0.03-0.07	23	0	.3	.03	32	0	.3	0.05
Selenium (mg/l)	0.01	1.0	23	0	0.004	0.0004	39	0	0.045	0.020

1/ Derived from data collected from the Colorado Department of Health from 1968 through 1974 and retrieved from STORET, the Colorado State computerized data system. Data of August 15, 1973, excluded from the table since almost all sampled values were grossly inconsistent with all other sidings and therefore considered a typical constituent.

2/ Recommended limits for drinking water are based on U.S. Public Health Drinking Water Standards of 1962, the interim standards as listed in the Federal Register, Vol. 40, No. 51, March 14, 1975, and the Federal Water Pollution Control Administration Water Quality Criteria.

3/ Recommended limits for aquatic life are based on the State of California's "Water Quality Criteria" and Colorado Water Resources Circular No. 21.

4/ One sample for arsenic contained 0.02 mg/l taken on December 7, 1971, and was not included in table as it was considered typical.

5/ Fluoride limit was computed for Montrose, Colo., area using annual average of maximum air temperature.

** Recommended limit not determined for this water quality parameter.

Figure B-5--An abandoned mine in the headwaters area of the Uncompahgre River, one of many such sources of water pollution.

recorded by all sampling agencies are short-term, sporadic, and deviate substantially from the norm, the Bureau of Reclamation has hypothized that most of the "flash loads" probably originate in the mining areas upstream of the Ridgway Reservoir site.

Below Ridgway Reservoir site the water quality is most heavily influenced by increased human and agricultural activity. The influences are most evident by increased turbidity, coliform bacteria, and nitrate concentrations. The sediment load, which is the primary cause of the water turbidity, is moderate but does increase as a result of return flows downstream from Ridgway Reservoir site. Coliform bacteria concentrations vary greatly, primarily because of inadequate sewage treatment. They are well within recommended limits for drinking water, however, except directly below domestic sewage effluent points along the Uncompahgre River. The increased nitrate concentration can be largely attributed to the increased use of nitrogen fertilizers on agricultural lands.

In Table B-3 the data obtained by the Colorado Department of Health for the Uncompahgre River at Delta show that the concentrations of sulphates, iron, manganese, selenium, and magnesium have increased between Ridgway and Delta and generally exceed the U.S. Public Health Service's recommended limits for drinking water.

Water temperature data compiled at Colona for the Uncompahgre River are more complete than at other sites and can be considered representative of the river in the project area. At Colona temperatures ranged from a low of 32° F. in December, January, and February to a high of 65° F. in September. These recorded temperatures are within the tolerance range for trout.

Salinity, or total dissolved solids (TDS), is another aspect of water quality in the Uncompahgre River because of natural runoff and irrigation practices in the valley. Salinity increases downstream from Colona as the river courses through irrigated farm lands. The East and West Forks of Dallas Creek are considerably lower in salinity concentrations than the Uncompahgre River, but substantial degradation of this water takes place below their confluence because of natural runoff and return flows from irrigation to Dallas Creek.

Although extreme readings exceeding 1,000 mg/l have been recorded, TDS is not a significant problem in the project area as the mean levels in project streams do not exceed 500 mg/l.

The sodium adsorption ratio (SAR) and boron levels in the Uncompahgre River are generally low. They should pose no problem to the growth of most plant species. Agricultural water quality indicators are in Table B-4.

5. Vegetation

The vegetation in the project area ranges from desert shrubs in the lower Uncompahgre Valley to alpine plants in the Uncompahgre River headwaters. The basin contains five general vegetative zones which can be

Table B-4
Salinity in the Uncompahgre River Basin
Bureau of Reclamation sampling 1958-73

Stream station	Mean flow[1/] (second-feet)	Total dissolved solids (mg/l) Mean	Total dissolved solids (mg/l) Range	pH range	Boron range (mg/l)	Sodium adsorption ratio range
Uncompahgre River near Ridgway	159.5	345	184- 796	7.9-8.4	0.3-1.1	0-0.25
Uncompahgre River near Colona	230.0	366	190- 741	7.3-8.3	.3-1.4	0- .41
Dallas Creek	32.2	421	279-1,146	7.5-8.5	.3- .8	0- .35
East Fork Dallas Creek	24.4	149	69- 239	8.0-8.6	.1- .3	0- .02
West Fork Dallas Creek	12.4	128	82- 251	8.1-8.6	.1- .3	0- .15

1/ Developed from flow frequency curves for period of record through 1971.

defined by elevation. These include: (1) desert shrubs (4,900-5,500 feet), (2) pinon, juniper, sagebrush (5,500-8,500 feet), (3) oakbrush, ponderosa pine, sagebrush (8,500-9,500 feet), (4) spruce, fir, aspen (9,500-12,000 feet), and (5) alpine plants (over 12,000 feet). Within each zone, vegetative variations occur as a result of localized differences in topography, precipitation, and land use. Figure B-6 illustrates the approximate locations of the vegetative zones in the Uncompahgre Basin, and Table B-5 gives a breakdown of vegetation distribution in the basin. The zones are intermixed somewhat but the breakdown given provides a reasonably accurate method of describing vegetation in the basin. A more complete listing of plant species in the basin is contained in Attachment 2.

Table B-5
Vegetation distribution in the Uncompahgre River Basin[1/]

	Zone 1 Desert shrubs	Zone 2 Pinon, juniper, and sagebrush	Zone 3 Oakbrush, ponderosa, and sagebrush	Zone 4 Spruce, fir, and aspen	Zone 5 Alpine plants	Total
Total acres	273,526	285,259	202,614	159,532	38,424	959,355
Predominant land cover			Percent of total			
Irrigated crops and pasture	28.7	9.0	0.6			11.0
Nonirrigated crops and pasture		.5				.2
Grasses and sedges				0.3	74.0	3.0
Willow or cottonwood (riparian)	1.4	1.4				.8
Desert shrub and grass	44.9					12.8
Sagebrush and grass		45.7	60.3	12.6		28.4
Oakbrush and grass		5.0	19.0	7.3		6.7
Pinon-juniper		18.4				5.5
Aspen			9.0	16.0		4.6
Conifer			3.6	61.3		10.9
Bare rock	25.0	20.0	7.5	2.5	26.0	16.1

1/ Adapted from "Water and Related Land Resources, Gunnison River Basin, Colorado," produced cooperatively by the Colorado Water Conservation Board and the United States Department of Agriculture in 1962.[14]

The desert shrub zone generally occurs on valley lands downstream from Colona including the areas surrounding the towns of Montrose, Olathe, and Delta. There would be no project features in the area, but most of the project water would be delivered there. Nearly all of the Uncompahgre

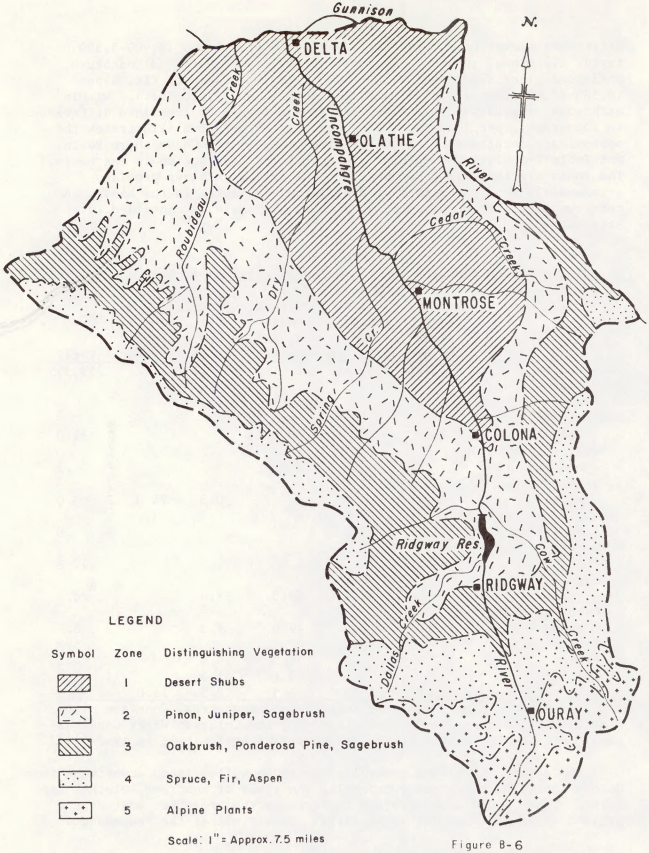


Figure B-6

DALLAS CREEK PROJECT, COLO.

NATIVE VEGETATION MAP

UNCOMPAHGRE BASIN

Figure B-7--Native pinon and juniper on Log Hill Mesa.

Figure B-8--Typical short shrub and grass cover in the vicinity of the project. Small groves of mixed aspen and spruce are on hillside.

Project Serviceable area is in this zone. Greasewood is found on heavy soils with a high alkali content. Where the soils are less alkaline, the dominant greasewood is often accompanied by lesser populations of big sagebrush, spiny sagebrush, saltbush, and rabbitbrush. Soils that are drier, better drained, and less alkaline than those with greasewood support a saltbush community that is very common between Montrose and Delta and is characterized by Gardner saltbush, fourwing saltbush, and shadscale saltbush. Where grazing is heavy, the saltbush vegetation regresses and perennial grasses and shrubs are replaced by cactus and annuals such as cheatgrass. The vegetation along waterways is usually in sharp contrast to the dominant vegetation in the zone and consists of dense fringes of riparian vegetation along the river banks with cottonwood, willow, exotic tamarix, alder, cattails, sedge, rush, saltgrass, and blue grass common.(10) The irrigated crops in the zone differ markedly from the natural vegetation. Crops include sugar beets, barley, onions, corn, hay, pasture, and fruit.

The pinon-juniper-sagebrush zone includes Log Hill Mesa, the Dallas Creek and Colona areas, and the Ridgway Reservoir basin. The area is dominated by sagebrush, but mature, even-age stands of pinon-juniper exist, producing little understory vegetation and high erosion potential. The stands are modified locally by the intrusion of the following shrubs: big sagebrush, bitterbrush, black sagebrush, Gambel's oak, rabbitbrush, snowberry, and serviceberry. In pinon-juniper areas, natural fires have created open areas which support grasses and shrubs. Other areas of pinon-juniper have been mechanically cleared to produce more forage for wildlife and livestock. This modification is evident on both public and private lands on Log Hill Mesa and on lands southeast of Ridgway Reservoir.

Generally above the pinon-juniper-sagebrush zone is the vegetation zone dominated by Gambel's oak, ponderosa pine, and sagebrush. Shrubs that grow in association with the oak, in mixed and pure stands, are big sagebrush, bitterbrush, buffalo currant, snowberry, western chokecherry, and serviceberry. Sagebrush is the dominant vegetation on more than half of this zone, and oakbrush has replaced the ponderosa pine in many areas of fire or logging disturbance. Ponderosa pine communities are found on the higher areas of Log Hill Mesa, on the Uncompahgre Plateau, and scattered in the lower elevations of the San Juan Mountains. In the ponderosa pine community, the open timber stands permit the development of an extensive herbaceous understory. Aspen groves and grass lands devoid of trees are frequent in this zone. Douglas fir stands with little understory are found in this zone, particularly on north-facing slopes.

The zone characterized by Engelmann spruce, alpine fir, and aspen extends upward to timberline. The undergrowth is sparse in dense conifer stands with representative shrubs being Canadian buffalo-berry, mountain common juniper, and red billberry.

The alpine zone (area above timberline) is located outside the project impact area and usually occurs above 12,000 feet. Vegetation consists of sedges, rushes, grasses, forbs, and willows.

6. Aquatic Wildlife

a. Fishery

The State of Colorado conducted studies of stream fisheries in 1964-65 and 1974-75 and has prepared an environmental inventory of the Dallas Creek Project area.(3)(10) Data from these studies were used extensively in preparing this section.

Distribution of fish in the Uncompahgre Basin varies from stream to stream and according to differences in water quality within streams. Although the basin is not an outstanding fishery, it does support populations of cold water game and nongame fish which are identified by species and distribution in Table B-6.

Table B-6
Fish distribution in the Uncompahgre River and selected tributaries 1/

	Uncompahgre River						
Species	At Ridgway	Ridgway to Colona	Colona to Delta	Dallas Creek	East Fork Dallas Creek	West Fork Dallas Creek	Pleasant Valley Creek 2/
Rainbow trout	X	X	O	O	X	X	O
Native trout					X	X	
Brown trout	X	X	O	X	X	X	
Brook trout				X	X	X	O
Flannel-mouth sucker		X	X				
White sucker	X	X		X			
Bluehead mountain sucker	X	X	X	X			
Sculpin	O	X	O	X	O	X	O
Dace	O	X	X	O			
Chub			X				
Bullhead			X				

X - Species found by sampling.
O - Not recorded but presence assumed from known stream conditions.
1/ Derived from 1964-65 and 1974-75 studies of Colorado Division of Wildlife.
2/ Pleasant Valley Creek was not sampled and no fisherman catch data could be found.

The Uncompahgre River supports trout in its mountain section; however, in the area between the confluence of Red Mountain Creek and the town of Ouray, the river does not sustain a fishery because of pollution from mine wastes and drainage. Downstream from Ouray to the

town of Colona, the water quality improves somewhat and the river is again able to support limited fish populations. High summer temperatures, however, and the poor water quality which results primarily from return flows limit trout habitat below Colona.

A creel census conducted by the Colorado Division of Wildlife showed that 90 percent of the game fish caught in the Uncompahgre River were rainbow trout. About 9 percent were brown trout and only 1 percent brook trout. The preponderance of rainbow trout in the creel checks is explained by the stocking profile. Catchable rainbow trout have been stocked annually since 1962. In that year 16,000 rainbow trout were stocked, but in recent years the catch and survival rate have been so poor[10] that in 1973 only 6,000 were stocked. The stocking of brown trout was discontinued in 1968.

In the area of Ridgway Reservoir the State's electrofishing activities in 1974-75 identified trout, suckers, and sculpins. By expanding upon the fish enumeration data, it is estimated that the maximum fish population in the 5 miles of stream to be inundated by Ridgway Reservoir could be about 50 trout, 4,300 suckers, and 250 sculpins.[10] The electrofishing activities also disclosed a lack of young trout. The absence of young trout suggests that the trout population is essentially the result of stocking and that very little natural trout reproduction takes place in the river. The lack of successful spawning could be the result of any one or all of the following: excessive siltation of gravel areas, some chemical components of the water such as zinc which impacts ova, and the limited physical spawning areas as shown in Table B-7.

Detailed data concerning fisherman use of project streams are not available, but potential fisherman use of the 5 miles of the Uncompahgre River that would be inundated by the project is estimated by the Fish and Wildlife Service at 550 man-days annually and the use of the 12-mile reach between the dam site and the M and D Canal at 1,900 man-days annually.[32] From 1956 to 1973, the fisherman catch per hour for the Uncompahgre River ranged from 0.33 to 1.47 based on limited WCO (Wildlife Conservation Officer) fisherman checks, ranging from 9 to 171 fishermen annually.[10] Public access for fishermen is limited because of extensive private ownership of lands bordering the river.

Dallas Creek supports few game fish because irrigation diversions occasionally reduce the flow to 1 second-foot, which seriously reduces aquatic habitat.[10] Dallas Creek is not stocked because of the poor habitat and because there is little public access to the stream. The Fish and Wildlife Service has estimated that 130 fisherman days are spent on Dallas Creek annually.[32] Catch rates are unavailable.

The Colorado Division of Wildlife has recorded brown, brook, rainbow, and cutthroat trout by creel checks at the East Fork of Dallas Creek. Brook trout were present in 1964-65 electrofishing samples but

not in 1974-75 samples. Spawning movements may account for this discrepancy. Rainbow trout dominated the catch because of stocking by the Colorado Division of Wildlife.[3][10] Despite the high quality of water, the fishery in the East Fork of Dallas Creek is limited for fisherman use because of inadequate access. Present use is estimated at about 125 fisherman days a year. An annual average of 4,900 rainbow trout has been stocked in the creek since 1965 with approximately one-half of this number being catchables and one-half being fingerlings. The catch rate determined from limited fisherman checks ranged from 0.31 to 1.14 fish per hour between 1956 and 1972.[10]

Rainbow, brook, brown, and cutthroat trout and sculpin are recorded as being taken from the West Fork of Dallas Creek. Only the populations of cutthroat trout and sculpins are reported to be self-sustaining. Fingerling rainbow and brook trout are stocked occasionally. As the West Fork leaves the steep mountain terrain, it is largely diverted for irrigation purposes, and fishing in the lower portion is limited. An estimated 65 fisherman days are spent annually on the stream.[32] The catch rate for West Dallas Creek in 1970 was 1.25 native trout per hour.

b. Endangered and Threatened Species

No State or Federally listed endangered or threatened fish species have been found in the Uncomphagre River. About 40 miles downstream from Ridgway Reservoir, however, the humpback sucker, a species listed as endangered by the State of Colorado, has been reported to occur in the Gunnison River into which the Uncompahgre River drains. About 100 miles downstream from the Ridgway Reservoir the Colorado River squawfish, a Federally listed endangered species, has been reported to occur near the confluence of the Gunnison and Colorado River at Grand Junction.

c. Habitat Types

Most of the habitat in the Uncompahgre River between Ridgway and Colona is deep fast with a significant portion of riffle. Pool habitat makes up less than one percent. The East and West Forks of Dallas Creek are predominantly riffle habitat with an appreciable percentage of deep fast habitat in the East Fork and significant slow shallow habitat in both streams. Dallas Creek is classified as predominantly riffle with significant pool. Table B-7 summarizes habitat data for project streams.

Figure B-9--Looking upstream on the Uncompahgre River near Colona.
Note riparian vegetation.

Table B-7
Stream habitat distribution1/
(Unit--percent)

Habitat	Uncompahgre River at 565 c.f.s.	Dallas Creek2/	East Fork of Dallas Creek at 77 c.f.s.	West Fork of Dallas Creek at 32 c.f.s.	Pleasant Valley Creek2/
Riffle	24	80	85	92	50
Deep fast	72		8	2	
Deep slow	2		2		
Slow shallow			3	5	
Fast shallow	1		1	1	
Pool	1	20	1		50

1/ This table is based on Colorado Division of Wildlife studies conducted in 1964-65 and 1974-75. Dallas Creek and Pleasant Valley Creek were not examined in 1964-65, and figures for these streams are derived from a less exhaustive study than the early one.

2/ Streamflows were not recorded at the time of these estimates.

d. Invertebrate Populations

Invertebrate data collected in 1964 by the Colorado Division of Wildlife are tabulated for the Uncompahgre River and the East and West Forks of Dallas Creek in Table B-8. The following macroinvertebrate were found in the 1975 study by the Colorado Divison of Wildlife: Diptera, Tricoptera, Plecoptera, Ephemeroptera, Oligochaete, Pulmonata, and Coleoptera. For comparison with the data collected in 1964, Table B-9 gives the number and taxa of macroinvertebrates found in 1975. More detail on numbers and species distribution can be found in the 1975 published report of the division.(10)

For a river with definite water quality problems, the Uncompahgre has surprisingly good aquatic invertebrate populations. The fish life cycle requirements break down, however, for despite the presence of good fish food populations, the natural game fish populations are practically nonexistent, as explained earlier.

Table B-8
Bottom sample data
20 Surber samples of invertebrates
in riffle habitat[1/]

Organism	Station[2/]	Total number	Number times present in samples	Percent of total number
Plecoptera (Stoneflies)	1	74	19	12.05
	2	28	13	16.18
	3	82	14	11.39
Ephemeroptera (Mayflies)	1	413	19	67.26
	2	56	19	32.37
	3	320	20	44.44
Trichoptera (Caddisflies)	1	38	16	6.19
	2	67	17	38.73
	3	243	18	33.75
Diptera (True flies)	1	32	11	5.21
	2	15	11	8.67
	3	37	15	5.14
Coleoptera (Beetles)	1	12	9	1.96
	2	1	1	.58
	3	18	3	2.50
Hemiptera (True bugs)	1	1	1	.16
	2	1	1	.58
	3	1	1	.14
Hydracarina (Water mites)	1	42	17	6.84
	2	2	2	1.16
	3	6	4	.83
Oligochaeta (Segmented worms)	1	2	2	.33
	2	3	2	1.73
	3			
Platyhelminthes (Flat worms)	1			
	2			
	3	13	6	1.81

1/ Form: Burkhard, Walter T., Job Completion Report: State-Wide stream surveys project No. F-26-R-3, Job No. 1, Department of Game, Fish, and Parks, 1966. This study did not include measurements on Dallas and Pleasant Valley Creeks.

2/ Station 1: Uncompahgre River - 5 miles downstream from Ridgway Dam site, July 1964.

Station 2: East Fork of Dallas Creek - short distance upstream from proposed diversion, June 1964.

Station 3: West Fork of Dallas Creek - short distance downstream from proposed diversion, June 1964.

Table B-9
Number of macroinvertebrates individually and by taxa found in the study area

Site	Date	Number of individuals	Number of taxa
Station No. 1 Uncompahgre River at Colona	3-11-75	279	11
Station No. 2 Uncompahgre River at Billy Creek	3-12-75	130	10
Station No. 3 Lower Cow Creek	3-11-75	690	16
Station No. 4 Upper Cow Creek	3-11-75	907	18
Station No. 5 Uncompahgre River	3-12-75	207	11
Station No. 6 Uncompahgre River	3-12-75	304	10
Station No. 7 Dallas Creek below confluence	3-12-75	422	27
Station No. 8 East Dallas Creek	5-9-75	264	19
Station No. 9 Lower West Dallas Creek	3-12-75	177	20
Station No. 10 Upper West Dallas Creek	5-9-75	897	16

Despite good water quality in the upper reaches, aquatic invertebrate populations in East Dallas Creek are low compared to those in the Uncompahgre River. Aquatic invertebrate populations are considered adequate, however, to support a good game fish population.

The West Fork of Dallas Creek is more productive for invertebrates than the East Fork or the Uncompahgre River. This productivity reflects good quality water and sustains a natural fishery in the upper reaches where the effects of irrigation diversions and return flows are not apparent.

7. Terrestrial Wildlife

a. General

The Colorado Division of Wildlife under contract with the Bureau of Reclamation has conducted an inventory of the wildlife in the

project area.[10] Because the number of wildlife species present is so large, the discussion in this section is limited to species selected for their aesthetic, economic, ecological, or sporting value. The wildlife and their habitat relationships are discussed by groupings established by the Colorado Division of Wildlife.[12] A listing of wildlife species reported in the project area is contained in Attachment 3 and includes available habitat and population data.

b. Big Game Mammals

Five species of big game mammals are known to inhabit the Uncompahgre Basin. These are mule deer, elk, black bear, mountain lion, and bighorn sheep.

(1) Mule Deer

The deer that would be affected by the project inhabit Ouray County. Based on hunter harvest data, the population is estimated to be about 7,000 animals prior to the annual hunting season. The population has declined in recent years, and management goals are to increase it slightly. Population trends are determined by projections from annual aerial counts of deer on a 150-square mile area in the vicinity of Log Hill Mesa. Between 1967 and 1975, the counts ranged from 1,187 to 2,866. Annual trend counts have not been conducted on winter ranges east of the Uncompahgre River, but counts in the winter of 1975 revealed at least 1,400 wintering deer east of the river. More than 300 deer were counted in the Pleasant and Dallas Creek Valleys during the same period.

During summer months the deer range over a large diverse area. With early snows deer are forced into an intermediate winter range between elevations of 8,200 and 9,000 feet. This range is located primarily in the oakbrush, ponderosa pine, and sagebrush communities. No project features would be located within the intermediate winter range.

As snows accumulate, deer are forced into a critical winter range, the upper reaches of which vary between 6,600 and 8,200 feet in elevation but most often fall between 7,000 and 7,600 feet.[18] The critical winter range is in the pinon-juniper and lower sagebrush communities. This critical winter range is one of the primary limiting factors for mule deer populations in Ouray County. The Fish and Wildlife Service has estimated that the critical winter range on Log Hill Mesa sustains, on the average, 32 deer per square mile (1 deer per 20 acres). Portions of the relocation route for U.S. Highway 550 and the Ridgway Reservoir site are located in the critical winter range.

Within the critical winter range certain areas have been identified in which deer tend to concentrate in response to favorable food cover or other factors. Concentration areas associated with project features include hillsides surrounding Ridgway Reservoir Basin and a portion of the route of relocated U.S. Highway 550.

Figure B-10--Mule deer in pinon-juniper habitat near Ridgway.

In early spring, grasses begin to grow in irrigated meadows and provide an attractive supplemental food source prior to the greening of other vegetation. As snows at higher elevations melt, the deer gradually move upward into their summer range.

Several migration or movement routes have been identified for the deer herds in Ouray County. The Uncompahgre River acts to create two rather distinct herds, one east and one west of the river, although trapping and banding studies have shown that movement between the two herds exists.

Figure B-11 illustrates the critical and intermediate winter ranges of mule deer in Ouray County along with areas of winter concentrations, spring use (meadow areas), and general migration routes.

Mule deer damage occurs on crop lands in the project area as the deer are attracted to haystacks and green meadows, particularly during the late winter and spring seasons. Fencing of haystacks by ranchers with the help of the Colorado Division of Wildlife is common.

Deer-auto collisions are a serious problem along U.S. Highway 550 between Colona and Ridgway. This segment of highway has one of the highest rates of such accidents in the State. Most of the collisions occur in the winter and early spring. A survey made by the Colorado Division of Wildlife in 1972 disclosed that at least 300 deer road kills occurred along this stretch of highway. More recently, 1974-75, counts made by the Colorado Division of Wildlife showed 31 deer road kills for the one year period along the section of U.S. Highway 550 proposed for relocation. For both studies, it is believed that the actual number of road kills was substantially higher, however, because only those dead deer clearly visible from a moving auto were counted, and studies in other areas have shown that almost one-half of the deer that die as a result of collisions with cars die away from the highway in brush or timbered areas.

(2) Elk

Trend counts in the area made by the Colorado Division of Wildlife have revealed increasing numbers of elk in Ouray County. The population prior to hunting season is estimated to be about 1,600 animals. Distribution of elk in the Uncompahgre Basin generally coincides with that of deer. Usually elk remain below the 9,000-foot elevation during the winter and begin moving higher in April with warmer temperatures and the receding snow line. Generally, elk winter range is in the Gambel's oakbrush, pinon and juniper woodland, and sagebrush vegetative types. Two areas where elk remain longer in the spring are at the Billy Creek Wildlife Management Area northeast of Ridgway Dam site and along State Highway 62 just west of Ridgway. A limited migration pattern is apparent over the passes of Cimarron Ridge.

(3) Black Bear, Mountain Lion, and Bighorn Sheep

Black bear are common in a zone in Ouray County generally above 7,000 feet in elevation where their habitat is largely within the timbered belt and canyon country and where fruit-growing shrubs are common. Total numbers of bear living in Ouray County are estimated to be between 25 and 50.

An estimated two to six mountain lions inhabit the project area and may be found in any of the different habitats. Their movements are extensive and generally follow seasonal migrations of deer. Some movement across the Uncompahgre River Valley has been reported between Colona and Ouray.

Bighorn sheep range in the summer and winter in the high mountainous country south of Ridgway. The herd is now apparently stable and has between 80 and 100 sheep, but it has a history of numerous fluctuations.

c. Small Game Mammals

Small game mammals are not economically important in the project area, but they offer popular recreation opportunities in the lower Uncompahgre Valley. Rabbit, hare, and squirrel are species of particular interest.

The cottontail rabbit is adapted to all habitats in the project area. The species is most abundant in areas of pinon-juniper and shrubland vegetation and is common in the area which would become the Ridgway Reservoir basin. Rabbit populations in the project area are estimated to be about 24 animals per square mile.(10)

The snowshoe hare and the pine or chickaree squirrel inhabit coniferous forests between 8,000 and 12,000 feet in elevation. No population estimates are available for squirrels, but the project area is estimated to support about 175 hares. Squirrel concentrations occur in dense stands of Douglas fir and spruce.

d. Game Birds

Various species of game birds inhabit the Uncompahgre Basin, but their populations are small and do not constitute a major source of hunting. Ducks, grouse, doves, pheasant, quail, pigeons, and turkey are the game birds in the basin.

(1) Waterfowl

The Uncompahgre Valley is of minor importance for waterfowl nesting. River bottom areas make up most of the habitat, a large part of which offers little in the way of attractive nesting sites. Common breeders are the green-winged teal and the mallard. Other species use the area as a stopover during migration. Approximately 24,000

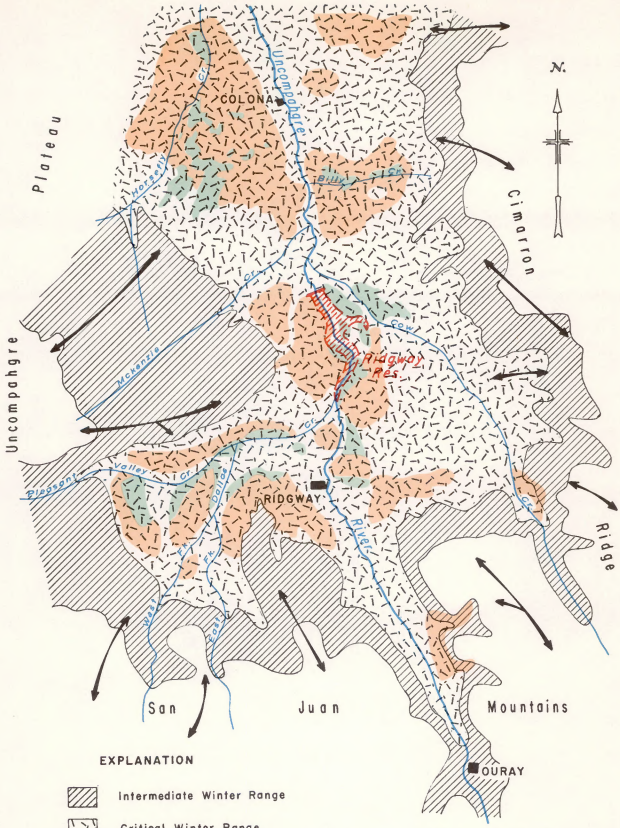


Figure B-11

DALLAS CREEK PROJECT, COLO.

DEER AND ELK WINTER RANGE

Figure B-12--Elk on winter range near Ridgway.

ducks, or 5 percent of the State's total, winter in western Colorado along the Uncompahgre, Gunnison, and Colorado Rivers. Wintering ducks feed on corn and small grain fields near Montrose, Delta, and Olathe.[16] In the project area itself, waterfowl populations are small and have been estimated between 300 and 400 birds.

In Montrose County duck harvests varied between 1,784 in 1969 and 5,335 in 1973 and between 3,321 and 7,727 in Delta County for the same years. Between 1,000 and 2,000 duck hunters have accounted for this harvest.[11] Duck harvest in Ouray County is not significant.

(2) Upland Game

Sage, blue, and sharp-tailed grouse inhabit various portions of the Dallas Creek Project area but are not normally found in the locations of proposed project features. Sage grouse populations are decreasing on the eastern side of the Uncompahgre Plateau, but a flock of 20 to 30 birds inhabits Sims Mesa northwest of Colona.[21] Blue grouse are found in areas of oakbrush-aspen and spruce-fir vegetative types above 8,000 feet. Blue grouse populations are found on portions of Log Hill Mesa, in the drainages of Pleasant Valley Creek and the East and West Forks of Dallas Creek, and on Cimarron Ridge. About 175 birds are estimated to populate these areas. Small populations of sharp-tailed grouse are distributed on the Uncompahgre Plateau.[10]

A small population of ring-necked pheasant and Gambel's quail inhabits the lower portions of the project area from 4,500 to 6,200 feet in dry brushlands interspersed with irrigated farm land and streamside vegetation. Pheasants are occasionally but not commonly found in the proposed Ridgway Reservoir basin. Montrose and Delta Counties support adequate populations for hunting, but Ouray County has only about 50 birds of each species.

The band-tailed pigeon is a migratory game bird locally common in the ponderosa pine, oakbrush, and spruce-fir vegetation types. Mourning doves are common throughout croplands, riparian areas, weedy areas, and ponds in the project area. Smaller populations occur at higher elevations. Most doves migrate from the area in early fall, but there is a small winter population in the lower Uncompahgre Valley. Approximately 750 pigeons and 2,000 doves inhabit Ouray County.

Wild turkey generally winter at elevations of 5,500 to 7,500 feet within the pinon-juniper zone and summer in higher areas of ponderosa pine or aspen.[18] Oakbrush areas also provide habitat. The turkey population is estimated to be a little over 100 birds. Five distinct wintering flocks are known to exist in the study area, including two on Log Hill Mesa, one on Dallas Creek, one on Cow Creek, and one on Billy Creek. These birds probably use Ridgway Reservoir on occasion.

e. Furbearing Game

Furbearers in the area include beaver, muskrat, marten, weasel, striped skunk, gray fox, ring-tailed cat, badger, and mink. All of these furbearers may on occasion be found in the vicinity of the proposed reservoir basin except for the marten which is restricted to higher elevations. Riparian habitat and cliff areas are habitats of particular importance. Beaver and muskrats are found in all project waterways including the East and West Forks of Dallas Creek and the Uncompahgre River. Skunks and weasels range throughout the area. Badgers and gray foxes are occasionally sighted in the vicinity of the proposed project features. Mink are found near the larger drainages in the project area. The ring-tail cat is found in the rocky canyons along the Uncompahgre River and Pleasant Valley Creek.

f. Varmints

In Colorado there are 19 species of birds, mammals, and reptiles classified as varmints. Varmints range freely throughout the undeveloped areas in the Uncompahgre Basin. Species that are common in the project area include coyotes, bobcats, prairie dogs, white-tailed jack rabbits, porcupines, marmots, rock squirrels, magpies, and crows. Some varmint species, particularly coyotes and bobcats, are hunted and trapped, and their hides are sold commercially.

g. Raptors

Various species of raptors have been identified in the project area. The species most frequently observed are golden eagle, bald eagle, red-tailed hawk, rough-legged hawk, and kestrel. Species that have been sighted or of which there is evidence include turkey vulture, Swainson's hawk, marsh hawk, goshawk, Cooper's hawk, sharp-shinned hawk, the peregrine falcon, the prairie falcon, the great horned owl, and the burrowing owl.

The northern bald eagle winters in the region from November to April. Its hunting areas are along the Uncompahgre River from Colona to Ridgway, on Billy Creek and Cow Creek within 4 miles of the Uncompahgre River, and in Pleasant Creek Valley. Roosting sites which these birds use from year to year have been found by the Colorado Division of Wildlife along the Uncompahgre River below Chaffee Gulch and on lower Cow Creek. Golden eagles are year-round residents of the area. In the winter they hunt primarily in the deer-elk winter range areas, and their range is widespread at other times. Nesting areas include the rim of Log Hill Mesa and Cimmaron Ridge.

h. Nongame Wildlife

Nongame wildlife includes species which are not commonly pursued, killed, or consumed either for sport or profit. Mammals, amphibians, and reptiles in the nongame group are permanent residents in the area and include such species as the chipmunk, tiger salamander, sagebrush lizard, and garter snake. Birds in this group may be resi-

dents or migrants. Birds known to nest in the area include the great blue heron, the spotted sandpiper, the common nighthawk, the kingfisher, swallow, grosbeak, sparrow, and many others.

Nongame wildlife, particularly birds, are widely distributed throughout the entire study area. Riparian habitat, however, supports the greatest diversity of species and provides excellent breeding habitat and winter cover. The relative scarcity of this habitat is a limiting factor for some species populations.

i. Threatened or Endangered Species

During recent studies by the Colorado Division of Wildlife an adult male peregrine falcon (an endangered species on the Federal listing) was observed in early May 1975 along the Uncompahgre River near Ridgway. This is the only current recorded sighting of threatened or endangered terrestrial wildlife species in the project area.[10]

j. Projected Conditions Without the Project

In the project area the reduction of wildlife habitat is expected to continue and a decline in wildlife populations is expected to follow. Mule deer winter range is now decreasing as a result of agricultural and residential development, and this trend shows no indication of abatement. Effects of development such as residential construction, agricultural operations, and stream channel alterations on other wildlife species are not significant at this time except for species inhabiting riparian areas. Riparian habitat is often lost during construction and clearing activities, and these activities can be expected to continue as part of normal development.

8. Vectors

Several species of mosquitoes which breed in shallow pools are common throughout the project area and must be considered in any water development program, if only from a nuisance standpoint. With the exception of Delta, the towns within the project area are not reported to have mosquito nuisance problems. The Delta Mosquito Control District generally deals with mosquito control by spraying. Of more substantial interest is the fact that several of the mosquitoes present in the area are also capable of transmitting human and animal diseases. The species Culex tarsales carries the virus of both western and St. Louis encephalitis, brain diseases of humans, horses, and other mammals. The Colorado Department of Health reports, however, that no cases of western or St. Louis encephalitis have been reported in this project area in recent years. The serious Venezuelan equine encephalitis, which can be transmitted by several species of mosquito, has not as yet been reported in western Colorado. Species of Anopheles freeborni mosquitoes capable of transmitting malaria are present but apparently the parasite for that disease will not overwinter in the local climate.

The wood tick, Decenter andersonii, is very common to the project area. This tick can transmit rocky mountain spotted fever and Colorado

tick feaver to humans. Tularemia may also be transmitted by this tick, but this disease is very uncommon at the present time. There is no apparent relationship between tick populations and water bodies or water use.

Bubonic plague, a disease principally of rodents but also capable of striking humans, has been reported in western Colorado recently. This illness can be transmitted by any rodent flea and could occur anytime and any place in the region.

9. Recreation

The Uncompahgre Basin is one of the most scenic and popular recreation areas in Colorado. A highway traffic study conducted just south of Montrose on U.S. Highway 550 for 13 hours on July 19, 1973, listed 38 percent of the 3,200 vehicles as vacation or recreation oriented. Most of the public recreation developments in or near the project area are administered by the State of Colorado, the Forest Service, or the National Park Service. Table B-10 lists the more significant recreation centers near the project area and indicates the magnitude of recreation use. Despite the presence of public facilities near the basin, the project area itself has few public recreational opportunities because private ownership of lands has greatly limited development. There is little recreation use on the Uncompahgre River at present other than fishing.

Table B-10
Recreation facilities near project area

Recreation area	Distance from Ridgway Dam site (miles)	Administering agency	Current estimated annual use (visitor-days)
Blue Mesa Reservoir	60	NPS 1/	709,705
Colorado National Monument	90	NPS	68,778
Black Canyon of the Gunnison National Monument	30	NPS	267,086
Crawford Reservoir	70	State	96,259
Grand Mesa	65	USFS 2/	480,500
Sweitzer Lake	35	State	88,791
Uncompahgre National Forest	20	USFS	484,500
Silver Jack Reservoir	15	USFS	34,600

1/ National Park Service.
2/ U.S. Forest Service.

The State Comprehensive Outdoor Recreation Plan (SCORP), issued in 1970 by the Colorado Division of Game, Fish, and Parks, indicates that the most popular outdoor activities in Colorado in their order of popularity are hiking and walking, playing outdoor games, bicycling, driving for pleasure (sedan), sightseeing, picnicking, swimming, fishing, viewing outdoor games, and camping.(8) Because of the nature of the area

surrounding the Dallas Creek Project and because of the existing recreational developments, this list of activities should include for the project area such activities as hunting, boating, canoeing, and driving for pleasure (4-wheel). SCORP also indicates that the future demand for swimming, boating, small game hunting, big game hunting, and picnicking in the counties surrounding the project area will be greater than the available supply.

Small game hunting is popular on the privately owned irrigated areas of the lower Uncompahgre Valley. Big game hunting is pursued on public and private lands in the southern part of the project area. Fishing within the project area is primarily limited to the East and West Forks of Dallas Creek and the Uncompahgre River. Sightseeing is popular in the upper Uncompahgre Valley with the San Juan Mountains and the Cimarron Ridge providing outstanding backdrops for views and photography. Recreational use of Ridgway Reservoir site is limited at this time by the lack of public access and the lack of a recreation base such as a reservoir, quality stream, or developed park.

10. Aesthetics

The Uncompahgre Basin is particularly scenic because of the presence of mountains in all directions. The rugged San Juan Mountains and Cimarron Ridge are uniquely attractive as geographic landmarks. These features in addition to the Uncompahgre Plateau and Grand Mesa, a large flat-topped mountain north of the project area, provide mountainous, panoramic backgrounds. Generally, the project area can offer relief from urban concentration in a setting of natural and agricultural greenery. Clean air and unique scenery make sightseeing a common pastime.

The valley above the confluence of Dallas Creek and the Uncompahgre River is naturally attractive with mainly rural characteristics such as the small historic town of Ridgway and a number of livestock ranches.

The narrow river valley between the Dallas Creek confluence and Colona is surrounded by picturesque steep-walled cliffs that are topped by flat mesas. The mesas are dominated by ponderosa pine, pinon, juniper, and sagebrush.

The valley below Colona is a typical concentrated agricultural area. East of the river the agricultural setting is occasionally interrupted by areas of low, bare shale hills. West of the river, the mesa farms are more contiguous.

11. Land Use

a. Present Patterns

In the vicinity of the project private lands are generally located along water courses in the broad Uncompahgre Valley, on Log Hill

Mesa, and in scattered blocks on the Uncompahgre Plateau. Public lands are generally at higher elevations. Land-use maps of the three counties are located in Attachment 4.

The public lands in the area are administered by the Forest Service, the Bureau of Land Management, or the State of Colorado. The lands are utilized primarily for recreation, livestock grazing, and wildlife habitat, with the forest lands also managed for watershed protection.

Private lands in the project area are generally used either for dry land grazing or irrigation farming. Dry land farming is limited to a small amount of land on Log Hill Mesa. Increasing amounts of private land are being used for the expanding industrial operations discussed in subsequent sections. There has also been an increasing trend toward residential development on private agricultural and range lands.

The county governments are taking definite steps to control residential developments for the protection of public health, safety, and aesthetic values. They are backed in their efforts by several recent Colorado House and Senate bills covering all aspects of such development.

b. New Residential Development

The new, totally planned community of Loghill Village, which has been mentioned previously in this statement, is under construction on Log Hill Mesa. The developers, Western Community Planners, Inc., have purchased 3,832 acres of land on the southeast portion of the mesa and are currently installing a water system and building roads for the first stage of development. Independent of any proposed Bureau of Reclamation action, the developers have purchased water rights on Dallas Creek and plan to supply their first stage water needs by pumping from the creek to the mesa. This stage will cover about 1,000 acres in 218 parcels of land. Second and third stages are to be developed as the community grows.

c. Conditions Without Dallas Creek Project

Without the Dallas Creek Project, present trends will continue subject to Federal, State, and local controls. The Western Community Planners have obtained a water supply which will enable them to develop 2,000 acres of the 3,800 acres which they have acquired. The supply is pumped from Dallas Creek.

12. Economic Conditions

a. Transportation Facilities

The major access to the project area is provided by U.S. Highway 50 which extends between Delta and Montrose and connects the

Figure B-13--Scenic view of the San Juan Mountains. Mount Sneffels stands out as the highest peak in the area.

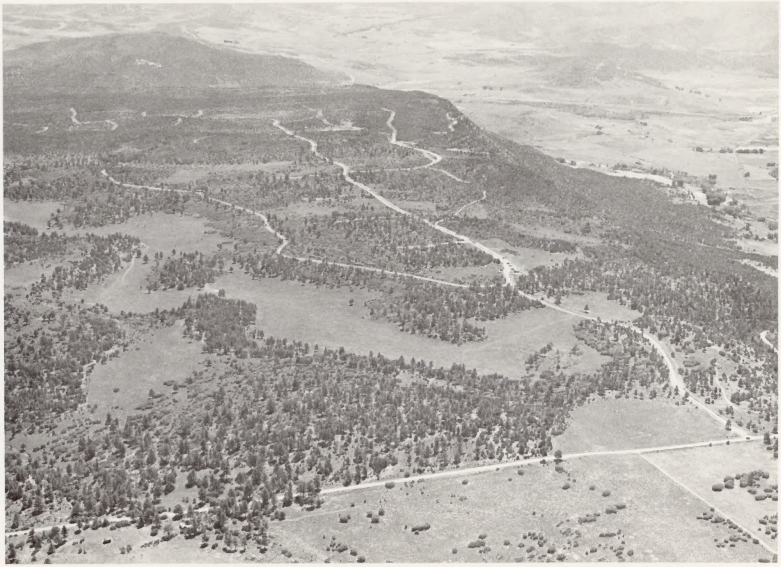


Figure B-14--Aerial view of Loghill Village site showing roads and construction activities for the first stage of development.

project area with Interstate 70 at Grand Junction. The area south of Montrose is served by U.S. Highway 550 which provides access through the scenic San Juan Mountain Range, including the segment between Ouray and Silverton known as the Million Dollar Highway. State Highway 62 and county roads branch from the main highways. The Denver and Rio Grande Railroad presently serves the three counties, but, as discussed in Chapter A, the company has received permission to abandon the spur line between Montrose to Ridgway. Continental Trailways provides bus service to the area. Commercial air service is provided by Frontier Airlines with daily flights in and out of Montrose.

b. Industry

Agriculture is the primary industry in the project area, but manufacturing and light industry are gaining in importance. Recreation and tourism are also important to the area. Just outside of the project area, but close enough to affect the economy, there is considerable mining activity.

Livestock production comprises the major part of the agriculture in the area. Most of the higher lands on Log Hill Mesa, in the Dallas Creek area, and above the canals in the Colona area and the Uncompahgre Project Serviceable area are used for native grazing. Irrigated lands in all of these areas are used for the production of hay, small grains, and pasture for livestock feeds. In addition to the livestock feeds, some of the lower-lying lands in the Colona area and Uncompahgre Project area are devoted to cash crops such as corn, sugar beets, onions, dry beans, potatoes, malting barley, and fruits.(22)

Manufacturing and industrial firms now established in the area are a sugar refinery, a candy factory, a fiberglass plant, a mobile home plant, food processing plants, and lumber mills. The number of manufacturing firms in the area increased 31 percent between 1967 and 1973, with most of the increase in Montrose County. Wholesale and retail trade also showed increases of 39 and 17 percent, respectively, from 1967 to 1972.

Recreation, tourism, hunting, and fishing are important contributors to the local economy. Visitors to regional recreation sites as well as cross country tourists obtain gas, food, and lodging in the area. Sportsmen provide a market for a full range of supplies and equipment.

Base and precious metals are mined in the Uncompahgre watershed south of the project area. Production is considerably less than that of early development days when economic conditions encouraged mining operations. Recent price increases, however, are again stimulating development. Gold, silver, lead, and zinc are produced, with lead and zinc leading in value of production.

Coal is a major resource in the region with approximately 900,000 tons produced in the three-county area in 1974, and stepped-up production in the immediate future is being predicted by industry

leaders. The production is largely in Montrose and Delta Counties outside of the project area, but it has an important effect on the economy of the area. There are extensive, undeveloped coal deposits on Cimarron Ridge in Montrose County, and private industry is showing an interest in developing this resource.

Sand and gravel are produced at several points along the Uncompahgre River. The production is significant to the local economy, with the value approaching the value of coal produced.

Activities of the Bureau of Reclamation in the Montrose area have stimulated the local economy in recent years. These activities include construction of the Bostwick Park Project and the Curecanti Unit as well as the establishment of the Power Operations Center for the Colorado River Storage Project in Montrose.

c. Employment and Income

Employment and income figures for the project area are available only on a county-wide basis. The population of the entire three-county region contributes to the project area's labor force although nearly 35 percent of the total population lies outside the project area in Montrose and Delta Counties.

The total labor force for the three-county area totaled 14,400 in 1973, an increase of 3 percent over 1970. Unemployment during this period decreased from 5 to 4.2 percent of the labor force, with the decrease attributed to the opening of the Russell Stover Candy Company and other small industrial plants as well as construction of the Curecanti Unit of the Colorado River Storage Project. The 4.2 percent unemployment rate falls between the State and National averages for the same year of 3.4 and 4.9 percent, respectively. The following table summarizes the employment figures for the three counties for 1970 and 1973.

Table B-11
County-wide employment 1970 and 1973 1/

	Total labor force		Total employment		Percent unemployed	
County	1970	1973	1970	1973	1970	1973
Delta	5,912	5,975	5,572	5,734	5.8	4.0
Montrose	7,347	7,595	7,004	7,245	4.7	4.6
Ouray	692	831	681	810	1.6	2.5
Total	13,951	14,401	13,257	13,789	5.0	4.2

1/ From State of Colorado Division of Employment Research and Analysis, County Labor Force Estimates Annual Average, 1973.

The average per capita income in the Tri-County area in 1970 was approximately $2,300 which was about 74 percent of the State average of $3,100. Average family income in each of the three counties was considerably below the State average. The percentage of families in the Tri-County area under the poverty level was considerably higher than that for the State. Income details by county are shown on the following table.

Figure B-15--Recently completed plant of Russell Stover Candy Company at Montrose.

Table B-12
County-wide family income[1/]

Item	Delta County	Montrose County	Ouray County	State of Colorado
Per capita personal income	$2,195	$2,375	$2,395	$3,118
Average family income	7,204	8,422	7,573	10,875
Percent of families under $5,000	41.7	30.3	18.9	19.1
Percent of families under poverty level[2/]	19.4	15.5	11.4	9.1

1/ From 1970 U.S. Census data.
2/ Proverty level threshold in 1970 for a nonfarm family of four headed by a male was 3,745.

d. Economics Without the Dallas Creek Project

It is anticipated that the project area would continue to grow and develop economically in the future without the Dallas Creek Project, even though additional water for either agricultural or municipal and industrial uses would probably be more expensive to purchase. The amount of land under irrigation would not increase, but the quality of agricultural production would continue to improve with improved farming methods and technology. Some reduction in farming might even result from conversion of irrigation water to municipal and industrial uses. Industrial development is expected to continue but possibly at a slower pace because of the limited supply of water. The population would continue to increase as it has in recent years. The various municipalities and rural water companies would seek to find other water supplies to meet their needs.

13. Social Conditions

The social conditions of the Uncompahgre Basin reflect the economic trend of increased industrial, business, and mining activity in the region. After several years of depressed conditions throughout most of the basin, an economic acceleration began about 1968 and is still in progress. This acceleration has caused population growth and forced expansion of some institutions and agencies.

a. Population

The 1972 population of the project area was estimated at about 25,000, divided almost equally between incorporated communities and rural areas. The area had only a 6.9 percent population growth between 1960 and 1970 (less than 1 percent a year) with the only significant growth occurring in the city of Montrose. From 1970 to 1972, however, the population increased by an estimated 9.4 percent (nearly 5 percent per year). Factors that stimulated this growth were increased industrial activity, desirability of the area for retirement living, and establishment or enlargement of government offices. Population trends are indicated in Table B-13.

Table B-13
Uncompahgre Basin population trend1/

	1960	1970	1972	Percent increase 1960-70	1970-72	1960-72
Cities or towns						
Montrose	5,044	6,496	7,730	28.8	19.0	53.3
Delta	3,832	3,694	3,950	-3.6	6.9	3.1
Olathe	773	756	880	-2.2	16.4	13.8
Ridgway	254	262	300	3.1	14.5	18.1
Subtotal	9,903	11,208	12,860	13.2	14.7	29.9
Rural areas						
Subtotal	11,053	11,204	11,650	1.4	4.0	5.4
Total	20,956	22,412	24,510	6.9	9.4	17.0

1/ Figures shown for 1960 and 1970 are from U.S. Census data whereas 1972 figures were estimated by Bureau of Reclamation from utility services in the area.

The population density in the three-county area is only about nine people per square mile, compared with 21.3 for the State as a whole. Although the sex distribution is approximately equal, the age distribution reveals a predominance of middle-age and retirement-age groups. The age distribution reflects a low birth rate and outmigration of high school and post high school youth in search of employment opportunities. The only significant ethnic minority group is Spanish-American which comprises about 12 percent of the three-county population.

When the Bureau of Reclamation began its studies for the projected population of the project area, two completed studies were available for consultation--the Morcan study and the OBERS. The Morcan Engineering Company of Delta, Colo., had been commissioned by the Tri-County Water Conservancy District to make a study of the expected population growth for the general project area. Its projections, which were completed in 1967, were based on population statistics for the years 1940 through 1960. Morcan's 1970 projection for the Tri-County Water Conservancy District (20,500) was more than 10 percent less than the 23,000 shown for the area in the 1970 census. It was felt that the base for its projections did not reflect the accelerated growth which has occurred since 1965. The OBERS study was a result of joint efforts by the U.S. Department of Commerce's Bureau of Economic Analysis (OBE) and the U.S. Department of Agriculture's Economic Research Service (ERS). This study was released in 1972. The OBERS study made no projections for the precise project area. The project area was included partially in the Colorado-Dolores subarea which also included Grand County, Utah, and partially in the Gunnison subarea which also included such mountainous regions as Hinsdale County, Colo. It was felt because the economic conditions of the Dallas Creek Project area differed so widely from the mining and sparse ranching areas which make up most of the two subareas that the OBERS projections for these subareas would not be applicable to the Dallas Creek Project area.

Based upon information from utility companies which serve the project area, both the Morcan and OBERS studies strongly underestimated the actual growth which has been taking place in the project area in recent years. Data on customer growth for Rocky Mountain Natural Gas, Western Colorado Power, and Mountain States Telephone Companies were examined for the period 1968-72. The mean of these growth rates and the Tri-County Water Conservancy District's projections, which were based on community leaders' estimates, indicates an annual growth rate of 5 percent. This growth rate more accurately reflects what has happened in the project area and, consequently, has been used as a basis for population projections through the year 2000. The population projections for the community of Loghill Village were made by the developers, Western Community Planners. The compiled projections indicate that by the year 2000 the population of the project area will be almost 107,500. The projections are summarized on the table below.

Table B-14
Population projections of the Dallas Creek Project area

	1980	1990	2000
Uncompahgre Valley			
Cities and towns			
Montrose	11,300	19,500	33,800
Delta	5,900	9,500	15,200
Olathe	1,100	1,700	2,500
Ridgway	400	700	1,200
Rural areas	16,950	26,000	40,300
Subtotal	35,650	57,400	93,000
Log Hill Mesa			
Loghill Village	1,000	5,000	12,000
Rural areas	550	1,400	2,500
Subtotal	1,550	6,400	14,500
Total	37,200	63,800	107,500

b. Housing

According to the Census of Housing in 1970, there were 13,193 housing units, including mobile homes, in the three-county area.(2) Of this number, 96 percent were considered year-round residences and 64 percent were owner occupied. Most of the units were older homes, with more than half of them constructed before 1940. Only 9 percent of the housing units were built between 1965 and 1970. Approximately 1,222 units lacked part or all of the normal plumbing facilities. Details of the housing inventory are shown in Table B-15.

Table B-15
County-wide housing inventory--1970(9)

	Delta County	Montrose County	Ouray County	Total	Percent of total
Total housing units	6,186	6,208	799	13,193	100
Year-round housing units	5,875	6,147	682	12,704	96
Owner occupied	4,088	3,980	339	8,407	64
New (1965-70)	427	673	46	1,146	9
Old (1939 or earlier)	3,395	3,029	513	6,937	53
Lacking part or all plumbing	516	611	95	1,222	9

Construction of new housing units has been increasing, and present growth indicators point to a continuation of this trend. Between 1970 and 1972 building permits for 345 new units were issued, with 223 of these scheduled for Montrose County. Only 17 percent of these permits were issued in 1970, while nearly 60 percent were approved in 1972. The new construction consisted of 214 single family and 131 multiple unit dwellings. The county break-down of the new units is shown in Table B-16.

Table B-16
County-wide housing units given building permits--1970-72 1/

	1970	1971	1972	Total
Delta County				
Single family	20	26	41	87
Duplex and apartment unit	6		2	8
Montrose County				
Single family	28	36	52	116
Duplex and apartment unit		15	92	107
Ouray County				
Single family	4	4	3	11
Duplex and apartment unit		4	12	12
Total units	58	85	202	345
Percent	17	24	59	100

1/ Colorado Division of Planning, Demographic Section, Denver.

Conversations with city planning agencies in the towns of Montrose, Ouray, and Ridgway have established that basically tight housing situations exist in these communities. Housing facilities are essentially fully occupied, with low and moderately priced rentals being especially scarce. An energetic construction effort in Montrose is doing a fair job of satisfying the housing need, but a surplus of housing units cannot be said to exist there. Construction in Ridgway and Ouray is primarily of a renovation and replacement nature.

Figure B-16--A new housing development near Montrose.

CHAPTER C

ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

c. Education

In the 1973-74 school year, there were 37 schools in Montrose, Delta, and Ouray Counties, with a combined fall enrollment of 9,337 students. These three counties produced 615 graduates with a range in expenditures per pupil of $1,043 to $1,443. The pupil-teacher ratio varied from a low of 12.2 to a high of 22.5. The annual dropout rate ranged from 2 to 6.7 percent. Details of the expenditures and membership for the three-county area as they compare with the entire State are shown in the following table.

Table B-17
County-wide selected educational information--1973-74(6)

	Delta County	Montrose County	Ouray County	State of Colorado
Number of schools	13	20	4	1,232
Fall membership	3,832	5,238	267	573,154
Number of graduates	297	300	18	34,353
Pupil-teacher ratio	22.5	20.2	12.2	21.3
Expenditure per pupil (1974)	$1,043	$1,140	$1,443	$1,230
Annual dropout rate (percent)	6.7	3.6	.2	4.8

Delta County officials are concerned with the gravity of the school capacity situation in the county, stating that most county schools there are operating either at or beyond student capacity; moreover, there are no approved classroom construction programs to alleviate the situation in the near future. In the town of Delta, there are two elementary schools, a junior high school, and a senior high school, with a combined 1975 enrollment of 1,971 pupils. The school situation in the town of Delta is no better than it is for the entire county as school enrollment now generally exceeds capacity.

Officials of Montrose County indicate that county school enrollments there are somewhat below capacity levels. The classroom capacity situation in the town of Montrose has been substantially improved by the construction of an additional junior high school and enlargement of two elementary schools. In and around the town of Montrose there is a total of nine elementary schools, two junior high schools, and one senior high school, with a combined 1975 enrollment of 3,578 students. Olathe's schools consist of an elementary school, a junior high school and a senior high school with a below capacity enrollment of 1,814 pupils in 1975.

Presently Ouray County schools are not at or near capacity levels. The county school system consists of an elementary school and a high school in Ouray (combined 1975 enrollment of 207 pupils) and an elementary school and a new high school in Ridgway (combined 1975 enrollment 170 students).

Higher educational opportunities are available to project area residents at four-year colleges located in Grand Junction, Gunnison, and Durango, all within 110 miles of Montrose.

d. Health Care Facilities

A wide range of health care facilities and services is available to the people of the Uncompahgre Basin. General and some specialized services are offered in the immediate area and are augmented by additional services in nearby Grand Junction, which is about 2 hours driving time from the farthest point in the project area. Delta and Montrose each have a small but modern hospital. The Montrose hospital is new, with triple the bed capacity of the old facility. Three large, fully staffed hospitals are located in Grand Junction. Details of health facilities and manpower in the three-county area are shown below.

Table B-18
County-wide health facilities and manpower--1971(7)

	Delta County		Montrose County		Ouray County		State of Colorado
	Number	Rate*	Number	Rate*	Number	Rate*	Rate*
Hospitals	1		1				
Licensed bed capacity	28	1.8	75	4.1			1/6.1
Long-term facilities	4		3				
Licensed bed capacity	215	14.2	236	13.0			1/10.2
Physicians (M.D. and D.O.)	14	.9	16	.9	1	0.6	2/1.0
Dentists	7	.5	7	.4			2/.5
Registered nurses	32	2.1	50	2.7	3	1.9	2/3.0
Ambulance vehicles	5		4		2		

* Per 1,000 population.

1/ Existing rates.

2/ Recommended rates adopted by Comprehensive Health Program, Colorado Department of Health.

e. Public Welfare

In 1970-71 the number of welfare recipients in Delta and Montrose Counties amounted to approximately 16 and 12 percent of the population, respectively. This is considerably higher than the State average of 9 percent for the same period. The number on welfare in Ouray County, however, was about 7.4 percent, which was below the State average. Total numbers on welfare are shown on the following page.

Table B-19
County-wide welfare recipients--1970-71[13]

	Delta County	Montrose County	Ouray County	State of Colorado
Total population	15,275	18,249	1,564	2,264,337
Number on welfare	2,431	2,162	116	211,095
Percent on welfare	15.9	11.7	7.4	9.3

f. Fire and Police Protection

Except for the city of Montrose, the entire project area is served by completely volunteer fire departments. The Montrose department is staffed by 5 full-time salaried firemen and 15 volunteers.

The cities of Delta and Montrose and the towns of Olathe and Ridgway have established municipal police departments. Each of the three counties has a sheriff's department serving all areas of the county. The Colorado State Patrol maintains offices in Delta and Montrose, and the Federal Bureau of Investigation has a staff in Grand Junction.

14. Needs of the Area

a. General

The Uncompahgre Basin is rich in characteristics that make it a desirable place to live, but one of these characteristics, the low annual precipitation, is also one of the basin's greatest problems. The lack of adequate water supplies is a major problem throughout the project area. It threatens future residential expansion and industrial development and is a hindrance to realization of the full agricultural potential.

b. Municipal and Industrial Water

Practically all of the potential Dallas Creek Project area has inadequate municipal and industrial water supplies. Either the supply is short and uncertain, the storage and distribution facilities limited, or the quality of water poor. The problems are most severe in the cities of Montrose and Delta, the towns of Olathe and Ridgway, and the rural areas served by the Menoken and Chipeta Water Companies. Water users in these areas are now dependent for almost half of their water on an interim supply obtained by the Tri-County Water Conservancy District from the Uncompahgre Valley Water Users Association. The water is made available only on a temporary basis until the Dallas Creek Project is constructed. An estimated 3,000 rural families still depend on wells and cisterns for their domestic water supply.

In addition to the shortages now existing and which will intensify in the future, the water supply problems are compounded by projected growth which indicates an increasing need for additional municipal and industrial water beginning immediately and continuing to

the year 2000. Projected requirements for water in Uncompahgre Valley in addition to the firm supplies presently available are shown below.

Table B-20
Projected municipal and industrial water needs--Uncompahgre Valley
(Unit--acre-feet)

	1980	1990	2000
Municipal uses			
Cities and towns			
Montrose	2,690	5,440	10,250
Delta	740	1,950	3,870
Olathe	370	570	840
Ridgway	130	240	400
Rural areas	3,420	5,240	8,120
Subtotal	7,350	13,440	23,480
Industrial uses	1,500	3,000	5,500
Total	8,850	16,440	28,980

Projected needs for water for future populations reflect the arid climate of the area. Municipal uses in the Uncompahgre Valley have been based on per capita rates of use of 300 gallons a day in the cities and towns and 180 gallons a day in the rural areas. The rate for cities and towns is for all uses, including lawn and garden watering and other outdoor residential uses as well as commercial and municipal uses. The rate calculated for the rural areas is based on the assumption that the residents would have separate sources of water for irrigation, including irrigation of lawns and gardens, but would need some winter livestock water. Industrial requirements were estimated on the basis of inquiries received by local governments and chambers of commerce from firms seeking locations for plants.

In computing the requirements for water for municipal and industrial use, only 2,350 acre-feet of the water presently available to the area was considered a firm supply. This includes about 1,110 acre-feet from Cimarron River for Montrose and 1,240 acre-feet from Grand Mesa for the city of Delta. It cannot be assumed that the other existing supplies, including the interim supply to the Tri-County Water Conservancy District, would be permanently available because of inadequacies in present facilities, deficiencies in the quality of some supplies, and prior rights for some of the water.

Independent of Bureau of Reclamation projections, the developers of Loghill Village have estimated future water needs for their development to be 2,000 acre-feet annually in addition to their existing supply. They have requested that the Dallas Creek Project supply that need.

Figure B-17--An aerial view of Montrose, which faces critical water supply shortages.

c. Irrigation

Additional and more dependable irrigation supplies are needed in the project area. Low rainfall has resulted in frequent crop failures on dry farm lands on Log Hill Mesa, while crop yields on presently irrigated lands throughout the area are limited by an inadequacy of late-season irrigation supplies which are needed to bring the crops to maturity. The limited yields are particularly critical in view of the fact that there is insufficient grazing land available to supply the needs of the livestock industry, thus increasing the demand for farm-grown feed. Shortages in the Uncompahgre Serviceable area result from the limited capacities of the Gunnison Tunnel and South Canal, as well as general deterioration of canals and structures throughout the distribution system. Shortages in the other areas result from the lack of storage to carry over spring runoff for use in the dry late summer months.

d. Other Needs

As previously discussed, the Colorado Comprehensive Outdoor Recreation Plan(8) indicates there are unsatisfied demands for several outdoor recreation activities in the vicinity of the project, such as swimming, boating, hunting, and picnicking. In addition there are unsatisfied demands for stream fishing. The fishing opportunities in the area, as throughout much of Colorado, are limited by the growing restrictions on public access to the streams. Opportunities in the Uncompahgre River are also curtailed by poor water quality.

Control of flood flows on the Uncompahgre River is needed to reduce damage that now occurs almost yearly during the spring snowmelt period and from heavy rainstorms which usually occur in late summer. The floods damage roads, bridges, irrigation facilities and farm land, and residential and commercial property.

15. Agricultural Chemicals

Insecticides are extensively used in the Uncompahgre Basin, with the specific chemical and timing of application dependent upon the crop or animal being treated and the insect to be controlled. Owing to the wide range of crops and livestock produced in the area, the lists of insect problems and the chemicals used to control them are long.

Most of the insecticides used in the area are highly toxic but of short residual nature. Parathion is widely used as a spray to control weevil, lygus bugs, and aphids on alfalfa; web worms and aphids on sugar beets; thrips on onions; Mexican bean beetles; and aphids and green bugs on small grains. Other low residual chemicals commonly used as sprays include methoxychlor, guthion, benlate, sulphur, benzene hexachloride, karathane, toxaphene, diazanon, and omite.

Three chemicals used in the area that are considered medium to highly residual are Thimet, disyston, and zygon. Thimet and disyston are insecticides applied to the soil. Thimet is used to control nematodes, cutworms, and rootworms, and disyston is a systemic agent for a number of insects. Zygon is used as a spray to control spider mites.

Insecticides used by the dairy and livestock industries include lindane, diazanon, dibrom, methoxychlor, vapona, and Korlan. Vapona and Korlan are considered to be moderately residual.

The most common herbicide used in the area is 2, 4-D, but some use is also made of Dow General, Dinoseb, Parquate, and amitrole in specialized circumstances. Tordon is used to a limited degree as a soil sterilant. Of these herbicides only Tordon is considered highly residual.

The most common fertilizers used in the area are compounds of nitrogen and phosphorus. Potassium and trace elements are not widely used.

The use of chemicals by agriculture is certain to continue in the future and will probably increase somewhat. The present attitude of the Nation would indicate that new chemicals will be developed that will be safer as well as more effective.

16. Historical and Archaeological Sites

The Ute Memorial site, commemorating the last days of the Ute Indians in Western Colorado, is the only site of historic importance in the Dallas Creek Project area listed on the National Register of Historic Places as published in the Federal Register of February 10, 1976.(34) No other sites were listed in the monthly supplements to that register through July 1976. The Ute Memorial site is located 2 miles south of Montrose and approximately 15 miles north of the Ridgway Reservoir site.

Although not listed in the National Register, the sites of the old town of Dallas, Fort Crawford, and the Ute Indian Agency at Colona are of local historic interest. The Dallas town site is located upstream from the upper end of the Ridgway Reservoir Basin, outside of the proposed take line. There is little remaining evidence of the town or of its structures, and the project will not affect the site. Dallas was founded in 1887 as a freight center on the Denver and Rio Grande Railroad. When the present town of Ridgway was built in 1890, the town began to dwindle from its peak population of more than 200. In 1913 the town burned and was never rebuilt.(17)

The site of Fort Crawford lies between Montrose and Colona. The fort was founded in 1880 as a result of the Meeker Massacre, an Indian uprising in 1879. It was abandoned in 1890 and all buildings were subsequently sold and removed to local ranches. The community of Colona to the south was the site of an Indian agency from 1875 until the Indians were expatriated from Colorado in 1881.(19)

Figure B-18--Onion field west of Olathe within the Uncompahgre Project Serviceable area.

The University of Colorado Archaeological Research Center made an archaeological survey of the Ridgway Reservoir site and the relocation route of U.S. Highway 550 in 1973. The survey team discovered eight archaeological sites consisting of one camp site or tepee ring and seven chipping sites. The tepee ring consisted of a group of stones oriented in a circle, presumably arranged to hold down the edges of a tepee. No evidence of subsurface or buried cultural deposits was found at any of the sites. It is not possible to assign the cultural materials found to any definite culture or group. Although some of the sites might possibly be of the Ute origin, there is no way of identifying them.

The Research Center stated that no significant archaeological resources were found within the project area that would be destroyed as a result of construction or inundation. (See Attachment 5.) It concluded that further archaeological investigations of the area are not necessary.

C. ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

1. Introduction

Chapter C deals with the measurable or forecastable impacts that construction and operation of the Dallas Creek Project would or could have upon the immediate and surrounding environment. Every effort has been made to restrict the chapter to a logical and orderly presentation of fact. Opinion and value judgment have been avoided. It shall remain for the reader to consult his own set of values in determining the desirability of the changes that would result with the project.

Plans have been made to mitigate or offset adverse impacts of the project described in this section and these are discussed in Chapter D. Certain impacts described in this section would not be mitigated and these are listed in Chapter E.

2. Water Quality and Streamflow

a. Construction Activity

During the construction of Ridgway Dam, impacts upon water quality would be expected to occur in the Uncompahgre River. Stream turbidity and sedimentation would be increased as a result of construction activities and stream bypasses. Other activities which would increase turbidity are excavation operations at the material source areas, highway construction, and concrete aggregate processing.

Since the Uncompahgre River already has periodically high turbidity levels and resultantly poor fish habitat, the overall impact of construction activity on the aquatic environment would generally be less than on a clearer, blue ribbon trout stream. Periodic increases in turbidity levels would probably extend over the entire construction period and would act to somewhat reduce invertebrate and fish populations in the river. However, as game fish populations in the Uncompahgre are presently depressed, overall impacts of construction activity on the sport fishery are predicted to be small.

Construction activity is not expected to measurably impact or change the basic chemical water quality constituents of the Uncompahgre River.

b. Project Features and Operation

(1) Uncompahgre River

Water quality downstream from Ridgway Reservoir is predicted to improve following project construction. The reservoir would

function as a sink or settling area for the various metals and sediments presently found in the project waters. Consequently, the quality of water for municipal and industrial use in the Uncompahgre River would be better than it is presently. Because of the many variables involved, however, no quantified estimate as to the degree of improvement can be made. Whether or not an exchange agreement is made between the Tri-County Water Conservancy District and the Uncompahgre Water Users Association for project use of water imported from the Gunnison River to the South Canal, the water would have to be treated by the Tri-County Water Conservancy District or the municipalities involved to meet drinking water standards. Water from the Uncompahgre River, however, would have to undergo more treatment than the Gunnison River water to meet the standards.

The dual outlets in the dam would provide a means for water quality selection and thus reduce the range of water temperatures. Whereas the water temperatures in the river in the vicinity of Ridgway Reservoir site now range from about 32° to 65° F., they would be expected to range between 39° and 65° F. below the reservoir with reservoir operation. The average annual temperature is expected to be in the lower 50's. As has been detailed in Table A-2 of this statement, the fluctuation of the river below the reservoir would be reduced as a result of regulated releases. Of particular significance is the fact that minimum daily winter flows, critical requirements for fishery maintenance, would be increased.

Reduced oxygen concentrations and an associated buildup of various toxic chemicals sometimes occur in streamflows below reservoirs at which a single outlet releases water from the oxygen-depleted water strata deep in the reservoir. By permitting the deeper strata of water to be mixed and diluted with the oxygen-rich upper strata, the dual outlets at Ridgway Dam would act to prevent or lessen releases of reservoir water with reduced oxygen and/or excessive chemical concentrations.

Gas saturation of water can result from the releases of the gas supersaturated lower strata in the reservoir, or the outlets can mechanically contribute to add gas to the released water through pressure changes and air entrapment. It is not expected, however, that the gas saturation level would be excessive in the reservoir's lower strata, and the outlet works are designed to minimize any mechanical buildup of gas in waters released through the outlets. The glory-hole type spillway as it would be designed and used at Ridgway Reservoir has not been found to have a gas saturation problem associated with it.

Snowmelt floods on the Uncompahgre River would be controlled with seasonal operation of Ridgway Reservoir storage based on forecasts of snowmelt floods. Although no operational measures are planned for control of rain floods, such floods would be partially controlled by Ridgway Reservoir since the reservoir would be drawn down to only partial capacity late in the irrigation season when the rain storms normally occur.

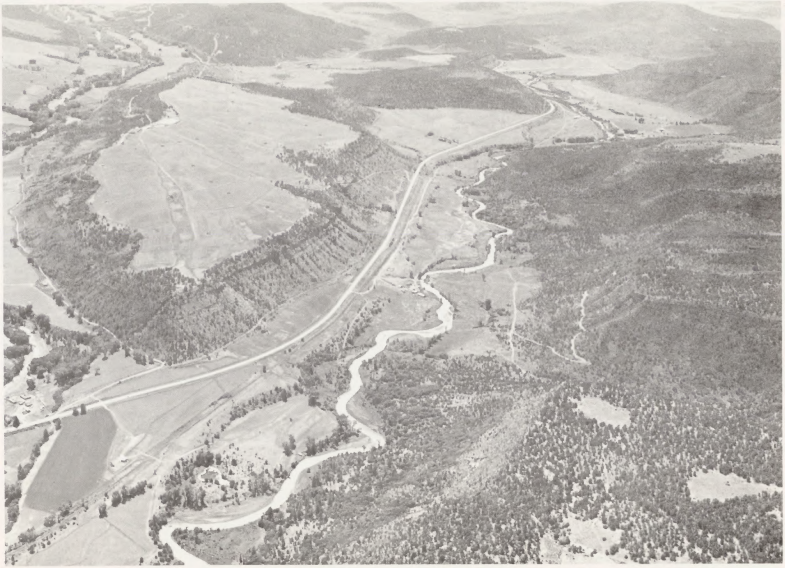


Figure C-1--Aerial view of Ridgway Dam and Reservoir site.

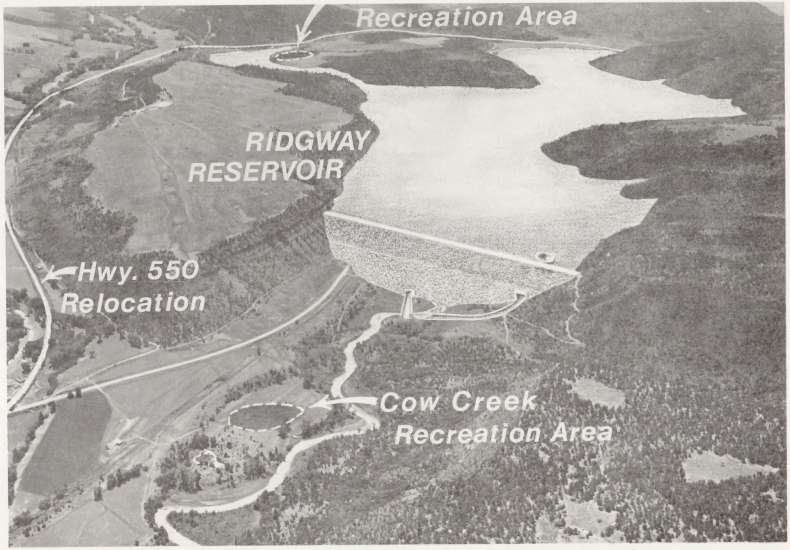


Figure C-2--Aerial view of Ridgway Reservoir site with artist's conception of dam and reservoir.

The streamflows in the Uncompahgre, Gunnison, and Colorado Rivers would be reduced by an average of 17,100 acre-feet annually with project operation. It is estimated that the salt-concentration effects of the project streamflow depletions would increase the salinity concentration of the Colorado River at Imperial Dam by an estimated 1.8 mg/l. This increase in concentration amounts to approximately 0.2 percent of the total salt concentration at Imperial Dam, which was 879 mg/l in 1972. The return flows of project water to the Uncompahgre River would increase the salt load at Imperial Dam by 9,800 tons or approximately 0.9 mg/l. This increase represents 0.1 percent of the total salt concentration at Imperial Dam in 1972. The reduced flows and increased salt concentrations would slightly lower the quality of stream habitat for aquatic life, and the quality of the water for irrigation and municipal use would be decreased in the lower Uncompahgre, Gunnison, and Colorado Rivers. The salinity projections do not consider the effects of various salinity control measures which are now being implemented or planned in the Upper Colorado River Basin to permit the Upper Basin States to continue water development and beneficial use of their compact allocated shares of the flows of the Colorado River. Chapter D further discusses these measures.

Since all of the lands receiving project water are presently irrigated and heavily cropped, there should not be a significant increase in the use of fertilizers; consequently, it is anticipated no significant increase in the nutrient levels in the area's surface waters attributable to fertilizer constituents would occur. For the same basic reason, the project would not increase the need for agricultural pesticides or herbicides; therefore, no significant change in the area's water quality attributable to these chemicals is anticipated.

(2) Ridgway Reservoir

Water quality of the proposed Ridgway Reservoir is predicted to be of moderate quality for biological productivity. It is expected that, because of the high alkalinity and hardness of the water, the presence of sulfates, the settling action of the reservoir, and the antagonistic effects of a number of the chemicals and elements, there would not be a build-up of toxic heavy metals or other toxic materials in the reservoir which would limit biological productivity.

Some, if not most, of the suspended sediment entering Ridgway Reservoir would settle out within the reservoir basin. It is believed that enough of the suspended material would settle out so that the reservoir would have moderate light penetration and, consequently, moderate biological production. The waters of the reservoir would tend to be murky during spring runoff and after heavy rainstorms.

3. Fisheries and Aquatic Productivity

a. Uncompahgre River and Dallas Creek

Approximately 4.6 miles of aquatic river habitat would be lost on the Uncompahgre River. The aquatic plant and invertebrate

animal species associated with the stream environment would be replaced by lentic or open water species of phytoplankton and zooplankton.

A very limited number of game fish would be affected by construction of Ridgway Reservoir as the Uncompahgre River in the vicinity of the reservoir is presently rated a poor sport fishery. The Fish and Wildlife Service has estimated an annual loss of 450 man-days of stream fishing in the Uncompahgre River with the construction of Ridgway Reservoir.(10)

The aquatic productivity of the Uncompahgre River downstream of Ridgway Dam would be improved at least to the Montrose and Delta Canal, a distance of 12 miles, with operation of Ridgway Reservoir. This improved aquatic productivity would result because of the cleaner, more desirable river substrate which would develop after the reservoir release and spill waters had cleansed and scoured away some of the sediment and silt in the river gravel. Also, it is expected that the reservoir water released would be of an overall higher quality than presently exists as discussed in Section C-2b(1). With higher quality waters and cleaner substrate, the aquatic invertebrate production would increase and it is expected that the more desirable trout food items such as mayflies, stoneflies, and caddisflies would become even more prevalent.

Fisherman use would be increased by 6,000 man-days between Ridgway Dam and the Montrose and Delta Canal with project operations. This increased fisherman use is based on provision of minimum streamflows, moderation of water temperatures, and the acquisition of 12 miles of stream fishing easements on both sides of the Uncompahgre River as discussed in Section A-5b and D-6.

Dallas Creek is now sometimes dewatered in sections from its forks to its confluence with the Uncompahgre River, a total distance of 6 miles. With project development it would be further depleted and more often dewatered as a result of diversions made from the stream and its tributaries for supplemental irrigation in the Dallas Creek area in exchange for reservoir releases to meet downstream uses. The reductions in streamflow would be most severe in the portions of the stream below existing points of diversion. The potential for game fishing would be further reduced, but the loss would not be severe since the fishing is presently of low quality. A loss of about 70 man-days of fishing would be expected on Dallas Creek and its tributaries. Table C-1 presents anticipated pre- and post-project fishing days.

b. Ridgway Reservoir

Biological productivity of phytoplankton and zooplankton in Ridgway Reservoir is expected to be only moderate. The generally poor quality of water supply, heavily influenced by periods of highly turbid inflow, would tend to limit fish food production and also restrict fishery management of this reservoir, especially for top of the food

chain species such as trout. Also, since trout are generally sight feeders, they would be handicapped by frequent or prolonged periods of turbidity.

In Ridgway Reservoir the aquatic species associated with the stream environment would be replaced by lentic or open water species of phytoplankton and zooplankton. These species would form the basic links in the biological food chain in the reservoir. The phytoplankton are the first step in the food chain and would be the first biological life to incorporate or concentrate any heavy metals or toxic chemicals carried into the reservoir by the Uncompahgre River. However, it is not expected that toxicants would become concentrated to such a degree in the phytoplankton and zooplankton that biological productivity would be drastically impaired. Based upon algae growth potential tests of the source waters of Ridgway Reservoir conducted by the Bureau of Reclamation in 1976, the levels of heavy metals do not appear to inhibit algae growth.

The primary factor which would tend to limit biological productivity in Ridgway Reservoir is turbidity which could tend to limit light penetration and thus, in turn, photosynthesis and algae production. This murkiness in the reservoir would occur during spring runoff and thus might tend to limit biological productivity at that time of year.

Although nutrients such as nitrates are present in increasing concentrations in downstream flows of the Uncompahgre River, the concentrations of all nutrients when taken in conjunction with other characteristics of the water at the proposed Ridgway Reservoir site make it very unlikely that the reservoir would encounter problems of excessive eutrophication or the over-enrichment of water. Factors which would tend to limit eutrophication in the reservoir include the relatively cold temperature of the water, the turbidity of the water which would limit light penetration to a degree, the limited nutrients in the water, and the fact that some nutrients such as phosphate would be unavailable for biological productivity because of the high alkalinity and pH characteristics of the water.

Based upon the relatively low quality of water in Ridgway Reservoir, the Fish and Wildlife Service has predicted that catchable trout would have to be stocked to maintain a reservoir fishery. However, the cost of stocking catchable trout is not predicted to be economically justified, and therefore no stocking and no fisherman use are planned for Ridgway Reservoir. Because of the size of the reservoir and the large minimum pool, public pressure could force some type of fish planting program for Ridgway Reservoir. If stocking did occur, it is projected that there would be an annual use of approximately 16,000 man-days of fishing in the reservoir.

Table C-1
Evaluation of man-days of fishing
with and without the project1/

Stream or reservoir	Without project	With project
Ridgway Reservoir		2/16,000
Uncompahgre River	2,450	8,450
Pleasant Valley Creek	35	35
East Fork of Dallas Creek	125	100
West Fork of Dallas Creek	65	50
Dallas Creek	130	100
Total	2,805	2/24,735

1/ Only the sections of streams affected by the project area are considered.

2/ These figures reflect the fishing use that would be realized if Ridgway Reservoir were stocked.

c. Endangered and Threatened Species

The project would not have a significant impact on either the State listed endangered humpback sucker or Federally listed endangered Colorado River squawfish which are reported to occur downstream of the project about 40 and 100 miles, respectively. Such factors as changes in flow and water quality in the Gunnison and Colorado Rivers are deemed to be nonexistent or so small as to be insignificant to the existence of these two species of fish. It is estimated that the average annual depletion of the Gunnison River would be less than 1 percent of the flow while such water quality factors as temperature and turbidity would not change at all in the Gunnison and Colorado Rivers. Salinity of the waters downstream of the project would increase slightly but overall relative salinity increases in the Gunnison and Colorado Rivers are expected to be minor. For instance, the extreme total dissolved solids recorded for the Gunnison River near the Grand Junction area where the Colorado River squawfish is reported to occur have frequently exceeded 1,000 mg/l while the estimated average increase in total dissolved solids as a result of the project is in the magnitude of 0.9 mg/l.

4. Terrestrial Wildlife and Vegetation

a. General

Wildlife and vegetation would be affected during both the construction and the operation of the project. Because of the close relationship between the plants and animals in the project area, the changes in both are discussed together in this section. Certain effects would be directly attributable to the project while others would be considered indirect effects resulting from independent developments utilizing the project water. The long-term effects of the project on wildlife would be primarily related to the project features and their operation and to secondary or indirect effects of the project on wildlife habitat and vegetation.

Important vegetative types that would be lost with project development are in the riparian areas which are vital to nongame wildlife and the sagebrush and pinon-juniper habitats that serve wintering mule deer and other species. Table C-2 illustrates the direct changes in wildlife habitat and vegetation that would result from the construction and operation of project features. Project irrigation development, however, would not significantly alter present habitat because all irrigation water would be used on presently irrigated lands. As habitats were changed or lost, the composition and numbers of wildlife using affected areas would change. Species dependent upon habitats altered by the project would undergo population reduction or displacement, and those species that favor habitats created by the project would multiply and remain. The following sections discuss the effects of the project on the animal groupings presented in Chapter B.

Table C-2
Long-term habitat and vegetation changes with Dallas Creek Project

Feature or activity	Present habitat	Acres involved	Habitat with project
Ridgway Reservoir	Irrigated crop land	484	Open water-foreshore
	Pinon-juniper-sagebrush	426	
	Riparian	70	
	Right-of-way (nonhabitat)	50	
Ridgway Reservoir right-of-way	Irrigated crop land	100	Allowed to revert to natural vegetation
	Pinon-juniper-sagebrush	2,534	No change except for construction of recreation areas; elimination of livestock grazing would enhance wildlife habitat
	Riparian	25	
	Right-of-way-farmstead	10	
Highway 550 relocation	Irrigated crop land	17	No habitat
	Pinon-juniper-sagebrush	14	
	Riparian	6	
	Irrigated crop land	44	Cleared, left to natural plant succession after initial development of grasses and forbs
	Pinon-juniper-sagebrush	34	
	Riparian	16	

b. Big Game Mammals

(1) Mule Deer

Construction activities would disturb deer in the vicinity of Ridgway Reservoir site and along the route of relocated U.S.

Highway 550, particularly in the late winter and spring months when the use of these areas has been traditionally the heaviest. Winter weather would limit construction activities, and the disturbance might not be sufficient to discourage deer use of the winter range. Patterns of spring use would certainly be altered, perhaps permanently, because of the long construction period.

The total reduction in critical deer winter range directly attributable to the project would amount to approximately 1,000 acres. This would include approximately 400 acres of pinon-juniper woodland and sagebrush inundated by Ridgway Reservoir, about 70 acres of brushland, pinon-juniper woodland, and riparian habitat eliminated by the Highway 550 relocation, and about 450 acres devoted to recreation developments. Deer populations are expected to be maintained at about their present levels, however, because of the 1,000 acres of wildlife habitat to be acquired and developed as a mitigation measure, the deer fencing along relocated U.S. Highway 550, and the improved quality of the land within the reservoir right-of-way for wildlife because of restricted use by livestock. The 1,000 acre wildlife area would be managed to increase its carrying capacity for deer, elk, and other wildlife species. Present uses such as livestock grazing would be restricted and the land would be transferred from private to public ownership. If the land acquired for the management unit were primarily dry land grazing land as anticipated, with perhaps very limited acreage in irrigated pasture, the acquisition would result in the loss of approximately 300 AUM's for livestock and an annual tax loss of approximately $500 to Ouray County.

Relocated Highway 550 would traverse critical winter range, and the kill rate from deer-automobile collisions could surpass the already high rate on the existing road. This problem could be particularly acute in winter and spring months. Deer fencing constructed as part of the project, however, would not only prevent an increase in deer-auto collisions but would also reduce the existing high kill rate on this section of highway. Similar fencing projects in Colorado have reduced the incidence of deer-auto collisions in those fenced areas by about 78 percent. It is consistent to think that similar reductions would take place along the fenced portion of relocated U.S. Highway 550. Therefore, based upon past deer-auto accident figures along the present highway and the potential for increased accident rates along the relocated highway, it has been estimated that at least 48 deer could be saved annually with the installation of the deer fencing. Moreover, and in as much as it has been estimated that on the average each automobile involved in one of these accidents sustains about $440 in damages, the potential for financial loss to travelers would also be greatly reduced. From a humane as well as financial standpoint, the savings would be multiplied many times over the life of the project fencing.

Secondary effects on deer would occur as human activity increased around Ridgway Reservoir. Recreation development would be expected to lead to more hiking, hunting, snowmobiling, and driving on public lands in the area. It is possible that the reservoir use could

Figure C-3--Mule deer foraging on a cultivated field in early spring near Colona.

stimulate recreational housing development, and this could force deer from wintering areas and eventually result in reduction in deer numbers.

(2) Elk

Only a minor loss of elk habitat would result from the development of the project. Elk wintering areas east of the Uncompahgre River should not be significantly affected, although the relocation of U.S. Highway 550 would run through sagebrush and grass lands occasionally used by the species. Ridgway Reservoir Basin currently supports occasional elk use, and this would be lost under project operation. The wildlife management area would replace this habitat, however, and no loss of elk should result from project development.

(3) Bighorn Sheep, Black Bear, and Mountain Lion

Bighorn sheep and black bear would not be affected by the project because project features would not impact their habitats, and secondary impacts should not extend to their habitat areas. So little is known about the movements of mountain lions in the area that an analysis of the project's effects on them is not possible. Their use of the Ridgway Reservoir area could be restricted by increased human activity.

c. Small Game Mammals

Present habitat in Ridgway Reservoir Basin and the associated recreation areas would be lost for all species of small game mammals. Elimination of livestock grazing within the right-of-way for the reservoir should benefit rabbits as grasses and forbs should increase and would help offset habitat loss. Squirrel and snowshoe hare populations should not be affected by the project because their coniferous forest and high elevation grass land habitats would not be altered.

d. Game Birds

(1) Waterfowl

Present waterfowl nesting habitat should not be significantly affected, but some nesting habitat would be created around Ridgway Reservoir. The reservoir would serve as a resting area for the birds in the spring and fall and could become a concentration area for waterfowl feeding in the lower Uncompahgre Valley. Increased waterfowl hunting opportunities could develop there. The Uncompahgre River below the reservoir would remain more ice-free than at present, and this would attract more ducks wintering along the river. Overall, even though there could be some increase in nesting birds, the increase should not be significant.

(2) Upland Game

Grouse species should not be affected by the project because their habitats are outside of the project impact area. Some marginal

pheasant habitat would be lost along the Uncompahgre River and the mouth of Cow Creek as a result of reservoir construction and recreational development. Furnishing domestic water to the Uncompahgre Valley would support a continuing municipal growth that converts farm land and wildlife habitat, including that of pheasant and quail, to residential uses. Mourning dove habitat consisting of pinon-juniper, riparian, and farm lands would be lost at Ridgway Reservoir. A flock of about 25 wild turkeys would be disturbed by construction activities along relocated Highway 550 within 1 mile of their wintering area. The disturbance could cause the flock to winter elsewhere, or it could essentially eliminate the flock.(32)

e. Furbearing Game

The furbearers in the project area would respond in different ways to the construction and operation of the project. Certain species, such as the marten, would be unaffected because their habitat would not be impacted. Other species such as the beaver and muskrat would be adversely affected because riparian habitat along the Uncompahgre River would be lost. The ring-tailed cat, a rarely seen nocturnal furbearer, would lose some of its rimrock habitat because of Ridgway Reservoir. So little is known about this species in the area, however, that absolute impacts cannot be determined. The weasel and gray fox would not be significantly affected by project development, but the mink population might be reduced because of the inundation of Ridgway Reservoir site.

f. Varmints

Varmint species would be displaced by Ridgway Reservoir and associated developments; consequently, populations would adjust to the carrying capacity of the land. Species such as the striped skunk which now utilize the reservoir basin would be reduced in number. Because of its adaptability to reservoir development, changes in river quality, and recreation development, the raccoon is the one species of varmint expected to increase with the project.

g. Raptors

Reservoir development would reduce raptor hunting ranges where riparian habitat now provides perching, roosting, and potential nesting areas for several raptor species including the red-tailed hawk and rough-legged hawk. This loss would affect populations, but the precise impact is difficult to quantify. The burrowing owl possibly nests in Ridgway Reservoir Basin and, if so, could be eliminated or displaced by the reservoir.

Infringement by relocated Highway 550 on riparian habitat along Cow Creek would elininate cottonwood trees used by raptors. The general area is visited by bald eagles in the winter, but it is uncertain that they would be permanently displaced by human activity. Winter habitat for the northern bald eagle would be lost at Ridgway Reservoir. Golden eagles would not be directly affected by the project. Hunting areas might be reduced, but potential increases in aquatic life and wintering waterfowl could create new food sources for the eagles.

h. Nongame Wildlife

Changes in nongame wildlife brought about by the project would be due primarily to habitat changes as listed in Table C-2. About 100 acres of cottonwood riparian habitat to be lost at Ridgway Reservoir and along Cow Creek is used heavily by nongame species (birds, mammals, amphibians, and reptiles) for shelter, nesting, and feeding. This habitat is of importance to a diversity of animal species and, although similar habitat exists along other waterways in the project area, any loss should be considered significant to wildlife.

i. Endangered Species

The Fish and Wildlife Service and the Colorado Division of Wildlife have not isolated any problems to be created for the peregrine falcon by the Dallas Creek Project. This falcon has been seen in the area, but there is no record of active nests. Potential hunting areas would be inundated at Ridgway Reservoir, but the loss of this feeding range is not expected to have a significant effect on the falcon population.

5. Vectors

The construction and operation of Ridgway Reservoir should not have any significant effect on vector populations. The shore gradients would be such that some wave action would be constant and reservoir drawdown would not result in isolated pools, so mosquito breeding would be minimal. Neither the Colorado Department of Health nor the Colorado Division of Parks and Outdoor Recreation, which would administer recreational use at the reservoir, anticipates a vector problem at the reservoir. If one did unexpectedly develop, however, the Colorado Division of Parks and Outdoor Recreation would follow its usual practice of control by spraying with environmentally approved pesticides. If the supplemental irrigation water developed by the project were applied injudiciously to farm lands by irrigators, standing water in seep areas, irrigated fields, and drains could increase, causing an increase in mosquito populations in farming areas. If this eventuality did materialize, it could create a nuisance problem to area inhabitants, but would not, it is thought, pose a threat to public health.

The project would not increase or decrease populations of ticks or rodent fleas. It is not expected that ticks would pose a health hazard to visitors at the recreation sites for neither site would be situated in heavy brush areas where tick populations are traditionally the highest. The Alkali site would be situated in predominantly grass and pinon-juniper vegetation, and the Cow Creek site would be in predominantly cottonwood vegetation. Some limited clearing of brush might be necessary at either site during construction and for fire prevention purposes. These activities coincidentally would reduce the problematic tick hazard. If a tick problem did develop, contrary to expectation, control measures would become the responsibility of the Colorado Division of Parks and Outdoor Recreation.

5. Recreation

The impact on recreation is divided into two categories--the effect on present recreation and the effect of recreation on the environment.

As stated earlier in Chapter B, there are few public recreational opportunities in the immediate project area primarily because most of the readily accessible land is in private ownership and because public camping and day-use areas are limited in number. The project, if constructed, would dramatically change this situation, for as previously stated annual use of the recreational facilities at Ridgway Reservoir would be about 348,000 recreation days.

Fishing as a recreational activity would be more available to the general public as a result of the project. Public fishing easements acquired along the Uncompahgre River would provide access to the river. Also a flat-water surface area of up to 1,030 acres for boats and water-oriented recreation would be available on Ridgway Reservoir.

Hunting as a recreational activity would also be influenced by the project. Habitat losses would not result in the loss of deer and elk hunting opportunities because mitigation measures to be taken by the Bureau of Reclamation, including acquisition and development of range land and installation of deer fencing, would allow populations of the animals to be maintained at present levels. Also offsetting potential losses would be the availability of land in the reservoir right-of-way for use by hunters and other recreationists. Hunting opportunities for small game, upland game, and furbearers would be only slightly reduced, while hunting opportunities for waterfowl should be slightly increased. About 2,795 acres of private land, exclusive of the highway right-of-way, would become public property. Because of anticipated heavy use in the recreation area, hunting would probably be restricted to the right-of-way west of the reservoir. Specific regulations governing this use would be determined by appropriate State agencies.

Varied impacts on the environment would result from the recreational facilities and increased recreational activities in the project area. Some new trespassing problems would probably be created for local landowners by recreationists, hunters, and fishermen. Creation of the reservoir would increase the danger of water-related accidents to boaters, swimmers, fishermen, and water skiers. Increased access and camping facilities would also increase the danger of range and forest fires. Increased use would result in increased pollution of streams and the reservoir. It is also likely there would be some blowing trash and improperly disposed of refuse in the campgrounds and along the shorelines.

7. Economic and Social Concerns

a. Construction Period

On the construction timetable, which could begin in 1977 and which would extend over 5 years, the period of greatest construction activity would

be in the second and third years. There would be a definite and perceptible impact upon area employment in those years. Peak employment would probably occur in the second year of construction, and it is estimated that about 415 contractor and government construction jobs would be available in that year. In the other years direct construction employment would range from 20 to almost 415. In the peak construction year, the project would provide approximately $7.1 million to the area's economy in salaries, and over the entire construction period salaries for construction workers should total about $21 million. In the peak construction year, approximately 625 jobs in addition to the construction jobs would be created in the project area to supply goods and services to those directly employed in the construction of the project features. In the other construction years indirect employment jobs would range from 30 to 625. The service-oriented jobs would not cause a great inflow of outside money into the economy, but they would act to further disperse the Federal money made available by the construction of the project. Employment opportunities on project construction and in supporting services would decrease unemployment and underemployment, and they should also reduce the outmigration of young adults which is a serious concern in the area.

Normally on a project similar to the Dallas Creek Project, about 40 percent of the construction workers are of local origin. It is forecast, however, that up to 70 percent of the labor force on this project would be of local origin since experienced labor would be available upon the scheduled completion of Crystal Dam of the Curecanti Unit in 1977. It is expected that most of the new people coming to the area for construction-related jobs would locate near the city of Montrose, with smaller numbers locating in the towns of Ridgway and Ouray. The latter towns are closer to the project site than is Montrose, but both are very stable communities with minimal availability of housing. Consequently, most workers choosing to locate in those areas, of necessity, would bring in mobile homes. Any migration to the project area for service-related jobs, resulting from the financial input into the local economy from the project, is expected to follow the same pattern as the construction-related migration by centering around Montrose. The maximum anticipated construction related population influx, assuming a peak requirement of 125 out-of-area workers, is about 460 persons. This includes wives and 1.74 children per working adult, a population planning rule-of-thumb. As detailed in Chapter B, the population in the project area is expected to increase at an average annual rate of about 5 percent. In about 1978, which could be the peak employment year for project construction, it is expected that the project area would have a population of about 37,200 and Montrose a population of about 11,300.

A population influx of 460 people in 1978 would account for approximately 1 percent of the project area's population in that year. While the population influx is expected to be dispersed over the area, the population of Montrose would be increased by about 4 percent at the very maximum even if all of the construction workers and their families decided to settle in that city. Given the high natural growth rate of the area and the corresponding increase in public and municipal facilities that must attend such growth, county planners do not anticipate

that the influx of construction workers would prove to be a burden upon municipal and public facilities. The service-related jobs that would be created by the project would not be expected to result in a significant increase in the area's population because most of the jobs would be in a salary range that would not support the head of a household. Generally these jobs would be filled by others than heads of households already residing in the area.

Local government officials have indicated that the influx of construction workers would not result in a serious housing problem. Because of the temporary nature of the influx and the general area-wide shortage of rental units, the project-related housing demands would probably be largely satisfied by mobile homes. Because of the availability of schools and public utilities at Ridgway and its close proximity to the project site, it is possible that a concentration of mobile homes could occur at that community.

The effects on education in the project area appear to be minimal. Using the previously cited child-working adult ratio, 218 children can be expected as a part of the peak year worker influx. This student influx would create a need for the equivalent of 7 to 9 additional classrooms. Schools in Montrose, Ridgway, and Ouray are below student capacity now, and indications are that they would be able to accommodate a temporary pupil influx of the anticipated size.

Impacts on health care facilities from project workers and their families are expected to be minor. The physicians and hospital of Montrose would be the source of most medical treatment for the construction-related population and would be capable of serving their medical needs.

The police and fire departments of the area would probably not require additional manpower to provide adequate protection to the worker in-migration. Using the accepted rule-of-thumb ratios of 2.3 policemen and 1 fireman per 1,000 people, only two additional positions would be required in Montrose if all 460 people chose to locate in that town.

There should be no strain imposed on water and sewage facilities of the city of Montrose by project workers. The city is presently expanding these facilities and has stated that growth associated with the project can be accommodated. Facilities in Ridgway and Ouray could be overtaxed if a sizeable population of project workers elected to locate mobile homes in those communities.

Commuters to the construction sites would increase traffic flows, primarily on U.S. Highway 550 between Montrose and Ridgway.

b. Irrigation Development

The reduction of water shortages on presently irrigated lands would permit a stabilization and strengthening of the agricultural sector of the area's economy. Increases in farm income would be immediately realized with the delivery of project water. The improved farming would ultimately increase the gross farm income in the project area by an estimated $600,000 annually.

It is not anticipated that the Dallas Creek Project would result in a significant increase in the use of agricultural chemicals in the area, for the farming practices on the project service lands would be expected to remain much as they are.

Ridgway Reservoir and the highway relocation would take 645 acres of irrigated land and 2,200 acres of nonirrigated land off the tax rolls. The net result would be a decrease of approximately $31,000 in the tax base in Ouray County for a net tax loss of $2,300 annually. The assessed valuation of the project lands would be increased, but it is impossible to quantify the increases.

c. Municipal and Industrial Development

The water that the project would supply for municipal and industrial uses is not meant to create or spur demand. The water has been allocated in response to projected independent growth and development within the area. As discussed earlier, major changes in population and industrial development are now taking place. This trend is expected to continue with or without the project. In anticipation of the long-range multiple water needs in the area, the project simply offers a more orderly and less costly means of meeting projected water demands than could be provided by private development. Moreover, it would make unnecessary the growing trend of buying up senior irrigation water rights to satisfy municipal and industrial demand and also would make unnecessary helter-skelter water development which would be detrimental to the environment. If the exchange agreement between Uncompahgre Valley Water Users Association and Tri-County Water Conservancy District were made as expected for use of water from the South Canal, it would guarantee high quality water for municipal use. Municipal water delivered to established rural areas would not only raise the standard of living by providing dependable piped water for household use, but possible health hazards associated with the use of wells and cisterns in some areas would be eliminated.

While the Dallas Creek Project would satisfy the municipal and industrial water needs which would develop with the projected growth rate of 5 percent annually to the year 2000, other public and municipal facilities would have to be expanded at an accelerated rate to keep pace with the projected growth rate. Conceivably, if the present ratio of public services and facilities to population were to be maintained, the general project area could need as many as 28,750 new housing units. The school systems might have to add about 1,000 new classrooms and employ about 1,300 additional teachers. Hospital facilities would need to be expanded by about 900 beds, and there would be a need for an additional 90 physicians, 260 nurses, and 40 dentists. In addition to new police and fire prevention facilities and equipment, as many as 200 new policemen and firemen would be needed. While no estimates have been made by the Bureau of Reclamation, there would also be substantial increases in the demand for fuel, electricity, and sewage and water treatment facilities. The projected growth and the accompanying expansion of public facilities are expected to occur whether or not the Dallas Creek Project is constructed.

d. Recreation, Fishing, and Hunting

The recreation and fishing developments of the project would have a stimulating effect on the economy of the area. Under the project plan and the wildlife mitigation measures it contains, deer and elk populations are expected to remain near present levels so income to the area from hunting for these animals should not change appreciably. Only a negligible decrease would be realized in income from hunting of small game. Waterfowl hunting opportunities should be increased and some economic benefit could secondarily be realized.

The 1,000 acre area for mitigation of wildlife losses would be taken from the tax rolls. In economic terms, the net result would be a decrease of approximately $7,000 in Ouray County's tax base for a net annual tax loss of $500.

e. Flood Control

Control of streamflows in Ridgway Reservoir would substantially reduce economic damages from floods in Uncompahgre Valley. In addition it could save lives and curtail sickness and destitution which could accompany flood devastations.

8. Air and Noise Quality

a. Construction

Building of the project reservoir would require extensive use of construction equipment and trucks throughout the construction period. Noise pollution would be increased in the immediate area of use. Exhaust emissions from machinery and vehicles associated with the project would be a minor source of air pollution, but some air pollution would result from the dust created by construction operations. As detailed in Chapter D, precautions would be taken to keep the dust levels at a minimum. Dust could be raised on haul roads by moving vehicles and could cause localized dust damage to vegetation in the reservoir basin and near the riprap quarry site. The wind erosion of cleared borrow areas and the reservoir basin would create some additional dust.

b. Project Operation

After completion of the project, increased traffic in the vicinities of Ridgway Reservoir would contribute exhaust emissions and dust to the air. Wind erosion would decrease from construction levels as vegetation density increased in revegetated areas.

9. Land Use Patterns

Land use patterns would change in the Dallas Creek Project area as a result of both reservoir construction and availability of project

Figure C-4--View of Alkali Creek recreation site at Ridgway Reservoir.

water. About 2,845 acres of privately owned land and 985 acres of land administered by the Bureau of Land Management (BLM) would be subject to land-use changes during project implementation. It has been estimated these land use changes would result in the loss of 1,450 AUM for agriculture annually. Four grazing leases would be lost in the reservoir and highway realignment right-of-way and one mining claim would have to be cleared within the provisions of the mining laws. Project construction and operation would create the need for increased fire protection procedures because of increased use adjacent to National Resource Lands controlled by BLM. Based on responses to date from BLM, the Dallas Creek Project does not seriously conflict with that agency's long-range land management programs in the area. Water storage and recreation sites would replace farming and ranching activities at the reservoir site. About 1,000 acres of native range now grazed by livestock and wildlife would be for management as a wildlife area. The land would be managed exclusively for wildlife, and livestock grazing would no longer be permitted. Thus a loss of about 300 AUM's to agriculture would be incurred annually.

Recreational facilities created by the project would encourage further development of lands in the area. Various commercial enterprises would be expected to accompany project development, but they would probably develop in existing communities. Recreational housing might develop on Log Hill Mesa near the eastern right-of-way of Ridgway Reservoir and on private holdings along the Uncompahgre River downstream from Ridgway Dam site. Private ownership and livestock grazing would be eliminated in the area required for mitigation of wildlife habitat losses. The projected population increases in the Uncompahgre Valley would unquestionably result in the continued conversion of agricultural land to residential, commercial, and industrial use. The Cooperative Extension Service of the Community Resources Development Project at Colorado State University has analyzed population growth as it relates to land use. It estimates that for every addition of 100 persons to the overall population, 10 acres of residential land, 0.8 acre of commercial land, 2 acres of industrial land, and 3 acres of public or semipublic land are needed to adequately accommodate the increase. Based on the projected population increase of about 84,000 persons between 1970 and 2000 in the project area, about 13,500 acres would be needed to adequately satisfy the various land needs and demands of these people.

10. Geology

It is not expected that the fault seams at or near Ridgway Reservoir would undergo any shifting with the filling of the reservoir as they are already saturated with ground water. Existing land slides at Ridgway Reservoir site could be activated by reservoir filling. It is also possible that landslide areas could be created in the steeper canyon walls around the reservoir. These slides, if they were activated or created, would be of small volume and of slow step-like movement of slide blocks, rather than rapid large scale movements that generate waves and large volumes of displaced material. This small scale method

of movement is expected because of the soft, gently dipping formations of the Morrison Mudstone. Similar small volume, slow moving, step-like slides are presently occurring in the Morrison Formation around the shoreline of Blue Mesa Reservoir with no adverse effects. Thus the slides would not create a danger to the dam structure or reservoir, but they would leave scars, create erodible areas, and cause temporary water turbidity.

11. Aesthetics

a. Construction

In the event of the Dallas Creek Project development, the construction of Ridgway Dam and the relocation of U.S. Highway 550 would temporarily disrupt the rustic nature of the project area by the presence of heavy machinery and increased human activity. As clearing and excavations were made within the reservoir basin and along the new highway alignment, the natural landscape would be noticably disrupted.

The construction of the livestock and deer fences along the reservoir right-of-way would necessitate the clearing of lanes of vegetation of varying density. The realignment of Highway 550 would create lanes of cleared vegetation and ground form modifications. Construction activities at the dam site and recreation areas would also create visual disruptions.

b. Operation

Upon completion of the project, disruptions created by the construction operations would subside. Yet undeniably the overall impact would be the intrusion of obviously man-made structures and developments in areas that had heretofore been primarily in a natural state.

The immediate visual impacts of the project would be derived from the creation of Ridgway Reservoir which would inundate an attractive rural valley, but this type of scenery would remain upstream and downstream of the reservoir. It is possible that the reservoir could activate presently stable landslides in the reservoir basin or create new landslides in the steeper canyons surrounding the reservoir. In such an event, the landslides would create scars which quite probably would be visible from U.S. Highway 550. The developed reservoir would provide a new, attractive recreation facility and economic opportunity for the valley. The attractiveness of the reservoir would be somewhat less in periods of late summer drawdown when mud flats and foreshore would be exposed. Negative visual impacts would be almost eliminated during the winter months, however, as the drawdown foreshore would be covered with snow.

The relocation of U.S. Highway 550 would require the elimination of some vegetation along Cow Creek but the new highway would provide an excellent view of Cow Creek, Ridgway Reservoir, and the Upper

and Lower Uncompahgre Valleys. Deer fencing along the highway right-of-way would have an aesthetic impact in areas where it was not concealed by the background terrain or natural vegetation. The maintenance and recreational areas would result in permanent man-made interruptions to the natural landscape. Following construction, the impacts of the material source areas would for the most part be minimal. A summary of the long range impacts of the material source areas is given in Attachment 6.

Indirect effects on aesthetic enjoyment would be increased air pollution and litter resulting from the intensification of visitations to the areas. Measures incorporated into the plan to mitigate aesthetic losses are discussed in Section D.

12. Energy Consumption

Construction of the Dallas Creek Project would necessarily involve the consumption of energy. Because it is impossible to predict the operation and methods of as yet unselected contractors, the quantities cannot be determined. The energy forms used would include fuels for vehicles and machinery, explosives for excavation and quarrying, electricity for lights and motors, and fuel or electricity for heating.

13. Historical and Archaeological Resources

The State Historical Society of Colorado has reported that it knows of no significant historical or archaeological sites or structures which would be adversely affected by the proposed project. As a survey made by the University of Colorado Archaeological Research Center also produced no evidence of significant archaeological or historical resources in the project construction areas, it is reasonable to assume at this time that the project would destroy none.(4) If a find were made during construction, however, Federal standards, as outlined in Section D, would be observed. The National Register of Historic Places does include the Ute Memorial Museum located south of Montrose. The museum, however, would not be directly affected by the project although a growing population and increased tourism in the project area would probably increase its use.(34)

CHAPTER D

MITIGATION MEASURES AND AIR AND WATER QUALITY

D. MITIGATION MEASURES AND AIR AND WATER QUALITY ASPECTS

1. General

This chapter summarizes those measures which would be undertaken to protect the environment or mitigate impacts from the project. In this regard, all Federal environmental considerations, procedures, and policies, including the Clean Air Amendments of 1970, Federal Environmental Pesticide Control Act of 1972, Federal Water Pollution Control Act Amendments of 1972, Colorado River Basin Salinity Control Act of June 24, 1974, the Archaeological and Historical Data Conservation Act of 1974, and the Fish and Wildlife Coordination Act as amended in 1958 are recognized. They have been and will continue to be complied with by the Bureau of Reclamation.

2. Measures to be Employed During Land Acquisition and Relocation of Families

All land acquisitions and the relocation of displaced individuals would be accomplished according to provisions of the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 and other applicable Federal legislation and regulations. Those acts and regulations require the Government to pay an amount determined to be the fair market value based on approved appraisal procedures. In partial takings, the fair market value includes any loss in value to the remainder property (severance damage). In addition to the payment of just compensation, the landowner would be entitled to compensation for relocation expenses as provided by the above-mentioned Relocation Act. All landowners would be advised of acquisition and relocation procedures and assisted in the preparation of applications for reimbursement of relocation expenses and provided with other services required by that act.

3. Measures to be Employed During Project Construction

Construction specifications would be written and construction activities would be monitored by government personnel to insure that protection of the environment was fully considered. The contractor would be required to comply with applicable Federal laws, orders, and regulations and laws of the State of Colorado concerning the pollution of surface waters, ground water, or water courses. The contractor would also be required to take such precautions as necessary to limit increases in turbidity of the Uncompahgre River and Cow Creek. These precautions might require use of suitable sedimentation or settling ponds with or without the use of a flocculating agent to prevent entry of excessive

amounts of suspended matter into the water courses. Water quality standards as described in "Water Quality Standards of Colorado" would be followed.

Construction specifications would include language for landscape preservation, dust abatement, abatement of air pollution, prevention of water pollution, and noise abatement. The following paragraphs summarize standard Bureau specifications covering the measure of control required for each of the major areas enumerated above and explain how and where these specifications would be implemented on the Dallas Creek Project.

a. Landscape Preservation

The contractor would exercise care to preserve the natural landscape and to conduct his construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work.

The reservoir basin would be cleared to the high water line. The cleared material which was unsaleable would be either burned, chipped, or buried in a manner and in a location approved by the contracting officer. Chipped particles would be removed from reservoir basins as their acidity is toxic to aquatic life. Preferably, some chipped particles would be used as mulch in reseeding operations.

If in the opinion of the contracting officer unnecessary damage was done to trees or surrounding vegetation, it would be incumbent upon the contractor to replace the injured vegetation.

The construction contractor would not be allowed to alter the natural surface character of the landscape at the two proposed recreation sites without prior written approval of the contracting officer, and only then as a final resort.

The contractor's camps, shops, offices, and yard areas at the construction site would be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent. Where practicable, all temporary structures and equipment storage and parking areas would be located within the reservoir basin. Those structures to be built which could be used for permanent operation and maintenance or administration would be located so as to best serve their anticipated purposes.

All abandoned camp, storage, and construction buildings, including concrete footings and slabs, and all construction materials and debris would be removed from the site and the area. Those construction areas outside the reservoir basins would be revegetated.

Essentially all roads in the project area are considered adequate to provide access to the project sites and rights-of-way. Movement of crews and equipment within the rights-of-way and over the access roads would be performed in a manner to prevent damage. If

during actual construction it became the opinion of the contracting officer that additional temporary access roads were needed, temporary roads could be constructed, but after they had served their usefulness, they would be made impassable to vehicular traffic, shaped to a natural form, and revegetated.

Material source areas and riprap sites would be so excavated that they would not collect and store water. Before being abandoned, the sides of these areas would be brought to stable slopes with slope intersections rounded and shaped to provide a natural appearance; rubbish, equipment, and structures would be removed, and waste piles would be leveled to natural contours. If excavation were required at the material source area at Ridgway Reservoir which is above the high water line, the area would be shaped, covered with stockpiled topsoil, and revegetated.

Should the contractor find it necessary to use pesticides, he would submit his plan for such use to the contracting officer for written approval. Pesticides named on the Department of the Interior's "Prohibited List" would not be used. Only those pesticides registered with the Environmental Protection Agency in compliance with Federal pesticide acts would be used.

Drilling or blasting with explosives would be done in compliance with applicable Federal, State, and local safety regulations.

As indicated in Chapters B and C, the archaeological surveys which have been conducted have disclosed no significant archaeological or historical finds at project construction sites. If any archaeological or historical sites were found during construction, the property would be evaluated by an archaeologist or other appropriate professionals who would make a determination in consultation with the appropriate State Historic Preservation Officer regarding the property's eligibility for inclusion in the National Register of Historic Places. Should the property be determined eligible for inclusion in the National Register of Historic Places, the Bureau of Reclamation would follow the procedure outlined in 36 CFR Part 800.

b. Dust Abatement

During the construction period, whether on right-of-way provided by the Federal government or elsewhere, the contractor would furnish in accordance with Federal regulations all of the labor, equipment, materials, and means required to control potential dust generated by construction activities. He would also carry out proper and efficient measures wherever and as often as necessary to reduce the dust nuisance and to prevent dust which might originate from his operations from damaging crops, orchards, cultivated fields, and dwellings or causing a nuisance to persons. The contractor would be held liable for any damage resulting from dust originating from his operations on Federal right-of-way or elsewhere.

c. Abatement of Air Pollution

The contractor would comply with applicable Federal, State, and local laws and regulations concerning the prevention and control of air pollution. In the conduct of construction activities and operation of equipment, the contractor would utilize such methods and devices as are reasonably available to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants. The contracting officer would be particularly critical of dust pollution which might result from the manufacture of concrete aggregate and excessive exhaust pollution which would result if vehicles and equipment were improperly tuned or equipped.

d. Prevention of Water Pollution

The contractor would comply with applicable Federal and State laws, orders, and regulations concerning the control and abatement of water pollution. The contractor's construction activities would be performed by methods that would prevent entrance or accidental spillage of solid matter, contaminants, debris, and other objectionable pollutants and wastes into streams, flowing or dry water courses, lakes, and underground water sources. Such pollutants and wastes might include, but are not restricted to, refuse, garbage, cement, concrete, oil and other petroleum products, and aggregate processing tailings.

Construction waste water would be treated and discharged in compliance with the NPDES permit requirements in accordance with the Federal Water Pollution Control Act Amendments of 1972. Turbid waters from construction operations and drain effluent during construction would not be permitted to enter existing water courses without the use of such control methods as desilting ponds or other approved methods which would keep the effluent turbidity within limits prescribed by the contracting officer. Garbage and sanitary disposal facilities would be provided and maintained in accordance with applicable Federal, State, and local safety provisions. Clearing along stream courses in the reservoir basin would be limited so that the vegetation would serve to prevent erosion and sediment entry into the river and tributary streams during the construction period.

e. Noise Abatement

The contractor would comply with applicable Federal, State, and local laws, orders, and regulations concerning the prevention, control, and abatement of excessive noise. Nighttime blasting, the use of jackhammers, pile driving, or other operations producing high-intensity impact noise would be performed only upon approval of the contracting officer. Noise would be monitored by use of appropriate equipment by the contracting officer and any data obtained would be made available to the contractor. In addition, noise studies or measurements previously made by the Bureau of Reclamation would be made available provided that interpretation and use of all such data were the responsibility of the contractor.

The contractor would be required to control his operations in such a manner that the sound level would not exceed the following at the locations specified:

Nighttime limitation (8 p.m. to 7 a.m.) of NPL1/ = 75 decibels (dB) measured outdoors at residences or other noise-sensitive areas.

Daytime limitation (7 a.m. to 8 p.m.) of NPL1/ = 80 dB measured outdoors at residences or other noise-sensitive areas.

4. Measures Incorporated into the Design and/or Operation of Project Features

This section deals with those features of the project which have been incorporated into the proposed plan to protect the natural environment from unnecessary impacts. Some of the features were implemented purely out of environmental concerns while others were incorporated for technical and scientific reasons as well.

The alignment of relocated U.S. Highway 550 was determined only after due consideration was given aesthetic and human safety factors. The realignment has been designed so that extensive highway cuts and fills and stream rechannelization could be kept to a reasonable minimum. The highway would be designed in accordance with modern design standards and thus would be an improvement in terms of human safety and driveability over the present highway. The one-half mile of Cow Creek requiring realignment would be undertaken in a manner that would insure a nearly natural looking stream following construction. The design of the changes in the stream would be coordinated between the Colorado Department of Highways and the Colorado Division of Wildlife.

Minimum flows, as discussed in detail in Chapter A, would be maintained in the Uncompahgre River to enhance the river as a fishery.

The dual outlets at Ridgway Dam would act to improve water quality for sport fishery purposes in the Uncompahgre River below the reservoir. Water characteristics which could be controlled to a degree would include temperature, dissolved oxygen, excessive gas saturation, and other water quality aspects that might become a problem in the future.

Wherever possible, material source areas have been located within the reservoir basin so as to leave as few land scars as possible after construction was completed.

In anticipation of snowmelt runoff, releases from Ridgway Reservoir would be made on the basis of computerized data made available by the Bureau of Reclamation and would minimize the possibility of erratic or excessive releases which sometimes occur where reservoir operations are poorly managed.

1/ Noise pollution level.

Water sale contracts with municipal and industrial water users would contain provisions whereby the users would agree to comply with all applicable State and Federal water quality standards. Compliance would probably require periodic improvement of the municipal sewer systems in order to accommodate increasing waste loads. Department of the Interior approval and compliance with the National Environmental Policy Act and all other applicable environmental regulations would be required on all water sales.

The Bureau of Reclamation has no plans for controlling vectors under the Dallas Creek Project. It would be the responsibility of farmers and local governments to reduce mosquito breeding sites and spray nesting areas. It would be the responsibility of the recreation management agency to provide control of mosquitoes, ticks, and rodent fleas around the recreation sites.

5. Measures Designed to Reduce or Restore Wildlife Losses

a. Wildlife Mitigation Area

Approximately 1,000 acres of private range land would be purchased and intensively developed for wildlife habitat to offset the habitat losses around Ridgway Reservoir. Acquisition and initial development of the wildlife area would be funded as part of the project. Subsequent development and management would be undertaken by the Colorado Division of Wildlife. The program would increase the carrying capacity of the land for wildlife and therefore would offset winter range habitat losses associated with Ridgway Reservoir. Thus the project area could maintain deer and elk populations at preproject levels.

The land acquired would be in one of two areas. The preferable action would be to purchase private lands adjacent to or in the near vicinity of the existing, State-owned Billy Creek Wildlife Area which the Colorado Division of Wildlife manages for deer, elk, turkey, and other wildlife. Lands adjacent to the Billy Creek Area have a pattern of interwoven public and private ownership. The public lands are now being managed primarily for wildlife, and the project acquired wildlife lands would complement this management. Lands in the area are generally rough, rolling terrain and are vegetated with sagebrush, pinon-juniper woodland, and oakbrush at the upper elevations. Private lands are utilized for grazing. The area receives heavy use from wintering deer and elk and is also utilized by other game species including wild turkeys, doves, and rabbits. Stream bottoms contain riparian habitat, and the area supports numerous nongame species. Raptors are common, and both bald and golden eagles are common winter residents.

The second priority area would be west of the Uncompahgre River, north and west of Colona. This area is not as appropriate as the

first because it would serve a deer herd not significantly impacted by the project. The area would, however, compensate for losses by increasing one herd while the impacted herd east of the river was reduced. The area is vegetated with sagebrush and other browse species and pinon-juniper woodland. The area contains both BLM and private lands. Private lands are utilized primarily for livestock grazing, and public lands are managed for both wildlife and livestock.

The initial development funded by the project in either area acquired would include a program to fence the perimeter of the area to exclude livestock, a range improvement program to establish a variety of browse and grass species favorable to wildlife, a program to control erosion, a program to provide access if needed, and a program to construct water retaining devices where appropriate.

The reservoir right-of-way would be fenced to exclude livestock. Fencing would tend to improve the area for wildlife since it would eliminate competition with livestock and thereby increase vegetative growth. The fencing would be designed to allow for the free movement of deer and elk.

b. Deer Fencing

The project plan includes fencing along both sides of U.S. Highway 550 right-of-way to prevent deer and elk from moving onto the highway. The fencing is planned to reduce the present incidence of deer-auto collisions and prevent the future increase in collisions which would otherwise occur with the relocated highway. Similar fencing projects in Colorado have reduced the deer-vehicle accident rate by an estimated 78 percent along the fenced sections. The plan for the fencing has been developed in cooperation with the Fish and Wildlife Service and the Colorado Division of Wildlife. The fencing would be accomplished before traffic was allowed on the highway.

The fencing would be constructed along an 8.2-mile segment of the highway, extending from the Uncompahgre River bridge about 1.6 miles north of the relocated section to the Owl Creek Road about 2 miles south of the new route. The 8-foot high fence would be constructed of wooden posts and woven wire. One-way deer gates would be installed at strategic locations to allow any animals that might find entry to the roadway to escape. A special underpass would be installed at Alkali Creek to provide passage for deer under the highway. Generally, the fence would be located within the highway right-of-way, although in the final design the alignment could vary in areas of particular aesthetic importance. The fence design would be such that it would not interfere with local ranching operations and existing access patterns.

c. Reservoir Right-of-Way

Livestock fencing, which would be constructed around the reservoir right-of-way boundaries, would have the effect of curtailing livestock grazing within the reservoir boundaries and thereby improving wildlife habitat. Revegetation would restore ground cover lost during clearing activities.

6. Measures Designed to Increase Utilization of Reservoirs and Streams

In order to enhance fishing opportunities associated with Ridgway Reservoir, fishing easements would be acquired along both sides of the Uncompahgre River for about 12 miles immediately below Ridgway Dam. The easements would be secured from property owners through voluntary negotiations. The actual design of the easements would be flexible and would be negotiated with the involved landowners. Because the State does not normally stock fish at a point in a stream less than one-half mile from private land, the stream easements would be purchased in blocks of 1 mile lengths. Parking areas or highway pull-offs would be constructed to facilitate public safety, and trash recepticles and sanitary facilities would be constructed where necessary.

The easements would be designed to protect private landowners, and signs would be provided to control public use. Fences would be constructed where necessary to control access to the riverbank, and wooden stepovers would be provided to prevent damage to existing fences. The easements would be approximately 25 feet wide along the stream, but the actual widths would be negotiated with each seller. Camping and overnight use of the easements would not be permitted. The Fish and Wildlife Service has estimated that public utilization of fishing downstream from the project would be increased by 6,000 man-days annually.

Stabilized streamflows which would result from the regulated releases from Ridgway Reservoir would also extend the clear water fishing season in the river below the reservoir.

The sites for the camping and day-use areas around Ridgway Reservoir were selected so that a scenic environment and easy access to the reservoir would be provided. The camp sites would be separated by mountain foliage and would have running water, electricity, and sanitary facilities to augment their desirability for prospective campers. Comfort stations, trailer dump stations, and fish-cleaning stations are being considered for incorporation in the recreation area developments. The method of treatment of the sewage collected at these stations has not been studied sufficiently to describe at this time. The alternatives available which will be evaluated are: (1) sealed vaults under either a simple toilet seat or a chemical flush toilet, (2) water-carried sewage piped to sewage lagoons, and (3) water-carried sewage piped to sewage treatment plants.

The boat marina, docks, and courtesy area at Ridgway Reservoir would make the reservoir more attractive to boaters and water skiers. The tree planting and seeding activities which are planned at the camping sites would further enhance the scenic qualities of the camping areas.

7. Measures Designed to Allow Investigation and Better Understanding of the Existing Environment

Four scenic pullouts would be provided along relocated U.S. Highway 550 for those motorists interested in a more leisurely view of the

landscape. Trail systems around Ridgway Reservoir would provide better access to the environment and an 8-mile trail along the undeveloped west shore of the reservoir would be constructed for hiking and horseback riding. The sides and top of the small mesa above the Alkali Recreation site would be developed with walking trails, vista overlook points, and an environmental study area.

8. Measures Designed to Control the Overall Salinity Levels in the Colorado River

Salinity increases from the Dallas Creek Project and similar water development projects in the Colorado River Basin are expected to be offset by measures authorized by Title II of the Colorado River Basin Salinity Control Act which outlines the Colorado River Basin Salinity Control Program. The program provides for the construction, operation, and maintenance of four salinity control units as the initial stage of the program. The act also directs the Secretary of the Interior to expedite the investigation, planning, and implementation of other control units throughout the Colorado River Basin. The salinity control program is intended to provide sufficient measures to maintain the salinity of the Colorado River at Imperial Dam at its 1972 level of 879 mg/l, while the Upper Basin continues to develop its compact-apportioned waters.

As part of the Salinity Control Program, a system of irrigation scheduling is being instituted on the lands of the Uncompahgre Project by the Bureau of Reclamation. The system is designed to reduce water use, to decrease salinity levels of irrigation runoff, and to increase crop yields by scientifically determining the most efficient timing and amounts of water applications. Scheduling details are determined from computerized analyses of temperature, precipitation, solar radiation, and soil and crop characteristics.

CHAPTER E

UNAVOIDABLE ADVERSE EFFECTS OF THE PROJECT

E. UNAVOIDABLE ADVERSE EFFECTS OF THE PROJECT

The projected environmental impacts associated with the Dallas Creek Project, whether beneficial or adverse, have been discussed in Chapter C. Measures designed to minimize the adverse effects and protect the environment are detailed in Chapter D. This section lists the most significant adverse effects which cannot be avoided or fully mitigated.

1. Streams, Fisheries, and Water Quality

Construction of Ridgway Reservoir would eliminate 4.6 miles of the Uncompahgre River. The average annual flow of the lower Uncompahgre, Gunnison, and Colorado Rivers would be reduced by an estimated 17,100 acre-feet. Salinity concentration in the Colorado River at Imperial Dam would be increased by 0.9 mg/l because of salt loading and by 1.8 mg/l because of stream depletions resulting from project operation.

2. Wildlife and Vegetation

Construction activity would disturb wildlife species and reduce forage production. Critical winter range for mule deer and other wildlife would be reduced in those portions of the Ridgway Reservoir right-of-way used for recreational or operational purposes. Big game habitat would be irretrievably lost although deer populations are not expected to be reduced with the planned mitigation measures. Reservoir development would eliminate about 100 acres of riparian habitat and this unmitigated effect would be an unavoidable loss associated with the project. The relocation of U.S. Highway 550 would eliminate some streamside vegetation along Cow Creek and, hence, eliminate some habitat for raptors and nongame birds. Reduction in natural hunting range might cause predators to move from the area.

3. Agriculture and Land Use

Project operation would require the use of both private and public lands. Approximately 2,845 acres of private farm and rangeland would no longer be usable for agricultural pursuits after the construction of Ridgway Reservoir and associated features. Livestock grazing on approximately 985 acres of Federal land would also be lost. Livestock grazing would be restricted on the 1,000 acres of private land to be acquired for wildlife range.

4. Aesthetics

Intrusion of man-made structures in natural surroundings could not be avoided and could be considered aesthetically undesirable by some people. The more significant intrusions would be Ridgway Dam and Reservoir, about 5 miles of realigned U.S. Highway 550, and about one-half mile of realigned river bed on Cow Creek. Exposure of foreshore at Ridgway Reservoir would be necessary for project operation.

5. Social Effects

Construction of Ridgway Reservoir would require the relocation of 11 farm families now living in the reservoir basin, forcing them to find new homes and possibly new sources of income.

CHAPTER F

SHORT- AND LONG-TERM ENVIRONMENTAL USES

F. SHORT- AND LONG-TERM ENVIRONMENTAL USES

This chapter discusses the relationship between the local short-term uses of the resources which would result from construction and development of the Dallas Creek Project and the long-term and more widespread impacts from project operation. Project features have been designed for a life of 100 years, but it is expected that they would last much longer.

Water resource planning requires a long-range forecast. The Dallas Creek Project would be constructed in an attempt to partially respond to present and future needs for irrigation and municipal and industrial water supplies. By responding to these needs, it would also provide benefits for recreation, fish, and flood control. The relationship between immediate and future environmental impacts from Dallas Creek Project construction and development are summarized in this section.

1. Short-Term

Various environmental factors would be affected during the short-term (5-year) construction period. Construction rights-of-way would be lost for grazing and wildlife uses during all or part of the construction period. Vegetative cover would be removed from some rights-of-way, and construction would temporarily increase stream turbidity and siltation. Residents, tourists, wildlife, and livestock would be affected by increased noise, traffic, and other construction disturbances. Employment opportunities would be increased, and local and regional economies would be stimulated as a result of the construction activities. The influx of construction workers would provide a temporary increase in the demand for housing and goods and services. There would also be temporary increases in the demands for schools, medical services, police and fire protection, and other public services.

2. Long-Term

a. Water

The Dallas Creek Project would develop a total of 39,400 acre-feet of water annually for project uses, including 22,600 acre-feet for municipal and domestic purposes, 5,500 acre-feet for industrial purposes, 11,200 acre-feet for irrigation, and 100 acre-feet for use at project recreation sites. The supplies would support the projected economic and population growth of the area to be served. The flow of the Uncompahgre, Gunnison, and Colorado Rivers would be reduced by an estimated average of 17,100 acre-feet annually.

Ridgway Reservoir would trap a portion of the pollutants and sediment now carried downstream in the Uncompahgre River, thus improving water quality in the initial section of the river below the dam. The project would increase the total dissolved solids concentration in the Colorado River at Imperial Dam by an estimated 1.8 mg/l as a result of the concentrating effect of stream depletion and 0.9 mg/l as a result of salt loading.

b. Land

Approximately 1,030 acres of irrigated and dry grazing land would be committed for water storage, and approximately 2,750 acres would be included in the reservoir right-of-way to be utilized for protection of facilities and the public, for access purposes, and for recreational development.

c. Fish and Wildlife

Reservoir habitat of 1,030 acres would replace 4.6 miles of river habitat on the Uncompahgre River. Aquatic habitat along a 12-mile reach of the Uncompahgre River would be improved.

Mule deer winter range and other wildlife habitat would be lost to reservoir inundations, project feature rights-of-way, and recreation development. The 1,000-acre wildlife management area provided by the project would be utilized for a long period of time to mitigate the winter range losses. Big game fence along U.S. Highway 550 would produce a long-term reduction in deer losses from traffic accidents.

d. Recreation

Recreational opportunities would be increased by the construction of Ridgway Reservoir and related facilities and by the commitment of lands for recreational use. New opportunities would exist for private developers to build on the recreational base established by the project. Improved water quality and flows in the Uncompahgre River would make the stream a better fishery, and easements would increase public access to this resource. The continued growth supported by project water in the Uncompahgre Valley would increase demands on existing recreation areas and public lands.

e. Aesthetics

There would be long-term aesthetic changes in the project area as a result of the construction of Ridgway Reservoir and relocated Highway 550. The relocated highway would alter the primarily natural state of its new alignment. The reservoir would inundate a small portion of a rural valley, and as a result, flat water recreation would replace agricultural industry as the primary human activity at the reservoir site. The relocated highway would result in localized, long-term aesthetic change since a modern, surfaced highway would replace natural vegetation within the relocation right-of-way.

CHAPTER G

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

G. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Renewable and nonrenewable resources would be irreversibly or irretrievably committed by construction and operation of the Dallas Creek Project. This chapter briefly points out these commitments and quantifies them where possible.

1. Land

An estimated 1,030 acres of land would be irreversibly committed for water storage. An additional 2,750 acres of land would be acquired for right-of-way around the reservoir. While the resultant land uses might not be irreversible, there would be a long-term commitment, and complete restoration to the present condition would be difficult.

2. Materials and Energy

Construction materials would be committed to irretrievable use. An estimated 9,191,000 cubic yards of soil, sand, gravel, cobble, and riprap would be needed for dam embankments and an undetermined amount of the same materials would be needed for road beds. These materials would be obtained in the project area. Concrete aggregate would also be needed and would come from the area, but as yet the quantity is undetermined. Cement and manufactured materials, imported from other areas, would be irretrievably committed to the project features. Construction of the Dallas Creek Project would involve the consumption of energy in the form of fuels, explosives, and electrical power. After construction electricity would be consumed for lighting and operation of the project features.

3. Fish and Wildlife Habitat

The construction of Ridgway Reservoir would cause a loss of about 4.6 miles of poor quality stream fishery. About 500 acres of the inundated lands and 80 acres of the relocated highway right-of-way are presently in wildlife habitat that would be permanently lost. Habitat inundated, including important riparian habitat, would be permanently lost to the commitment to water storage. Improvements in aquatic habitat in the Uncompahgre River would accompany the changes.

4. Aesthetics

Construction of the Dallas Creek Project would irretrievably and irreversibly alter the aesthetics of the areas involved. There would be the imposition of man-made structures, excavation scars, and embankment slopes onto the natural scenery. The excavation scars would be revegetated, but the visual impact, whether good or bad, would be permanent.

CHAPTER H

ALTERNATIVES TO THE PROPOSED PROJECT

H. ALTERNATIVES TO THE PROPOSED PLAN

1. General

During early planning stages of the Dallas Creek Project, many alternatives were investigated to establish the most economic plan of development to satisfy the water needs of the Uncompahgre River Basin. Twenty-six reservoir sites received at least cursory investigation, different methods of water conveyance were studied, and alternative sources and uses of water were considered. The proposed plan, as presented in Chapter A of this statement, represents the culmination of these studies and, based upon public response to date, is the most desirable plan of development acceptable to State and local interests.

This chapter discusses alternatives to the proposed plan that were investigated and considered during the plan formulation process. All of these plans are presented in the following sections along with a summary of the environmental impacts that would be expected if the plan were implemented. For discussion and comparison the plans are grouped according to areas served. Four alternatives are variations of the proposed plan for irrigation and municipal and industrial service in the Uncompahgre Valley. Three are plans which include project water for Log Hill Mesa. Alternatives using water imported from the Gunnison River and an alternative of no development by the Federal Government are also discussed.

Table H-1 compares the physical features, purposes, and environmental impacts, where applicable, of all plans discussed.

2. Variations of Proposed Plan for Irrigation and Municipal and Industrial Service in Uncompahgre Valley

a. Ridgway Reservoir at Cow Creek Axis

This alternative is the same as the proposed plan with the exception that Ridgway Dam would be built 2 miles downstream on the Uncompahgre River about a mile below the mouth of Cow Creek. The reservoir capacity and operations and the municipal, industrial and irrigation water supply would be the same as in the proposed plan. Most environmental impacts at the Cow Creek Dam site, however, would be more severe and enhancements to recreation and fish and wildlife would be reduced.

Use of the Cow Creek site would require 0.8 mile more of highway relocation than the proposed plan, and the highway would create greater visible scars on the landscape as it would traverse the side of the mountain above the dam and downstream portions of the reservoir. The

Table H-1
Comparison of Dallas Creek Project alternatives

Item and unit of measure	Proposed plan	Variations in proposed plan for irrigation and municipal and industrial service in Uncompahgre Valley: Ridgway Reservoir at Cow Creek Axis	Uncompahgre Project Westside extension	Water savings program on Uncompahgre Project	Weather modification	Plans with inclusion of project water for Log Hill Mesa: Plan at time of authorization	Plan in Draft Environmental Statement	Plan with water for energy development	Importation of water from Common River (Dry Cedar Reservoir)	Nondevelopment
Project lands (acres)										
Full service irrigation			730			14,900	3,880	3,880		
Supplemental service irrigation										
Colona and Dallas Creek areas	2,850	2,850	2,850	2,850	2,850	7,760	2,850	2,850		
Log Hill Mesa area						960	620	620		
Uncompahgre Project serviceable irrigation area[1/]	61,810	61,810	61,810	61,810	61,810		61,810		61,810	
Water supply (acre-feet/year)	39,400	39,400	43,000	39,400	39,400	75,300	52,100	65,800	38,400	
Irrigation	11,200	11,200	14,800	11,200	11,200	60,300	19,100	6,800	10,300	
Full service			3,600			54,300	8,430	8,430		
Supplemental service	11,200	11,200	11,200	11,200	11,200	6,000	12,670	7,170	10,300	
Colona and Dallas Creek areas	900	900	900	900	900	5,200	1,370	1,370		
Log Hill Mesa area						800	800	800		
Uncompahgre Project	10,300	10,300	10,300	10,300	10,300		10,300		10,300	
Municipal use	22,600	22,600	22,600	22,600	22,600	15,000	27,300	27,300	27,600	
Uncompahgre Valley	22,600	22,600	22,600	22,600	22,600		23,000	23,000	22,600	
Log Hill Mesa							4,300	4,300		
Industrial use	5,500	5,500	5,500	5,500	5,500		5,500	29,300		
Small industry	5,500	5,500	5,500	5,500	5,500		5,500	5,500	5,500	
Energy								24,000	5,500	
Recreation (recreation-days)										
Dallas Divide Reservoir						42,000	79,400	79,400		
Ridgway Reservoir	348,000	261,000	348,000	174,000	261,000	200,000	348,000	348,000		
Steve Reservoir						4,500				
Project features										
Reservoirs (acre-feet)										
Dallas Divide Reservoir						17,600	17,500	17,600		
Ridgway Reservoir	80,000	80,000	92,000	36,500	81,000	144,500	125,000	125,000		
Steve Reservoir						825				
Dry Cedar Reservoir									40,000	
Conveyance systems (miles)										
Dallas Feeder Canal						13.5	12.5	12.5		
Cow Creek Feeder Canal						8.5		1.0		
Steve Outlet Canal						1.2				
McKenzie Canal						15.7				
Log Hill Mesa Canal						8.6				
Log Hill Mesa Conduit							9.4	9.4		
Log Hill Mesa Distribution System							21.6	21.6		
Pleasant Valley Canal						4.8				
M and D Lateral			4.3							
Westside Laterals			2.0							
Gunnison Tunnel Pipeline (second-feet)									30	
Uncompahgre Project features				3/						
Dry Cedar Canal									3.2	
Pumping systems										
Ridgway Pumping Plant (hydraulic)						205				
Ridgway Pumping System (electric)							30	30		
Road relocations (miles)										
U.S. Highway 550	5.0	5.8	5.2	4.2	4.5	3.8	6.0	6.0		
Colorado Highway 62						3.6				
County road							.9	.5	3.0	
Environmental evaluations										
Beneficial effects										
Improvement of Uncompahgre River water quality	yes	yes	yes	yes	yes	yes	yes	yes	no	no
Flood control	yes	yes	yes	yes	yes	yes	yes	yes	no	no
Wildlife management area (acres)	1,900	1,000	1,900	1,000	1,000		6,000	6,000		
Fisheries provided (man-days increase)										
Dallas Divide Reservoir							8,850	8,850		
Ridgway Reservoir	2/	2/	2/	2/	2/		2/	2/		
East and West Forks of Dallas Creek							330	330		
Uncompahgre River	6,000	5,000	6,000	6,000			6,000	6,000		
Streamflow maintenance (miles)										
East and West Forks of Dallas Creek						6.8	6.8	6.8		
Uncompahgre River	12.0	10.0	12.0	12.0	12.0	17.0	12.0	12.0		
Fishing easements acquired (miles)										
East and West Forks of Dallas Creek							4.4	4.4		
Uncompahgre River	12.0	10.0	12.0	12.0	12.0		12.0	12.0		
Adverse effects										
Depletion of the Colorado River	17,100	17,100	18,800	11,600	4/(-400)	37,000	26,700	46,000	15,100	
Increase in salt load to the river (tons/year)	9,800	9,800	13,200	ND	15,000	(-1,600)	9,800	(13,100)	9,700	
Increase in salinity concentration at Imperial Dam (mg/l)										
From salt load	.9	.9	1.2		1.4	(-.1)	.9	(-1.2)	.9	
From stream depletion	1.8	1.8	2.0	1.2	ND	3.8	2.7	4.7	1.6	
Stream habitat inundated (miles)	4.6	4.3	4.8	ND	4.0	6.3	5.5	5.5		
Stream habitat and productivity depleted (miles)						2/6	3/14	3/14	5/43	
Loss of fisherman days on Dallas Creek						130				
Creation of wildlife barriers	no	no	no	no	no	yes	yes	yes	no	
Potential adverse impacts on wildlife	x1	x1	x1	x1	x1	x1	x1	x1	x1	
Loss of natural vegetation by inundation (acres)	1,000	1,025	1,133	638	865	3,423	1,941	1,941	940	
Loss of natural vegetation by conversion to irrigation (acres)			730			14,900	2,360	2,360		
Recreation visual landscape impacts	x1	x1	x1	x1	x1	x2	x2	x2	x1	

1/ Within this serviceable area of 61,810 acres that quality under Bureau of Reclamation standards for additional water, it is not likely that all of this acreage would be served with the water to be made available and the exact average would be determined when subscriptions are made for project water.
2/ Would require concrete lining of 99 miles of canals and laterals and replacement of 7,826 deteriorated structures.
3/ Approximately 16,000 assuming that the reservoir would prove suitable and therefore be stocked.
4/ Weather modification would increase annual runoff by 17,500 acre-feet which is 400 acre-feet greater than project caused depletion.
5/ Dallas Creek and/or Uncompahgre River above Ridgway Reservoir.
6/ Gunnison River between Gunnison Tunnel Diversion and confluence with Uncompahgre River.
7/ Excludes cleared land.

Explanation of symbols
x1 - Minor problems
x2 - Moderate problems
x3 - Serious problems
ND - Not determined

Figure H-1--Locations of the proposed Ridgway Dam site and the alternative Cow Creek axis.

highway would also require a larger section of bridge than the proposed plan. The fencing program along the relocated road would be the same for both plans, and therefore no increase in road kills of big game would be expected. Since the road would traverse a major travel route for deer and elk, the additional length of relocation would increase the disturbance to these animals.

The stream fishery improvement program along the Uncompahgre River below Ridgway Reservoir in the proposed plan would be reduced by 2 miles if the Cow Creek site were selected. Inundation of present stream habitat would be about 0.4 mile less than that in the proposed plan.

Since the prime recreation areas would be a greater distance from the shoreline of the reservoir at the Cow Creek site, the recreational development would necessarily be smaller.

Since a reservoir at the Cow Creek site would be below the mouth of Cow Creek, it would provide greater control of the riverflow and sediment load.

The Cow Creek site was not selected for development because a reservoir at this site with the accompanying road relocation would have more undesirable impacts on aesthetics, recreation, and wildlife than the proposed plan. Also the Colorado Division of Parks and Outdoor Recreation stated that since the recreation values at this site would be minimal, the division would not be interested in supervising the recreation facilities if this site were used.

b. Addition of Uncompahgre Project Westside Extension

An alternative was considered which would extend the area served by the Uncompahgre Project. About 3,600 acre-feet would be added to the water supply of the proposed plan to serve about 730 acres of full service land west of the existing Uncompahgre project. The area to be served is located about 4.3 miles northwest of the M and D Canal at Coal Creek and above the CQ Lateral. The plan would vary from the proposed plan by: (1) increasing the capacity of Ridgway Reservoir by 12,000 acre-feet to a total of 92,000 acre-feet, (2) enlarging the entire 14.4-mile long M and D Canal to Coal Creek by 25 second-feet, (3) constructing a 4.3-mile long M and D Lateral at a capacity of 25 second-feet from Coal Creek, including a 2,500-foot-long siphon across Coal Creek, to the 730 acres of full service lands, and (4) constructing a distribution lateral about 2 miles long, also with an initial capacity of 25 second-foot.

The new lands that would be served are part of a livestock grazing area used mainly in the spring of the year. Vegetation is sparse and consists mostly of short stands of Buffalo grass, wheatgrass, and match weed. Scattered areas have patches of greasewood and sagebrush. Sixty-eight percent of the land is in public ownership.

The major impact of the extension would be conversion of native range to irrigated cropland. The change would have little impact on wildlife because of the type of existing habitat, but small populations of prairie dogs and other small terrestrial wildlife would be displaced. Production of food and fiber would be increased. Benefits would accrue to farmers in the area through expanded yields of corn, alfalfa, fruit, and similar crops.

The 12,000-acre-foot increase in the capacity of Ridgway Reservoir would require 0.2 mile more of road relocation than the proposed plan with an attendant incremental increase in adverse effects on aesthetics and wildlife. Also about 0.2 mile more of stream habitat and 103 acres more of natural vegetation would be inundated by the larger reservoir.

The siphon in the M and D Lateral would create aesthetic impacts since it would be constructed on steep hillsides and across cultivated fields in the bottom of Coal Creek. The effects on the cultivated lands would be of short duration, whereas the cuts on the steep hillsides would be visible for a long period of time. The construction of the M and D Lateral and the distribution lateral would disturb approximately 55 acres along their routes. About half of this land would be permanently occupied by the laterals and maintenance roadways, and the rest would be shaped and revegetated to give the appearance of natural conditions.

The Westside Extension alternative would deplete the Colorado River by an average of 1,700 acre-feet a year more than the proposed plan. The salt load to the river and the increase in salinity concentration at Imperial Dam would be, respectively, 3,400 tons and 0.5 mg/l more than under the proposed plan.

c. Water Savings Programs on Uncompahgre Project

Consideration has been given to two programs other than releases from Ridgway Reservoir to relieve irrigation shortages on the Uncompahgre Project. These include rehabilitation of the existing conveyance system and improvement of on-farm irrigation efficiency by irrigation management scheduling. Without the irrigation releases from Ridgway Reservoir for the Uncompahgre Project, the size of the reservoir would be reduced to 36,500 acre-feet, including an inactive pool of 25,000 acre-feet.

Many of the canals, laterals, and structures belonging to the Uncompahgre Project are old and in disrepair. Some of the canals leak and need to be lined, while a number of structures are still of timber construction and badly deteriorated. The Bureau of Reclamation is currently conducting a feasibility study of a program, known as the Uncompahgre Improvement Project, to rehabilitate these features. The program objective is to replace old structures with more modern structures and to line selected reaches of the canals and laterals to reduce seepage losses and thereby reduce the annual operation, maintenance, and replacement

costs. This program is still in the early stages of study, but investigations to date indicate that if it were undertaken the amount of Dallas Creek Project water needed for irrigation purposes in the Uncompahgre Valley might be reduced.

The Bureau of Reclamation is conducting a pilot irrigation scheduling program in the area as part of the Lower Gunnison Improvement Unit of the Colorado River Water Quality Improvement Program. Under the scheduling program, soil moisture levels and crop requirements are estimated on a weekly basis through computer analyses of selected meteorological, soil, and crop data to predict the ideal timing and rates of application for irrigation. In addition to increasing yields and reducing operating costs, this program could, if universally adopted, result in substantial on-farm water savings. If the Uncompahgre Improvement Project were constructed and accompanied by irrigation scheduling on all the project lands, the need for Dallas Creek Project water for irrigation on the Uncompahgre Project lands would probably be eliminated.

The smaller Ridgway Reservoir that would be possible if it did not provide irrigation water for the Uncompahgre Project would reduce by about 400 acres the amount of land inundated under the proposed plan and the environmental impacts related to that land. The amount of stream habitat inundated by the reservoir would also be reduced by about 0.9 mile. One of the major advantages of this plan is that the stream depletion would be about 5,500 acre-feet a year less than under the proposed plan. The salinity contributions are also anticipated to be less than in the proposed plan. Recreation opportunities at Ridgway Reservoir would be 174,000 recreation days a year, about one-half the predicted use in the proposed plan.

d. Weather Modification

The effect on the Dallas Creek Project plan of successful weather modification in the San Juan Mountains has been considered. Studies to date show that winter snowfall could be increased by cloud seeding, with a resultant increase in spring and summer streamflows of as much as 15 percent. The increased streamflow in the Uncompahgre River at Ridgway Reservoir would average about 17,500 acre-feet annually.

Before weather modification programs can become operational, many technical and legal questions will have to be answered. Therefore such a program cannot be depended on as a reliable source of water for the Dallas Creek Project. If weather modification could be instituted prior to construction of the project, however, the capacity of Ridgway Reservoir could be limited to about 61,000 acre-feet, including a dead and inactive pool of 25,000 acre-feet, and still meet all the presently planned project purposes.

The smaller reservoir would have less value for recreation than the reservoir in the proposed plan as 165 fewer surface acres of water would be available for recreation use. The relocated highway would be 0.5 mile shorter than in the proposed plan and thus the previously

described environmental effects related to the relocation would be reduced by about 10 percent. Inundation of natural vegetation by the reservoir would be 165 acres less than in the proposed plan, and stream habitat inundated by the reservoir would be 0.6 mile less.

Since weather modification would increase average annual runoff at Ridgway Dam by 17,500 acre-feet, which is 400 acre-feet more than the projected depletion of the Colorado River by the proposed plan, the net effect of weather modification on the Colorado River flows would be an increase of 400 acre-feet a year. The annual increase in salt load to the river would be the same as in the proposed plan but the salinity concentration at Imperial Dam would be 1.8 mg/l less.

If weather modification should become a reality after the project was constructed, it would have an effect on project operation. Ridgway Reservoir would have a higher average pool and streamflows could be regulated at higher levels. Water would also be available for additional uses.

3. Alternatives Which Include Service to Log Hill Mesa

a. Plan at Time of Authorization

The plan at the time of project authorization in 1968 and as presented in the Dallas Creek Project Feasibility Report provided a considerably larger water supply than the proposed plan. The plan would develop a total water supply of 75,300 acre-feet annually, including 60,300 acre-feet for irrigation and 15,000 acre-feet for municipal use. An irrigation supply of 54,300 acre-feet a year would serve 14,690 acres of full service land on Log Hill Mesa and 210 acres of full service land between East and West Forks of Dallas Creek. Also 960 acres in the Log Hill Mesa area would receive 800 acre-feet of supplemental irrigation water annually. The remaining 5,200 acre-feet of irrigation water would be used for supplemental irrigation of 7,760 acres in the Colona and Dallas Creek areas. The plan at the time of authorization provided no irrigation water to lands of the Uncompahgre Project area. The 15,000 acre-feet of municipal water was planned for Montrose, Olathe, Delta, and the surrounding rural areas in the Uncompahgre Valley. Like the proposed plan, the plan at the time of authorization would result in flood control and improved water quality in the Uncompahgre River.

In this plan, three reservoirs would be constructed in the upper reaches of the project area to store project water. They would be Ridgway Reservoir with a capacity of 146,500 acre-feet on the Uncompahgre River and Dallas Creek, Dallas Divide Reservoir with a capacity of 17,600 acre-feet on Pleasant Valley Creek, and Sneva Reservoir with a capacity of 825 acre-feet at a site offstream from Cow Creek. Each reservoir would be supplied at least part of its water supply by a feeder canal from nearby streams and each would supply one or more distribution canals. The hydraulically operated Ridgway Pumping

Plant would be constructed below Ridgway Reservoir on the Uncompahgre River to lift irrigation water to Log Hill Mesa where it would be distributed by McKenzie Canal to project lands.

Ridgway Reservoir would be formed by a dam on the Uncompahgre River about 5 miles upstream from its present location and by a dike on Dallas Creek about 1 1/2 miles upstream from the creek's confluence with the Uncompahgre River. The reservoir would be 66,500 acre-feet larger than in the proposed plan and would inundate the town of Ridgway. Ridgway Reservoir would store water of Dallas Creek and the Uncompahgre River as well as water from Cow Creek that would be conveyed to the reservoir by Cow Creek Feeder Canal. Releases from Ridgway Reservoir would be utilized to drive the turbines at the Ridgway Pumping Plant which in turn would pump project irrigation water to the lower portion of Log Hill Mesa via the McKenzie Canal. Releases from the reservoir also would be used for irrigation and municipal and industrial purposes in Uncompahgre Valley.

Dallas Divide Reservoir on Pleasant Valley Creek would store water from the creek as well as water from the East and West Forks of Dallas Creek conveyed to the reservoir by the Dallas Feeder Canal. Some of the project water from the reservoir would be released to Pleasant Valley Creek for subsequent diversion by the Pleasant Valley Canal, and the remainder would be diverted at the reservoir outlet into the Log Hill Mesa Canal. Water diverted into the Log Hill Mesa Canal would be conveyed northeast to serve lands on Log Hill Mesa above the McKenzie Canal.

The potential Sneva Reservoir would be located at a site offstream from Cow Creek and would be provided water by the existing Sneva Ditch which diverts from Cow Creek. Water from the reservoir would be conveyed by the potential Sneva Outlet Canal to Dry Creek and would then be distributed to project lands by existing ditches diverting from the creek.

A project lateral system consisting of open ditches would be provided for lands on Log Hill Mesa. Drains also would be provided for some lands on the mesa.

Specific facilities would be provided for recreation and fish and wildlife. Recreational facilities would be provided at each of the three project reservoirs. Specific measures for fish and wildlife would include acquisition of public access easements along the Uncompahgre River, control of nongame fish in streams tributary to Ridgway Reservoir, development of a game management area, and development of a waterfowl production area at Ridgway Reservoir. Streamflows also would be maintained for fish as far as compatible with other project purposes. Even with the three reservoirs in the plan at the time of authorization, 101,500 fewer recreation days would be realized than in the proposed plan, primarily because of the highly fluctuating water levels of the three reservoirs. Since most of the water in the plan would be for irrigation

and water would be pumped directly from Ridgway Reservoir to Log Hill Mesa, the reservoirs would experience much greater fluctuations than Ridgway Reservoir of the proposed plan.

The plan at the time of authorization would include 52.3 miles of canal construction. The construction would permanently commit approximately 500 acres of now privately owned land to project canals. The plan would cause 3.8 miles of U.S. Highway 550 and 3.6 miles of Colorado State Highway 62 to be relocated. This is about 2.4 miles more of road relocation than in the proposed plan. About one-third of the relocated road would be on presently irrigated land while the rest would traverse primarily pinon and juniper country which is presently habitat for deer and small game.

With the plan at time of authorization, the flow of the Colorado River would be depleted by an estimated 37,000 acre-feet annually, considerably more than in the proposed plan. The increase in salt load in the Colorado River at Imperial Dam would be less than with the proposed plan, while the increase in salinity from the concentrating effects of the stream depletion would be considerably higher.

The three reservoirs in the plan at the time of authorization would inundate about 3,493 acres of natural vegetation, more than three times the vegetation that would be inundated in the proposed plan. Also 14,900 acres of natural vegetation would be converted to full service irrigation whereas no full service lands are included in the proposed plan.

Advance planning studies indicated that the site proposed for Ridgway Reservoir at the time of authorization was not geologically satisfactory. Portions of the glacial moraine are highly pervious and bedrock is more than 290 feet below the river bed. Because of the geological problems and to avoid the inundation of the town of Ridgway, this site was rejected. The plan was further changed because National and regional priorities have caused a shift in project emphasis from irrigation to municipal and industrial water use.

b. Plan in Draft Environmental Statement

The plan in the Draft Environmental Statement would increase usable water supplies in the project area by an average of 52,100 acre-feet annually. Nearly all of the increase over the proposed plan would be provided for irrigation and municipal use on Log Hill Mesa. Of the total supply, 19,100 acre-feet would be allocated to irrigation, 27,500 acre-feet to municipal use, and 5,500 acre-feet to light industrial use.

Average annual irrigation supplies would include 6,430 acre-feet for 3,880 acres of full service lands on Log Hill Mesa and 2,370 acre-feet for supplemental service of 3,470 acres in the Colona, Dallas Creek, and Log Hill Mesa areas. As in the proposed plan, a supply of 10,300 acre-feet would be provided for supplemental irrigation service in the Uncompahgre Project Serviceable area. The municipal supply would

include 23,000 acre-feet for use in Uncompahgre Valley and 4,500 acre-feet for Log Hill Mesa. The industrial water would be available for use throughout the valley.

The water supply would be developed by storage in Ridgway Reservoir at the same site as in the proposed plan and in Dallas Divide Reservoir on Pleasant Valley Creek. Ridgway Reservoir capacity would be 125,000 acre-feet, 45,000 acre-feet larger than in the proposed plan, to provide storage for water to replace that diverted to Log Hill Mesa. Dallas Divide Reservoir would have a capacity of 17,600 acre-feet and would store water conveyed from the East and West Forks of Dallas Creek by a 12.5-mile-long Dallas Feeder Canal in addition to the natural flow of Pleasant Valley Creek on which it would be located. Releases would be made from the reservoir to Pleasant Valley Creek for irrigation in the Dallas Creek area and to the 9.4-mile-long Log Hill Mesa Conduit for conveyance to Log Hill Mesa. Water for municipal use would be released from the conduit about midway along its course while the irrigation water would be conveyed to the Log Hill Mesa Distribution System. The distribution system would be a closed pipe system to provide pressure for sprinkler irrigation. Ridgway Pumping System, consisting of two electrically operated pumping plants and the Ridgway Conduit, would provide additional water from the Uncompahgre River to lands and residential areas near Ridgway and on Log Hill Mesa.

Dallas Divide Reservoir and the irrigation and residential developments it would support would have an adverse impact on big game habitat since the areas affected would lose much of their value for wildlife. Natural vegetation would be lost on about 4,300 acres, about 3,270 acres more than in the proposed plan. The plan would include acquisition of about 6,000 acres of land for mitigation of wildlife losses, about 5,000 acres more than in the proposed plan.

Fishing opportunities would be considerably greater under the plan in the Draft Environmental Statement than in the proposed plan. As in the proposed plan, an increase of 6,000 man-days would be realized on the Uncompahgre River downstream from Ridgway Reservoir, but in addition, fishing opportunities of 8,850 man-days at Dallas Divide Reservoir and 330 man-days on the East and West Forks of Dallas Creek would be realized. Easements would be acquired and minimum streamflows maintained on 12 miles of the Uncompahgre River, the same as in the proposed plan. Minimum flows would also be maintained in 6.8 miles of the Dallas Creek Forks and easements would be acquired along 4.4 miles of the forks.

A total of 268,000 recreation days would be provided at Ridgway Reservoir. An additional 79,400 recreation days would be provided at Dallas Divide Reservoir.

One disadvantage of the plan is the Dallas Feeder Canal which would traverse the base of the scenic San Juan Mountain Range. In addition to scarring the landscape from a scenic point of view, the canal would act as a barrier to small wildlife and disrupt somewhat the migration routes of larger animals despite provision of numerous game crossings.

A total of 14 miles of Dallas Creek and the Uncompahgre River would be affected by reduced streamflows. Also 5.5 miles of stream habitat would be inundated, an increase of 0.9 mile over the proposed plan.

About 6 miles of U.S. Highway 550 would be relocated under this plan, 1 mile more than under the proposed plan. In addition, 0.9 mile of county road would be relocated.

The plan in the Draft Environmental Statement would deplete the Colorado River by about 26,700 acre-feet a year, 9,600 acre-feet more than the proposed plan. The increased salt load resulting from this plan would be 9,800 tons per year, the same as the proposed plan. The increase in salinity concentration at Imperial Dam would be 3.6 mg/l, considerably greater than the increase of 1.8 mg/l that would result from the proposed plan. Both plans would result in an improvement of Uncompahgre River water quality immediately downstream from Ridgway Reservoir and both would provide flood control.

The plan in the draft statement has not been adopted because of a reduction in the request for water for Loghill Village by Western Community Planners and concerns expressed by the public over the Dallas Divide increment.

c. Use of Project Water for Energy Development

Consideration was given to a plan for providing industrial water from Ridgway Reservoir to Kemmerer Coal Company for use in developing energy from coal. The company holds large leases on land in the Tongue Mesa Coal Field on Cimarron Ridge and has proposed to put together an energy package of coal and water to sell to an energy-producing entity. A steam-electric generating plant was proposed, but there is also a possibility of coal gasification.

Under the plan the project water supply would average 65,800 acre-feet annually. Irrigation in the Log Hill Mesa, Dallas Creek, and Colona areas, all municipal uses, and water for small industries would be the same as in the plan presented in the Draft Environmental Statement, but in addition 24,000 acre-feet would be provided for energy production. No water would be supplied to lands in the Uncompahgre Project area.

The features associated with the energy plan would be the same as the plan in the Draft Environmental Statement with the exception that a diversion dam on Cow Creek and a 1-mile feeder canal from Cow Creek would be constructed to deliver water to Ridgway Reservoir. The total capacity of the reservoir would be 125,000 acre-feet with a dead and inactive storage of 15,000 acre-feet for recreation.

The total depletion to the Colorado River would be about 46,000 acre-feet annually or 28,900 acre-feet more than in the proposed plan. Since none of the water diverted for energy production would be returned

to the river and irrigation development would be small, the plan would have the net effect of removing about 13,100 tons of salt annually from the Colorado River system. An attendant result would be a decrease in the salinity concentration at Imperial Dam of 1.2 mg/l from its present condition.

The major concerns of this plan are the impacts that would be associated with the mining of the coal and its subsequent use in the area. Potential emissions from a steam-generating plant or a coal gasification plant could deteriorate the air quality and have adverse visual landscape and aesthetic impacts on the area. Industry of this magnitude would provide conditions for more rapid population growth than presently forecast and, secondarily by the source of wider principal and social problems.

The plan was dropped from consideration as it drew objections from some environmental groups and some area residents. Also the Governor of Colorado recommended that the plan not be adopted.

4. Importation of Water from the Gunnison River

The importation of water from the Gunnison River has been considered as an alternative means of meeting some of the purposes of the proposed plan. This plan would satisfy the same municipal and industrial and irrigation requirements as the proposed plan except for the proposed supplemental irrigation in the Colona and Dallas Creek areas. It would not meet, however, any of the identified project needs for recreation, fish and wildlife, or flood control.

a. Dry Cedar Reservoir

The plan studied calls for the expanded use of the existing Gunnison Tunnel during the nonirrigation season when the tunnel is not utilized to its full capacity. Water supplies diverted through the tunnel would be released to the South Canal and conveyed by the canal to terminal storage at the potential Dry Cedar Reservoir, which would be located below the canal on Dry Cedar Creek. The 3.2-mile-long Dry Cedar Pipeline with a capacity of 325 second-feet would be constructed to deliver water from the reservoir to the Uncompahgre River. Water supplies would then be rediverted downstream as required through existing facilities or facilities constructed by the water users.

Dry Cedar Reservoir would have a capacity of 40,000 acre-feet and would regulate water for distribution according to demand patterns. It was determined that the reservoir would need to be filled in April to meet municipal and industrial and supplemental irrigation needs in the Uncompahgre Valley during the summer months. Additional water would need to be stored in the reservoir in the fall after the irrigation season to supply municipal and industrial needs during the winter months. With the tunnel and South Canal operating at full 1,000 second-foot capacity, approximately 20 days would be required to fill the reservoir. Since

there is not enough water available from the direct flows of the Gunnison River or from storage in Taylor Park Reservoir, especially in dry years, to provide a firm supply to the project needs in this alternative, the water supply would have to be obtained from storage in Blue Mesa Reservoir.

The primary environmental impact of the importation plan would be the inundation by Dry Cedar Reservoir of about 940 acres of livestock grazing lands, some cultivated lands, and a few residences. About 3 miles of county roads would be relocated. Native vegetation found in the reservoir basin includes wheatgrasses, saltgrasses, greasewood, and shadscale. A large portion of the land is unproductive because of high salt concentration near the surface. The salts in the soil would tend to be leached into the reservoir for several years until an equilibrium was reached. This salt diffusion would degrade the water quality slightly until it stabilized. Some questions remain on the geology of Dry Cedar Dam and Reservoir site concerning its water transmission properties and its high saline content. Because of its regulatory function, Dry Cedar Reservoir would be operated as a fluctuating reservoir and during certain periods foreshore areas would be exposed. Dry Cedar Pipeline would traverse cultivated land, waste land, and livestock grazing land.

Importation from the Gunnison River would eliminate or reduce most of the adverse environmental impacts of the proposed plan. The plan was not selected, however, as it would not serve all the purposes of the proposed plan. It would not improve the water quality in the Uncompahgre River nor provide improved flows for fish. Also it would not provide flood control. Since virtually no inactive pool would be included in Dry Cedar Reservoir and because of the highly fluctuating nature of the reservoir, the plan would have very little value for recreation purposes. The scale of irrigation would be smaller than in the proposed plan and the area for service of municipal water would be more restricted.

The flow of the Colorado River would be depleted by 15,500 acre-feet annually. This depletion would also occur in that stretch of the Gunnison River below the confluence with Uncompahgre River, while the reach between the tunnel and the confluence would be depleted by about 43,500 acre-feet annually.

b. Storage on Pleasant Valley Creek

A variation of the plan to import water from the Gunnison River has been suggested by the Fish and Wildlife Service and analyzed by the Bureau of Reclamation. The variation provides for the placement of a pipeline below the floor of the Gunnison Tunnel to provide flow from the Gunnison River and for the use of water from the Dallas Creek Drainage through storage on Pleasant Valley Creek.

The working area in the tunnel would limit the pipe size to about 36 inches or a capacity of about 30 second-feet. A continuous flow at this capacity would yield about 21,700 acre-feet annually. Water diverted through the pipeline in the tunnel would have to be withdrawn

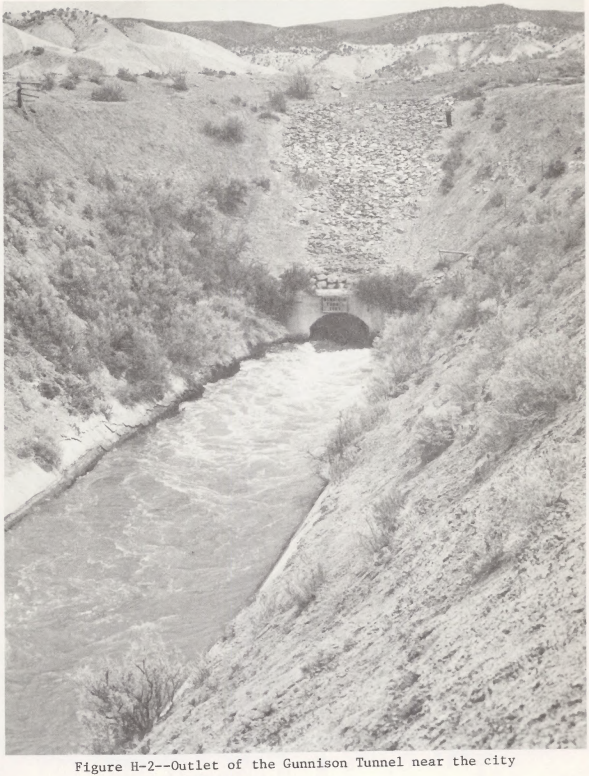


Figure H-2--Outlet of the Gunnison Tunnel near the city of Montrose.

by the water users at the terminus of the tunnel since during the peak irrigation season the South Canal is operated at capacity and thus could not accommodate any increase in volume. Distribution from the terminus of the tunnel would become the responsibility of the water users.

Two possible dam sites on Pleasant Valley Creek were examined by the Bureau of Reclamation. One dam site would be that proposed for Dallas Divide Dam and Reservoir in the Draft Environmental Statement plan. The alternative site would be located farther downstream, about 1 mile upstream from the confluence of Pleasant Valley and Dallas Creeks. Either reservoir would have a maximum capacity of 12,000 acre-feet. The maximum average annual yield that could be obtained at either would be 5,000 acre-feet. To develop the yield, water would have to be diverted from the East and West Forks of Dallas Creek via a 100-second-foot capacity feeder canal to supplement the natural flows of Pleasant Valley Creek.

A number of environmental and economic problems attend this plan. First of all, the water supply developed would be 12,700 acre-feet less than with the proposed plan. Therefore, the area's projected water needs to the year 2000 would not be met. Fishery enhancement, recreation opportunities, flood control, and improved water quality would not be provided on the Uncompahgre River. Because downstream water rights, without Ridgway Reservoir's storage for replacement, require most of the streamflows of Dallas and Pleasant Valley Creeks, only a limited amount of water would be available for storage at either reservoir on Pleasant Valley Creek. Economically, the 12,000-acre-foot reservoir with its low yield would not be a feasible increment.

Environmentally, each reservoir site has problems. The upper site, because of the feeder canal, would resurrect the same concerns the public voiced in regard to Dallas Feeder Canal in the Draft Environmental Statement, i.e., interference with wildlife movement, interruption of farming and ranching practices, aesthetic degradation, and further depletion of the flows of the East and West Forks of Dallas Creek. The reservoir at the lower site would require a much shorter feeder canal, but the left abutment of the dam would have to be placed in a massive landslide area, creating many engineering and safety problems.

5. Nondevelopment

In the Uncompahgre Basin there are strong demands for increased water supplies and there is a sizeable underdeveloped water resource. As long as these two conditions exist there will be attempts to bring them together. Therefore nondevelopment as an alternative to the Dallas Creek Project, as discussed here, is restricted to nondevelopment as a Federal project and recognizes the certainty that other entities would attempt municipal and industrial water developments if the United States does not. Because of the high costs involved it is doubtful that any extensive irrigation developments could be accomplished without government involvement. Financing a development of any magnitude would

be a problem for small entities and would be a limiting factor in any such attempts. From an environmental standpoint, there would be no assurance with private development of minimum streamflows, inactive reservoir storage, public recreation facilities, or mitigation of wildlife habitat losses.

Alternative water developments by the private sector, if constructed to meet the area's water needs, would allow further growth and inevitably result in land use changes that could continue to encroach upon wildlife habitat. Streamflows would be affected, depending upon the scope and magnitude of the developments. Alternative water developments could result in some aesthetic changes.

In 1974 seven water entities in the Uncompahgre Valley formed a coalition known as Project Seven to seek a temporary solution to their combined water problems. These entities were the cities of Montrose and Delta, the town of Olathe, the Tri-County Water Conservancy District, the Uncompahgre Water Users Association, and the Chipeta and Menoken Water Companies. Later an eighth member, the town of Ridgway, was added. The coalition is investigating ways of providing water storage, treatment, and conveyance facilities that could supply increased municipal water to the area until the Dallas Creek Project is completed. If the Dallas Creek Project is not constructed, it would become necessary for Project Seven or other entities to look further into the future. In this event, they would probably consider some of the alternatives that have been studied in conjunction with the Dallas Creek Project.

With no further Federal development approximately 7,500 acres from Colona to the Uncompahgre River's confluence with the Gunnison River would continue to be subject to flood damage during the spring snowmelt period and during heavy rainstorms which usually occur in late summer. Also the water quality improvement of the Uncompahgre River that would result from the Dallas Creek Project would not be realized. The depletion of 17,100 acre-feet per year on the Colorado River along with the increased salt load of 9,800 tons and an average increase of salinity concentration at Imperial Dam of 2.7 mg/l that would result from the proposed plan would not occur.

No streamflow habitat or natural vegetation would be inundated unless it was a result of private development and no resultant visual landscapes impacts would occur. No road relocation and its attendant adverse effects on wildlife would be necessary.

CHAPTER I

CONSULTATION AND COORDINATION

I. CONSULTATION AND COORDINATION

1. Development of the Proposed Plan and Preparation of the Draft Environmental Statement

The Dallas Creek Project was one of 25 potential participating projects of the Colorado River Storage Project given priority with respect to completion of planning reports by the Colorado Storage Project Act of April 11, 1956 (70 Stat. 105). Detailed feasibility studies were conducted in the early 1960's, and results of the studies were outlined in a proposed feasibility report of the Bureau of Reclamation of March 1965. This report was widely distributed for field level review of cooperating agencies and local interests. A final feasibility report with revisions to accommodate the review comments was issued by the Bureau in February 1966. This report was circulated by the Secretary of the Interior for review of concerned Federal agencies under the Flood Control Act of 1944 and was also available for review by local interests. The report of the Secretary of the Interior, including comments of Federal reviewing agencies, was transmitted to Congress on May 3, 1966, and printed as House Document 433, 49th Congress, 2nd Session. The Secretary's report was the basis for project authorization on September 30, 1968.

Definite plan studies of the Dallas Creek Project have been in progress for several years. A report summarizing results of these studies is being prepared and is scheduled for completion in the fall of 1976.

A preliminary environmental assessment of the proposed action was prepared and distributed in January 1974 to about 20 Federal, State, and local agencies and to conservation and other interested private organizations. Comments received from these agencies and organizations were considered in the preparation of the Draft Environmental Statement. The Draft Environmental Statement (DES 76-11) was filed with the Council on Environmental Quality on March 8, 1976, and its availability was announced in the Federal Register of March 11, 1976.

During the preparation and planning of the proposed Dallas Creek Project, the Bureau of Reclamation received planning assistance from other interested Federal agencies, including the National Park Service, Fish and Wildlife Service, Bureau of Land Management, Corps of Engineers, Bureau of Mines, Forest Service, and the Environmental Protection Agency. Published data from the Public Health Service and the Geological Survey were used in the planning process.

The Governor of Colorado and several State agencies contributed input, directly or through their Federal counterparts. Among the agencies were the Colorado Water Conservation Board, the Colorado

Division of Wildlife, the Colorado Department of Agriculture, the Colorado Department of Health, the Colorado Department of Highways, and the Colorado Division of Parks and Outdoor Recreation. Data were contributed and recommendations made by local agencies such as the Tri-County Water Conservancy District, Colorado River Water Conservation District, the Tri-County Planner, the Tri-County Sanitarian, the Delta County Planner, and Western Community Planners, Inc.

The Colorado Division of Wildlife made a biological inventory of the Uncompahgre River Basin under contract with the Bureau of Reclamation, and data from the study were available for the draft statement.

The Archaeological Research Center of the University of Colorado, through the National Park Service, conducted archaeological inventories of the Dallas Divide and Ridgway Reservoir sites, the highway relocation route, all proposed canal and conduit lines, pumping plant sites, and regulating reservoir sites. The results of this research were used in the preparation of the draft statement.

2. Review of Draft Environmental Impact Statement

a. Distribution of Statement

When the Draft Environmental Statement was released in March 1976, approximately 400 copies were distributed for review to Federal, State, and local agencies and to water users' organizations, conservation groups, educational institutions, news media, and individuals. Copies were also made available for public inspection at local county seat libraries and university and college libraries. A partial distribution list showing agencies and organizations receiving the draft statement and those commenting thereon appears in the front of this final statement following the summary sheet.

The review period for the draft environmental statement began with the notice of availability published in the Federal Register of March 11, 1976. The review period officially ended April 30, 1976; however, some written comments received after that date have been accepted and considered in preparation of the final statement.

b. Public Hearing

A formal public hearing was held April 17, 1976, to receive comments on the Draft Environmental Statement. Notice of the hearing was made in the Federal Register of March 17, 1976, 31 days prior to the meeting date. The hearing was held in the cafeteria of the Montrose High School, Montrose, Colo. It convened at 10 a.m. and adjourned at approximately 12:15 p.m. The hearing was conducted by Ronald Staten, Assistant Regional Solicitor for the Department of the Interior, Salt Lake City, Utah. Regional Director David L. Crandall, Upper Colorado Region, Salt Lake City, Utah; and Senior Staff Officer, J.F. Rinckel,

Western Colorado Projects Office, Grand Junction, Colo., were present to officially represent the Bureau of Reclamation and receive testimony.

Approximately 150 people attended the hearing with 131 actually registered. A total of 31 individuals presented oral testimony. Six people submitted written comments in conjunction with their oral testimony. Following is a list of those testifying in order of appearance:

Speakers at Public Hearing

Name	Representing or Status
*Warren Comerer	Ouray County Commissioners
John Kramer	Montrose County Commissioners
George Hicks	Mayor, Town of Ridgway
*Del Kinkel	Montrose City Council
Harold Westeson	Tri-County Water Conservancy District
Ed Currier	Colorado River Water Conservancy District
*Harold Anderson	Uncompahgre Valley Water Users Association
*Dick Johnston	Speaking for: Lewis Don Cramer, Pete Hess, and Mrs. Raymond Lowery
*Dave Wolford	Self, wife, and sister-in-law
William Jutten	Self, Robert Jutten, and Ralph Gibben
Carol Hotchkiss	Self
Joe Warren	Self
Dr. William Lomax	Self
Jack Morrill	Self
Glenn Caddy	Self
Mrs. W.S. VanCleave	Self
Andrew Soderquist	Self
Edgar Hotchkiss	Self
Everett Schmidt	Self
Verl Smith	Self
Lawrence Flick	Self
Morris Miller	Self
*Kent Nelson	Self
Rudolph Landrum	Self
Edna Myer	Self
Walt Waldow	State Representative
Gene Ashley	Self and mother-in-law
Esther Lewis	Self
Keith Anders	Self and wife
Hal Hall	Self
Rick Trujillo	Self

*Oral testimony accompanied by a written statement. The written statements are presented unabridged and responded to individually in Section I-3.

A verbatim transcript of the hearing was recorded by an official reporter. This transcript has been bound and is available for public inspection at the locations listed below. Copies of the transcript can be purchased from the reporter, Delber C. Bohling, 712 Clark Street, Delta, Colorado 81416.

Office of Ecology
Room 7620
Bureau of Reclamation
Department of the Interior
Washington, D.C. 20240

Publication Section
General Services Branch
Bureau of Reclamation
Engineering & Research Center
Denver Federal Center
Denver, Colorado 80225

Regional Director
Bureau of Reclamation
Room 7223, Federal Building
125 South State Street
P.O. Box 11568
Salt Lake City, Utah 84147

Western Colorado Projects Office
Bureau of Reclamation
Building 8, ERDA Compound
Grand Junction, Colorado 81501

Several people spoke in favor of the project and indicated approval of the adequacy of the Draft Environmental Statement. Several others, however, voiced concern over the project and the adequacy of the statement. The major concerns raised revolved around the fishery easements planned along the Uncompahgre River and the East and West Forks of Dallas Creek, the acquisition of 6,000 acres of land for wildlife range to mitigate habitat losses associated with the project, and the inclusion of the Dallas Divide Reservoir increment of the project to provide irrigation and municipal and industrial water for Log Hill Mesa. The following paragraphs contain the general issues raised concerning the project plan and Draft Environmental Statement and appropriate responses to them.

Concern No. 1: The project planned acquisition by condemnation of access easements of unspecified width for fishing was objected to. Specific objections to the analysis of the fishing easements in the Draft Environmental Statement were that no definite easement width had been specified and that the social and economic impacts on farm families and farm operations were incomplete and inadequate.

Concern raised by: A total of 21 people spoke either against this aspect of the project plan or questioned the adequacy of the analysis in the Draft Environmental Statement. Because of their number, people raising the above concerns are not individually named here.

Response: Since publication of the Draft Environmental Statement, the project features on East and West Dallas Creek, including the fishing easements, have been deleted from the plan. Easements are still planned for the Uncompahgre River downstream from Ridgway Reservoir, but they would be acquired on a "willing seller" basis and generally limited to about 25 feet in width. An expanded analysis of the needs for and impacts of fishing easements is presented in Sections A-5b, B-9, B-11a, C-3a, C-5, C-6d, and D-6.

Concern No. 2: The project planned Dallas Divide increment, including the Dallas Feeder Canal, Dallas Divide Reservoir, Log Hill Mesa Conduit, Ridgway Pumping Plant, and Log HIll Mesa Distribution System, was objected to. Also there were objections to providing water for Loghill Mesa Community (now called Loghill Village) and for arable lands on Log Hill Mesa. Assertions were made that the Draft Environmental Statement presented inaccurate projections of available water in the Dallas Creek Drainage, that the statement failed to treat the impacts of this increment on existing water rights, and that the economic and aesthetic impacts of the Dallas Feeder Canal were not fully presented.

Concerns raised by: Warren Comerer, George Hicks, Dave Wolford, Kent Nelson, and Ester Lewis.

Response: After publication of the Draft Environmental Statement, Western Community Planners, developers of Loghill Village, reduced their request for project water. This reduction in water demand made the Dallas Divide increment economically unjustified, and it has therefore been deleted from the project plan.

Concern No. 3: It was asserted the project planned conversion of 6,000 acres of private land to a wildlife management area would pose a hardship on affected landowners, seriously reduce needed livestock grazing range, and adversely affect the tax base of Ouray County. The Draft Environmental Statement was criticized for inadequately assessing the social and economic impacts of the mitigation proposal on the present owners of the land and for overestimating the adverse impacts of project construction on wildlife and, hence, overestimating the need for lands to mitigate losses.

Concern raised by: Warren Comerer, George Hicks, Dick Johnston, William Jutten, Carol Hotchkiss, Glenn Caddy, Mrs. W.S. VanCleave, and Everett Schmidt.

Response: Because of recent reductions in the scope of the project, especially the complete elimination of irrigation service to new lands on Log Hill Mesa, the adverse impacts of the project on wildlife would be much less than predicted in the draft statement. The lands now planned for mitigation of wildlife losses have therefore been reduced to 1,000 acres. The need for and impact of the mitigation lands are presented in Sections A-5b, B-7b, C-4b, C-6, C-7d, C-9, and D-5.

Other Concerns

Further objections were voiced that alternative highway alignments were not treated, that population predictions and water needs were inaccurate, and that impacts on industrial development were incomplete.

Concerns raised by: These concerns were raised primarily by Messrs. Comerer and Nelson in their oral testimony.

Response: Since the objections or concerns raised by Messrs. Comerer and Nelson recur in their written statements, response has been made to the written statements in Section I-3c and I-3e.

c. Written Comments

Numerous written comments on the Draft Environmental Statement have been received by the Bureau of Reclamation. The views expressed in these comments parallel those given at the public meeting. Copies of the written comments are included at the end of this chapter. The letters are grouped alphabetically in five categories as follows: (1) Federal agencies, (2) State agencies, (3) local government, (4) organizations, and (5) individuals. The originals of these written comments are on file in the Upper Colorado Regional Office of the Bureau of Reclamation in Salt Lake City, Utah.

3. Disposition of Comments Received on Draft Statement

The plan presently proposed in this Final Environmental Statement has been revised from that presented in the draft statement and eliminates most of the aspects of the plan in the draft statement that raised concern. The revisions have been made in response to concerns expressed by the public on the draft statement and also have resulted from a reduction in the request for water for Loghill Village by Western Community Planners.

All review comments received by the Bureau of Reclamation, both written and oral, have been considered in the preparation of this Final Environmental Statement. The statement has been expanded and modified where appropriate to accommodate the input received in these comments.

Where response is appropriate, each letter reproduced in this chapter is followed by a memorandum which eresponds to the viewpoints raised. Some of the letters require no response, and their receipt is herewith acknowledged.

3. Disposition of Comments Received on Draft Statement

a. Comments from Federal Agencies

Department of the Interior
- Bureau of Land Management
- Bureau of Mines
- Bureau of Outdoor Recreation
- Fish and Wildlife Service
- Geological Survey
- National Park Service

Advisory Council on Historic Preservation

Department of Agriculture
- Agricultural Stabilization and Conservation Service
- Forest Service
- Soil Conservation Service

Department of the Army, Corps of Engineers

Department of Health, Education and Welfare
- Office of the Secretary
- Public Health Service

Environmental Protection Agency

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

IN REPLY REFER TO

CO-911

1793

COLORADO STATE OFFICE
ROOM 700, COLORADO STATE BANK BUILDING
1600 BROADWAY
DENVER, COLORADO 80202

Your ref: 746
500.

Memorandum

MAY [illegible]

To: Commissioner of Reclamation, Bureau of Reclamation
Washington, D.C. 20240

From: State Director, Bureau of Land Management, Colorado

Subject: DES 76-11 - Dallas Creek Project

Thank you for the opportunity to comment on the subject Draft Environmental Statement.

Though our comments are quite voluminous and sometimes critical, we do hope that they are constructive. Our concerns with the coverage and depth of the DES are very real because of the substantial anticipated impacts on lands and resources for which BLM is responsible.

Encls.

cc: Director (260)
DM, Montrose
CSO Resources

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A. Description of the Proposal

General

The question of the withdrawal of National Resource Lands is not addressed in the proposed action. This is of extreme importance in that it affects management decisions within the management framework of the BLM. A staff report prepared prior to the writing of the Dallas Creek EIS discusses in some detail these concerns (see Appendix I, enclosed). In that such withdrawal would constitute a Federal action, this matter must be discussed within the proposed action. Further, such withdrawal will have widespread effects in the region including effects on wildlife, fisheries, water quality, land use, forage, minerals, roads, and other facets of land use. In this view, additional information must be provided. Otherwise, the EIS tends to sound like a project justification. Certainly this is not the intent, but without expansion of the proposal, the objectivity of the statement is in question.

Specific

Page

A-2 Riparian habitat losses have never been truly mitigated. Land acquisition alone does not mitigate anything. The entire Section (3) is misleading.

A-34 (e) - We agree with the Fish and Wildlife Service position. However, the lack of fish stocking feasibility should place a further burden on the Bureau of Reclamation rather than shifting it to the Colorado State Division of Wildlife.

A-37 Riparian habitat and wildlife species are not even mentioned - a serious omission. Mitigation is mentioned on page A-37, therefore, it misses the target. In fact, only deer, fisheries, and "general wildlife habitat" are addressed.

B. Description of the Environment

General

This section needs more specific information and quantification. Additionally, clarification is needed in some areas. Several impacts that will result from the building of these dams have not been addressed:

1. The statement predicts in several places that the Gunnison and Colorado Rivers will be impacted. Both of these areas have been recommended for critical habitat for endangered fish species (Colorado sqawfish, humpback sucker, bonytail chub), but no impact is mentioned. The Endangered Species Act of 1973 makes it law that all Federal agencies not harm endangered species and their habitats.

2. Water quality will probably eliminate Ridgeway Reservoir as a fishery. In addition, 6 of the 15 water quality tests for potable water were exceeded in the Uncompahgre River, possibly eliminating it as a domestic water supply, or at best, making expensive treatment facilities necessary. Also, several square miles of bottomlands that are presently being farmed will be eliminated by rising waters, possibly more than will be added by irrigation.

3. Riparian vegetation and aquatic vegetation need to be addressed.

Specific

Page

B-23 Table B-5: Omits consideration of riparian and aquatic vegetation - an error when involved with a reservoir product.

B-32 Figure B-9: Not riparian vegetation.

B-38 (1) - Mule deer - Recheck population trends on mule deer.

B-47 (e) - Riparian habitat mentioned, but not defined. The entire wildlife section should be addressed on a habitat-type and ecosystem basis. Otherwise, how can you know what to mitigate?

B-48 (i) - Since prairie dogs are present, is there a possibility of black-footed ferrets?

B-49 (j) - Explain 3d sentence, 2d paragraph. What are the "effects of development" referred to? Riparian statement is good - this thought needs to be expressed elsewhere and riparian habitat defined on a map so that losses can be quantified. This section (j) needs to be clarified.

B-54 (a) - Add Senate Bill 97 and H.B. 1041.

B-56 (c) - 1st paragraph - Further protection of the environment would result if the Dallas Creek Project were not approved.

B-71 (13-a) The low annual precipitation is also one of the more desirable characteristics - it has produced the environment that exists. Poor attempt at rationalization for the Project.

B-74 (c) - Perhaps crop production is not the highest and best use for the area. B-74 talks about recent curtailment of grazing privileges on public land. There has been no known curtailment on NRL.

B-76 (d) - Demands for stream fishing. The Project would reduce this.

B-77 More available farmland (furnished by the Project) plus increased use of pesticides equals more problems for wildlife - particularly upland game and raptors.

B-78 and B-79 The historic section needs specific site information. There are too many generalities dealing with sites. A brief section describing the history of the region would be helpful. The cursory examination of National Registry properties is not adequate.

C. Environmental Impacts of the Proposed Action

General

This section needs more quantified details particularly regarding wildlife, fisheries, and minerals. There are contradictions in the text that need to be clarified while some information is lacking.

There is insufficient data on metals, minerals, and salt content of the Uncompahgre River to predict water chemistry conditions that will exist in the Ridgeway reservoir. At least one year of frequent sampling would be recommended. Selenium should be monitored in particular, since it has been identified in the area and is toxic to both fish and humans. Arsenic and manganese could also be significant. It may be wise to consider whether density currents will exist in the Ridgeway reservoir and predict thermal stratification and accumulation of heavy metals in the hypolimnion.

Specific

Page

C-4 (1) - The reservoir aquatic environment established would fluctuate with drawdown - thus, true pond habitat may not exist.

C-5 (1st paragraph) - Does "forced" trout stocking equal natural, stream fishing experience?

C-8 Dropping water through a conduit may compress nitrogen into the water, causing a saturated condition that will kill fish several miles downstream.

The EIS tries to negate water quality problems by neutralization with high alkalinity. This is only partially effective and most likely will not completely eliminate the problem. They admit elsewhere that Ridgeway Reservoir will act as a settling reservoir for heavy metals.

C-9 (2) - How can you inundate 1.7 miles of creek without negating stream type vegetation?

C-13 The project eliminates 14.7 miles of tributary streams that presently sustain a fishery and replace them with Dallas Divide Reservoir (281 miles of pond).

C-17 Discussion of terrestrial wildlife, especially big game mammals, is not specific. The estimated number of animals affected by the project should be identified.

Page

C-17 (a) - Long-term effects on wildlife are also dependent on human population pressures and changes.

C-18 (Table C-2) - The small acreage of riparian habitat involved does not equate with a similar, small impact on wildlife. This type is a concentrated area for many species - without it, entire ecosystems are disrupted.

C-22 2d sentence, 1st paragraph - not true! The original deer and their progency are involved, plus the impacts on migratory deer and their offspring.

No mention of impacts of the fencing on deer are mentioned. (See Section A of EIS.)

C-23 (2) - Interesting statement of elk.Roads, reservoirs plus people do negatively impact elk and all are associated with the Project.

(3) - Associated human disturbance factors that accompany the project are not addressed.

C-24 (d-1) - How can you "create" waterfowl nesting habitat around a fluctuating water level?

C-26 (e) - You can only "create" beaver habitat if permanent water plus willows, aspen, etc., are also provided. The Dallas Feeder Canal is not being built to produce new riparian habitat.

C-27 (f) - Varmints might increase with the project.

(g) - How can the loss of hunting habitat not affect populations?

C-28 Irrigation development plus the associated use of pesticides will not help raptors.

(h) - Irrigation canal return flows' riparian habitat will not equal the natural riparian habitat lost.

C-29 (j) - A nice paragraph.

C-40 A paradox of statements. First half of page illustrates increase of people, which impacts wildlife. Section (d) mentions stimulation of economy from hunting and fishing - for what?

C-48 Identified historic sites should be tested for archaeological potential. Equally, archaeologic testing should be used in area to determine extent of pre-historic use. The townsite of "Old" Dallas will be destroyed by the dam. It should be surveyed and recorded in detail.

D. Mitigation Measures and Air and Water Quality Aspects

General

The mitigation section needs quantification and clarification in some cases. There are many areas that are vague and need amplification.

Specific

Page

D-1 There should be a part under Chapter D which discusses "Measures to be Employed Before Project Construction." This part could contain, but not be limited to: 1) mitigating wildlife measures applied prior to project construction, and 2) clearing mining claims.

The mitigating wildlife measures should be applied prior to reservoir or other project construction.

D-6 (d) - How about increased water pollution from increased use of pesticides on newly available, irrigable land?

D-8 The use of underground pipes also reduces the changes of additional riparian habitat being created.

D-9 and D-10 The dual outlets at Ridgeway Dam will not insure good water quality for sports fishery purposes. At best, it will only give some degree of control over water temperature below the dam.

D-10 Using the Salimity Control Act of 1974 (Title II) to mitigate increases in salinity in projects yet to be built is ridiculous. The Act will not completely alleviate the present problems or future ones.

(4) - Fences constructed must be designed properly to permit deer and elk movement or the protective benefits will be lost. The mere acquisition of 6,000 acres is not mitigation. This area is already populated with wildlife and the change of ownership will not solve the habitat loss problem. Riparian habitat loss is not even mentioned. A cursory attempt at mitigation.

D-11 No mention as to how the loss of riparian habitat will be dealt with.

What recreation will the minimum pool support? No fish will live in the poor water quality, and water contact sports (swimming, boating) could be limited.

D-12 (6) - Any handouts, brochures or maps?

E. Unavoidable Adverse Effects of the Project

General

Again, the EIS fails to address a number of major impacts that the project will have, including some rather adverse effects on National Resource Lands. These impacts must be addressed in more detail.

Specific

Page

E-1 (2) - Again, riparian vegetation impacts and mitigation are not addressed. Generally this section does not cover the issues.

E-2 (3) - 1,940 acres of already existing farm and range land will be eliminated to produce a possible 3,880 acres of project full service irrigation land. When one adds in the losses of wildlife habitat, what does the cost/benefit ratio add up to?

F. Short and Long Term Environmental Uses

General

There are numerous effects of the proposed action that will affect National Resource Lands and these need to be discussed in detail.

Specific

Page

F-3 (c) - Add in the notation that the reservoir habitat would be a "fluctuating water level" type - not conducive to producing wildlife. Also, the last sentence in section (c) is a questionable statement. What about species other than deer?

G. Irreversible and Irretrievable Commitment of Resources

General

There may be other effects than those discussed that will impact use and management of National Resource Lands, and these must be discussed in detail.

Specific

Page

G-2 (3) - Add in the full negative impact of permanent riparian habitat loss.

H. Alternatives to the Proposed Project

General

It seems that several of the alternatives seem much more desirable than the proposed action. These should be explored in detail.

Specific

Page

H-2 Based on Table H-1, wildlife habitat would benefit most from the "non-development" alternative.

Attachment Section

General

An appended attachment of the Breternitz report (University of Colorado) would be a valuable addition for supporting the archaeologic data in the text.

Specific

Attachment 5 - The habitat type concept should be included in the main text; also, mitigative efforts should address the habitat losses.

Memorandum

To: Files

Subject: Response to United States Department of the Interior, Bureau of Land Management, Colorado State Office, May 5, 1976, Letter on the Dallas Creek Project Draft Environmental Statement

Representatives of the Bureau of Reclamation met in Denver on August 6, 1976, to discuss these comments with representatives of the State Director's Office of the Bureau of Land Management. Also in attendance were representatives of the Colorado Water Conservation Board, the Colorado Department of Natural Resources, and the Colorado Division of Wildlife. Each Bureau gained a better understanding of the others' concerns and problems, and some of the responses presented here reflect discussions at that meeting.

The response numbers refer to the page and section references used by the Bureau of Land Management (BLM) to identify its comments. The comments are not repeated here.

Chapter A. General Response:

Under the present plan about 985 acres of National Resource Lands would be withdrawn for the Ridgway Reservoir right-of-way. Only a small portion of these lands would be inundated by the reservoir. Most would be used as a buffer zone to protect the reservoir from encroachment and for recreation and administrative purposes. Livestock grazing would be discontinued and one unpatented mineral claim would have to be relinquished to the United States within the provisions of the mining laws. These lands would be managed to the benefit of wildlife, and aesthetic values would be protected and in some areas improved. These concerns are covered in the appropriate sections of the Final Environmental Statement.

A-2 Response:

These concerns are discussed in Chapter C of the final statement. There are no provisions in the plan to replace riparian habitat.

A-34 (c) Response:

No response necessary.

A-37 Response:

Chapter A is intended to be strictly a description of the project plan. Specific habitat types and wildlife species are discussed in Sections B-5,

6, and 7. The impacts on these habitats and species are discussed in Section C-4 and losses are covered in Section E-2.

B - General 1. Response:

A discussion of the possible effects of the project on endangered fish species is presented in Section C-3c.

B - General 2. Response:

Under the present plan 645 acres of irrigated land would be taken out of production. No new land would be brought under irrigation by the project.

B - General 3. Response:

Riparian and aquatic vegetation types are addressed in Sections B-5, C-3, C-4, and E-2.

B-23 - Table B-5 Response:

Table B-5 shows willow or cottonwood vegetation type, which is riparian, to cover 1.4 percent of both zone 1 and zone 2. Table C-2 presents riparian habitat acreages and the project impacts upon them.

There is every reason to believe that an exchange agreement would be reached between Tri-County Water Conservancy District and the Uncompahgre Valley Water Users Association for the district to use higher quality Gunnison River water for municipal use in exchange for releases from Ridgway Reservoir for irrigation. Should an exchange agreement not be consummated, however, storage in Ridgway Reservoir would be utilized in meeting municipal and industrial demands. A special report, "The Impact of Various Metals on the Water Quality in Ridgway Reservoir,"[39] concluded that "the waters of Ridgway Reservoir can be used for public water supply, livestock watering, and agricultural uses."

B-32 Figures B-9 Response:

The comment should have read: Note riparian vegetation. This has been added to the caption.

B-38 (1) Response:

The figures which were supplied by the Colorado Division of Wildlife have been checked and are correct.

B-47 (e) Response:

Wildlife is described on a species basis to facilitate the reader's understanding of the project impacts on the individual species. This

discussion does include details of habitat types and their significance to wildlife. It is recognized that animals are dependent on their habitat and any changes therein will affect distribution and abundance of each species.

B-48 (i) Response:

The black-footed ferret was formerly distributed nearly statewide and could have existed in Ouray County although there are no historical records of such occurrence. The Colorado Division of Wildlife reports the following: "Habitat for the black-footed ferret exists at prairie dog towns scattered throughout the area. No ferrets or their sign were observed during the study, and their existence within the area is unlikely."(10)

B-49 (j) Response:

This section is intended to establish that present human developments are affecting wildlife habitats and population and that this trend is expected to continue whether or not the project is constructed.

B-54 (a) Response:

Apparently there are several State laws to back local governments in efforts to control residential development. It is not the purpose of this statement to fully cover this field so the text has been rewritten for general coverage.

B-56 (c) Response:

It is the purpose of the Dallas Creek Project to provide, in an orderly manner, a water supply to provide for as many of the area's needs as possible. These water needs are for growth and development that are occurring now and are expected to continue with or without the project. It may well be that a single, unified water development such as the Dallas Creek Project would have fewer environmental impacts than several small independent ones.

B-71 13(a) Response:

The Bureau of Reclamation agrees with the first sentence; however, the natural environment does not support the level of development presently taking place in the area.

B-74 (c) Response:

The reference to curtailment of grazing privileges on public lands has been deleted and replaced by a statement that there is insufficient grazing land available to supply the needs of the livestock industry.

B-76 (d) Response:

This chapter is a description of present conditions. Project effects on stream fishing are covered in the following chapter.

B-77 Response:

The irrigation of new land has been deleted from the project plan. Impacts from the use of pesticides are discussed in Chapter C-2b(1).

B-78 and 79 Response:

No sites were located which were deemed worthy of nomination to the National Registry of Historic Places. The National Registry as published in the Federal Register of February 10, 1976, and all monthly supplements since that time have been examined. These aspects are discussed in Section B-16.

C. General Response:

The Bureau of Reclamation analyzed all available water chemistry data for the project area. Based on this information and expert opinion of water-quality professionals, it was determined that heavy metals and toxic chemicals would not become a problem in Ridgway Reservoir because of the settling-out action, the alkalinity of the water, and the presence of fairly large amounts of sulfates. Selenium was monitored for more than a year. Exact thermal stratification was not predicted because of inadequate long-term weather data for the Ridgway area. Stratification would occur, as based on other bodies of water in the general area, as in Blue Mesa Reservoir. Density currents are not considered to be a problem because they rarely develop strongly in domestic lakes. Dual outlets would extend some control. The phenomenon itself only occurs rarely and under specialized conditions.

C-4 (1) Response:

The section was not intended to describe pond habitat but merely to depict the type of food chain which would develop.

C-5 Response:

Possibly most fishermen would prefer fishing on a quality stream with native trout to fishing in a reservoir with stocked trout. When comparing a stocked stream of questionable quality and limited access to an accessible reservoir of somewhat better quality, however, this judgment is difficult. The Uncompahgre River is now stocked annually with catchable rainbow trout, but the water quality is lower than that predicted for Ridgway Reservoir.

C-8 First Comment Response:

The pressure required to supersaturate water with gas in lethal concentrations is dependent upon the depth of the plunge pool and the angle at which the water enters that pool. These factors are considered in the design of the outlet structures for Ridgway Reservoir, and no problems are anticipated.

C-8 Second Comment Response:

The average pH of the Uncompahgre River and Dallas Creek, near Ridgway, is 8.1 and 8.2, respectively. This is sufficient to combine the heavy metals into insoluble compounds so they would precipitate out of the slow moving reservoir water. Upon precipitation these insoluble compounds would become harmless components of the sediment in the reservoir floor.

C-9 (2) Response:

Pleasant Valley Creek is an intermittent stream which does not support any quantity of stream-type vegetation. Because Dallas Divide Dam has been deleted from the project plan, this comment is no longer applicable.

C-13 Response:

Dallas Divide Reservoir has been deleted from the project plan.

C-17 Response:

The discussion referred to details specific habitat losses and gains associated with the project. Estimates are not given concerning actual numbers because present populations, except for deer and elk, are largely unknown and populations will not necessarily change in direct relation to habitat changes. The best available estimates were included in the draft statement. The estimates have been updated in the final statement to reflect changes in the project plan and new information furnished by the Fish and Wildlife Service.

C-17 (a) Response:

No response necessary.

C-18 (Table C-2) Response:

No response necessary.

C-22 Response:

Under the present plan the Bureau of Reclamation does not anticipate losses in deer populations nor would project features interfere significantly with migration patterns.

Fences around Ridgway Reservoir would be designed to allow deer movement. The deer fencing along the highway would reduce the present number of deer killed in deer-vehicle collisions as well as prevent increased losses that would otherwise result from relocation of the highway in an area with heavier deer concentrations.

C-23 (2) Response:

Roads, reservoirs, and people impact elk when they are in elk habitat. Project features, especially in the presently proposed plan, are confined to the lower fringe of elk range, and significant impacts on the species are not expected with the project.

C-23 (3) Response:

This comment refers to the discussion of bighorn sheep, black bear, and mountain lion. The primary human disturbance factor to wildlife would be the recreation use at Ridgway Reservoir. Because bighorn sheep and black bear habitat would be remote from the reservoir, disturbance of those species would be minimal. The use of Ridgway Reservoir area by mountain lions could be restricted.

C-24 (d-1) Response:

The fluctuating water level would not facilitate waterfowl nesting, but some nesting would occur along the reservoir shores as it does at similar reservoirs in western Colorado. The production would be insignificant.

C-26 (e) Response:

The Dallas Feeder Canal has been deleted from the project plan.

C-27 (f) Response:

Most varmints would be negatively affected by Ridgway Reservoir and highway relocation. The raccoon is one species that might readily adapt to the new conditions created by the project.

C-27 (g) Response:

Habitat losses and increased human activity at Ridgway Reservoir could negatively affect populations of certain raptors, but the impact cannot be quantified.

C-28 Response:

The irrigation of full service lands has been deleted from the project plan. Because only supplemental lands would be served, no significant increase in the use of agricultural pesticides is anticipated.

C-28 (h) Response:

This comment refers to return flows from irrigation on Log Hill Mesa, which has been deleted from the project plan. No new riparian habitat would now be formed.

C-40 Response:

Recreation activities, other than hunting and fishing, would have a stimulating effect on the economy. Under the presently proposed project plan and the mitigation measures it contains, deer and elk populations are expected to remain near present levels, so hunting income to the area should not change appreciably.

C-48 Response:

The archaeological report on the Dallas Creek Project, prepared by the University of Colorado Archaeological Research Center, stated, "It is not deemed necessary to conduct further archaeological investigations within the area.... No significant archaeological resources will be destroyed as a result of the construction of the Ridgway Dam or the relocation of U.S. Highway 550." Because of the reduction in the size of Ridgway Reservoir, the Dallas townsite would not be inundated by the reservoir nor would it be within the proposed take line.

D-1 Response:

Wildlife mitigation plans are detailed in Chapter D. Deer-proof fencing to protect wildlife along U.S. Highway 550 would be installed prior to the opening of the relocated section. The wildlife management area would be acquired in construction year 3, prior to reservoir filling and initiation of recreation use. The clearing of the one possible mining claim is covered in Section C-9.

D-6 (d) Response:

The irrigation of new land has been deleted from the project plan so only a minimal increase in pesticide use with no significant effect on water pollution is anticipated.

D-8 Response:

All project-constructed water conveyance systems have been deleted from the project plan.

D-9 and 10 Response:

The dual outlet system would not insure good water quality downstream but it would provide maximum opportunity to supply good water downstream.

This outlet system is not planned strictly for temperature control but also to minimize the potential of releasing water with low oxygen concentrations and/or with other chemical problems which may develop due to reservoir stratification.

D-10 Response:

No claim is made that the salinity control program would completely alleviate the present or future salinity problems. The statement is merely made that: "The salinity control program is intended to provide sufficient measures to maintain the salinity of the Colorado River at Imperial Dam at its 1972 level of 879 mg/l, while the Upper Basin continues to develop its compact apportioned waters."

D-10 (4) Response:

The fences around Ridgway Reservoir right-of-way would be designed to restrict livestock movement but to allow movement of wildlife. The relocated highway would have adequate underpasses to allow wildlife movement. It is true that mere change of ownership would not solve the habitat loss problem. The acquired area (which has been reduced to 1,000 acres) would be managed and developed to increase the carrying capacity for wildlife and therefore to maintain populations in the project area.

D-11 First Comment Response:

Riparian habitat losses are tabulated in Table C-2. These losses would be almost impossible to mitigate in kind because new riparian conditions are difficult to create. In general, therefore, the loss of riparian habitat must be considered an unavoidable adverse effect of the project as stated in Chapter E.

D-11 Second Comment Response:

Recreation use estimates are largely based on the water level during the prime recreation months of June, July, and August as stated in Section A-5a. Average water levels during this season have been calculated and appear to be considerably above the minimum pool level which would occur in November or December when the recreation demand would be insignificant. Studies by the Bureau of Reclamation indicate that the quality of water in Ridgway Reservoir would be suitable for water contact sports.

D-12 (6) Response:

It is assumed that this question concerns "handouts, brochures, or maps" that might be made available to the public to increase their knowledge

and enjoyment of the area. The Bureau of Reclamation has no present plans for such, but it would certainly be acceptable for the recreation management agency to provide such documents.

Chapter E General Response:

The response is included in the comment for Chapter A - General.

E-1 Response:

The loss of riparian habitat has been added to Section E-2.

E-2 Response:

The land to be inundated by Ridgway Reservoir has been reduced to 1,030 acres, and Dallas Divide Reservoir and service to full service land have been deleted from the project plan. Monetary values have not been assigned to lost wildlife habitat.

Chapter F General Response:

The response is included in the comment for Chapter A - General.

F-3 (c) Response:

The "reservoir type" habitat created would be a "fluctuating water level type" as stated and not as productive as a stable lake. Nevertheless, Ridgway Reservoir, like other western Colorado reservoirs, would be used by a number of species, especially waterfowl.

Chapter G General Response:

The response is included in the comment for Chapter A - General.

G-2 (3) Response:

The additional information has been incorporated.

Chapter H General Response:

There are certain desirable features as well as undesirable aspects in all the alternatives presented. The proposed plan has been determined to be the most desirable way to achieve all the project purposes. The Bureau of Reclamation considers discussions in Chapter H of the Final Environmental Statement adequate to permit comparison of the alternatives.

H-2 Response:

No response necessary.

Attachment Section - General Response:

The University of Colorado Archaeological Research Center (Breternitz) report has been added to the Final Environmental Statement as Attachment 5.

Attachment 5 (included as Attachment 3 in this Final Statement)

Response:

Habitat losses with the project are tabulated in Table C-2. Environmental impacts of the project are presented on a species basis in Chapter C, but it is recognized that a species is impacted because of habitat alterations. A mitigation plan is described in Chapter D. These discussions are considered adequate to evaluate the project effects on wildlife.

OFFICE OF THE DIRECTOR

United States Department of the Interior

BUREAU OF MINES
2401 E STREET, NW.
WASHINGTON, D.C. 20241

May 14, 1976
DES 76-11

Memorandum

To: Commissioner of Reclamation

Through: Deputy Assistant Secretary--Energy and Minerals

MAY 18 1976

From: Director, Bureau of Mines

Subject: Draft environmental statement, Bureau of Reclamation, Dallas Creek Project, Montrose, Delta, and Ouray Counties, Colorado

The Bureau of Mines Intermountain Field Operation Center, Denver, reviewed the draft environmental statement for the proposed 6,025-acre Dallas Creek Project in western Colorado. Two earthfill dams, forming the 1,390-acre Ridgway Reservoir on the Uncompahgre River and the 550-acre Dallas Divide Reservoir on Pleasant Valley Creek, would supply water for irrigation and municipal and industrial uses and also benefit fisheries, recreation, and flood control.

Mineral resources in the project area include gold, sand and gravel, and possibly vanadium. Moderate to large resources of precious and base metals and coal occur outside the project area, and a small gas-field exists near the Ridgway site.

The Bureau of Mines conducted field examinations of the reservoir sites and supplied your bureau with "Mineral Resources at Relocated Ridgway Reservoir Site, Dallas Creek Project, Ouray County, Colorado," 1972, and "Mineral Resources at Dallas Divide Reservoir Site, Dallas Creek Project, Ouray County, Colorado," 1963. The Ridgway report concluded that reservoir inundation would affect sand and gravel resources and minor amounts of gold in the stream deposits. A remote possibility exists that the Dallas Divide Reservoir might cover vanadium deposits in the Nugget Sandstone. The environmental statement mentions mineral resources and cites the Bureau of Mines reports.

Overall, we believe that the proposed project would not significantly alter mineral resource availability in the area.

Thomas V. Falkie
Director

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Memorandum

To: Files

Subject: Response to U.S. Bureau of Mines Memorandum of May 14, 1976, Commenting on the Dallas Creek Project Draft Environmental Statement

The Bureau of Mines report "Mineral Resources at Relocated Ridgway Reservoir Site, Dallas Creek Project, Ouray County, Colorado" was used in the formulation of the discussion of mineral resources in Section B-3d to supplement the studies by the Bureau of Reclamation. Both agencies are in accord that the project would not significantly alter mineral resource availability.

United States Department of the Interior

BUREAU OF OUTDOOR RECREATION
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
D6427-UCO

MAY 14 1976

Memorandum

To: Commissioner of Reclamation

From: Director, Bureau of Outdoor Recreation

Subject: Draft Environmental Statement -- Dallas Creek Project, Colorado (DES 76-11)

As you requested in your March 17 memorandum, we have reviewed the draft environmental statement on the Dallas Creek Project and have the following comments.

Description of the Proposal

The discussion of Recreation Facilities, page A-37, should state who will manage the recreation facilities.

Description of the Environment

This section should discuss existing recreation use on the Uncompahgre River, other than fishing, and the impact the project will have on these uses. The possibility of using the Denver and Rio Grande railroad bed for trail purposes should be discussed. The abandoned line could be converted into a hiking, biking and horseback riding trail between Montrose and the Ridgeway Dam site.

Environmental Impacts of the Proposed Action

This section should discuss the impacts the proposed project may have on the segment of the Colorado River extending upstream from its confluence with the Dolores River in Utah, to a point 19.5 miles from the Utah-Colorado border in Colorado. This reach of the Colorado River was authorized for Wild and Scenic River study in Public Law 93-621 as amended. Any impacts this project will have on stream flow and water quality should be documented.

Other than the above suggestions the Draft Environmental Statement is adequate from an outdoor recreation viewpoint.

Robert C. Potach
for John Crutcher

Memorandum

To: Files

Subject: Response to United States Department of the Interior, Bureau of Outdoor Recreation, Washington, D. C. Letter of May 14, 1976, Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

The discussion of Recreation Facilities, page A-37, should state who will manage the recreation facilities.

Response:

The Colorado Division of Parks and Outdoor Recreation would administer recreation use at Ridgway Reservoir. This information is included in Section A-5-c.

2. Comment:

This section should discuss existing recreation use on the Uncompahgre River, other than fishing, and the impact the project will have on these areas. The possibility of using the Denver and Rio Grande railroad bed for trail purposes should be discussed. The abandoned line could be converted into a hiking, biking and horseback riding trail between Montrose and the Ridgway Dam site.

Response:

At the present time there is very little recreation use on the Uncompahgre River other than fishing. There are no developed facilities, and the land along the river is privately owned except for limited reaches. The railroad right-of-way is the property of the railroad and the Bureau of Reclamation would have no jurisdiction outside of the reservoir take-line.

3. Comment:

This section should discuss the impacts the proposed project may have on the segment of the Colorado River extending upstream from its confluence with the Dolores River in Utah, to a point 19.5 miles from the Utah-Colorado border in Colorado. This reach of the Colorado River was authorized for Wild and Scenic River study in Public Law 93-621 as amended. Any impacts this project will have on stream flow and water quality should be documented.

Response:

Impacts on the Colorado River in the stretch mentioned are expected to be insignificant. The average flow of the Colorado River at the Utah-Colorado border would be reduced by about 24 second-feet from the present flow of 5,800 second-feet, with most of the reduction occurring during the spring high runoff period. Late summer and early fall flows would average about the same as present flows. The salinity concentration in this reach would increase about 4 mg/l over the present concentration of 622 mg/l.

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

In Reply Refer To:
FWS/ES

MAY [illegible]

Memorandum

To: Commissioner, Bureau of Reclamation

From: Acting Director, Fish and Wildlife Service

Subject: Draft Environmental Statement - Dallas Creek Project, Colorado (DES 76/11)

The following comments are given in response to your request of March 17, 1976.

General Comments

Based on the information provided in the Dallas Creek Project Environmental Impact Statement, the Fish and Wildlife Service cannot agree with the conclusions reached. The loss of 12,000 acres of farm land and natural habitat in comparison with the modest irrigation benefit of 3,880 acres of arable lands is subject to question. This is especially evident when insufficient consideration has been given to alternatives. While the statement covers in some detail the environmental impact of the project, it does not sufficiently discuss the available alternatives to permit a reasonable decision being reached.

We believe that an alternative plan exists which could meet the needs of the area and at the same time be less environmentally damaging. This plan could include the use of the Gunnison Tunnel to supply water to the Uncompahgre Valley. If, however, sufficient water can not be delivered to fulfill demands in the valley, the Dallas Divide water, which is presently earmarked for newly irrigated lands could be diverted downstream.

This alternative plan would eliminate the flooding of lands in the Ridgway Basin, while maintaining the important winter feeding grounds for big game species. The plan could still supply needed water for municipal and industrial use to the Uncompahgre Valley.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

We urge you to thoroughly consider this alternative plan. We believe it will have the least detrimental impact on fish and wildlife resources while meeting the demands of the area for a present and future water supply.

Specific Comments

A-34, third paragraph. It is not a foregone conclusion that the Colorado Division of Wildlife will assume the responsibility for stocking project reservoirs. This function may be filled by Colorado River Storage Project hatcheries.

A-39. The map depicting Ridgway Reservoir take line should be modified to reflect inclusion of the recommended game management area.

B-31, third paragraph. It would be desirable to point out that existing fishing values provided by the Fish and Wildlife Service are based upon potential fisherman use (not actual fisherman use) for the full life of the project. This is also the case for projected future fisherman use.

C-4, third paragraph. The estimated loss of stream fishing opportunities by inundation of Uncompahgre River by Ridgway Reservoir is 450 man-days.

C-13, first paragraph. Stocking of Dallas Divide Reservoir may be accomplished by use of fish from CRSP Section 8 hatcheries.

C-16. The table showing fisherman use for the project should be changed for the Uncompahgre River. The figures should be 2450 man-days without the project, 8,000 man-days with the project. There would be 450 man-days lost in the river segment inundated by the reservoir.

C-31, first paragraph. The loss of mule deer hunting opportunities, assuming the acquisition of the big game mitigation lands, would be reduced to 30 man-days, not 510 man-days. Also the loss of small game, upland game, and fur-bearing use opportunities would be 269 man-days not 313 man-days.

C-35. The irrigation development section treats at length the benefit the project will have to the local agricultural economy through the new and improved farming activities. No mention is made of the 11,000 to 12,000 acres of farm and rangeland that will be converted to non-agricultural use, 6,000 acres of which are required for big game mitigation. This is certainly a very important environmental impact that should be thoroughly discussed.

C-37. Several paragraphs praise the effect of the development of the Log Hill Mesa Community on the social and economic climate of the area, but no discussion is presented of the detrimental environmental impacts of establishing a new community of 20,000 people in a native landscape.

C-40, third paragraph. Only one sentence is devoted to the detrimental effects of the project on hunting revenues. This loss will be considerable and needs further discussion.

C-42. The discussion of change in land use patterns should be expanded to cover those lands included in the wildlife mitigation proposal.

D-8, third paragraph. The discourse on relocation of Colorado Highway 550 should include a description of the plan to install deer-proof fencing along the right-of-way. This would materially reduce the incidence of deer/vehicle collision in this area.

E-1, third paragraph. When discussing unavoidable adverse effects of the project on wildlife, the following point should be made: even though mitigation plans will limit the loss of big game carry capacities, the existing big game habitat will be irretrievably lost to project development.

E-2, second paragraph. The unavoidable adverse impact on agriculture would be to remove 11,000 to 12,000 acres from use for other project purposes. The lands would be included in reservoir take lines and canals and wildlife mitigation areas.

H-3. Minimum stream flows would be provided even with private development because of the requirements of Colorado State law regarding instream flow requirements.

George W. Mylias

Memorandum

To: Files

Subject: Response to United States Department of the Interior, Fish and Wildlife Service, Washington, D.C. Comment Letter of May 28, 1976 on Dallas Creek Project Draft Environmental Statement

The responses are identified by the same designations used in the letter of the Fish and Wildlife Service.

1. General Comments.

The alternative plan mentioned has been considered by the Bureau of Reclamation. Under this plan, water would be imported from the Gunnison River through the Gunnison Tunnel to supply municipal and industrial and supplemental irrigation water needs of the Uncompahgre Valley. This plan is discussed in Section H-4b as a variation of a similar plan to deliver water to the Uncompahgre Valley from the Gunnison River. Two reservoir sites are discussed under this variation.

This alternative was not adopted as it would not serve all of the purposes of the proposed plan. Water would not be provided for fishery enhancement or recreation use, and flood control and improvement of water quality in the Uncompahgre River would not be realized. Also, as noted in the discussion in H-4 on the two sites, the use of one site has environmental objections and the other has geological problems.

2. A-34

As stated in Section A-5b, fish stocking is not presently planned. If stocking were undertaken, however, it is possible that the fish could be obtained from Colorado River Storage Project hatcheries.

3. A-39

The exact location of the game management area has not been determined and therefore it cannot be shown on a map.

4. B-31 Response:

This information has been included in Section B-6a.

5. C-4

This data has been included in Section C-2b(1).

6. C-13

Dallas Divide Reservoir is no longer in the project plan.

7. C-16

The figures for fisherman use in the Uncompahgre River in Table C-1 are presented to agree with Table 4 presented on the Fish and Wildlife Service Planning Aid Memorandum, Dallas Creek Project, of May 3, 1976. In Section C-3a a loss of 450 fisherman days is shown for the river segment inundated by Ridgway Reservoir.

8. C-31 Response:

With the wildlife management area and the deer fencing along Highway 550, no loss in mule deer hunting opportunities is anticipated. Under the presently proposed plan, hunting opportunities for small game, upland game, and furbearing animals would be only slightly reduced, as discussed in Section C-6.

9. C-35 Response:

The amount of land that would be affected is considerably reduced in the proposed project paln. The impacts of the land use patterns are discussed in Section C-9.

10. C-37

Service to Loghill Village has been deleted from the project plan.

11. C-40

With the proposed project plan and its mitigation measures of land acquisition, development of wildlife habitat, and highway fencing, the loss of hunting revenues is expected to be negligible.

12. C-42

This information is included in Section C-9.

13. D-8

This is discussed in Sections C-4b(1) and D-5b.

14. E-1

This information is included in Section E-2.

15. E-2

The adverse impacts on agricultural lands are discussed in E-3. These effects are considerably smaller than in the plan discussed in the Draft Environmental Statement.

16. H-3

The only requirement for minimum streamflows under existing laws is for flows to meet downstream rights.

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

OFFICE OF THE DIRECTOR

DES 76-11

APR 15 1976

Memorandum

To: Commissioner of Reclamation

Through: Deputy Assistant Secretary--Energy and Minerals Rolland R. Reed APR 16 1976

From: Acting Director, Geological Survey

Subject: Review of draft environmental statement for Dallas Creek Project, Colorado

We have reviewed the subject draft environmental statement as requested in your memorandum of March 17.

The salinity effects in the Colorado River of the various alternatives considered in chapter H are neither identified nor discussed. Since increases in salinity due to this project are to be offset by other projects under the Colorado River Basin Salinity Control Program (p. D-10, par. 1), even small differences in salinity increases should be significant in evaluating alternatives. In the absence of a detailed discussion, data in table H-1 (p. H-2) suggests that a combination of alternative measures including the Uncompahgre Improvement Project, importation water from the Gunnison River for municipal use, and a small reservoir in the Uncompahgre basin could achieve the development goals of the proposed plan at significantly lower salinity increases in the Colorado River.

Impacts of the proposed project on ground-water resources, such as effects of the proposed impoundments and canals on ground-water quality and on ground-water level fluctuations in the alluvium and in the consolidated rocks or fractured bedrock aquifers of the project area, should be discussed. We learn that yields of wells in the lower valley, presumably wells in the alluvium, currently range up to 2 cfs or almost 900 gpm; the impacts of the project on well yields should be considered. Finally, secondary effects on ground water such as the result of changes in evapotranspiration losses should be evaluated, if pertinent.

Henry W. Coulter
Acting Director

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

Memorandum

To: Files

Subject: Response to United States Department of the Interior, Geological Survey Comment Letter on the Dallas Creek Project, Draft Environmental Statement, April 15, 1976.

1. Comment second paragraph

The salinity effects in the Colorado River of the various alternatives considered on Chapter H are neither identified nor discussed. Since increases in salinity due to this project are to be offset by other projects under the Colorado River Basin Salinity Control Program (p. D-10, par. 1), even small differences in salinity increases should be significant in evaluating alternatives. In the absence of a detailed discussion, data in table H-1 (p. H-2) suggests that a combination of alternative measures including the Uncompahgre Improvement Project, importation water from the Gunnison River for municipal use, and a small reservoir in the Uncompahgre basin could achieve the development goals of the proposed plan at significantly lower salinity increases in the Colorado River.

Response:

Table H-1 has be revised to include data on salinity. The salinity increases from the proposed plan and the suggested combination plan would be nearly the same; however, the combination plan would not provide recreation, fishing opportunities, or flood control.

2. Comment third paragraph

Impacts of the proposed project on ground water resources, such as effects of the proposed impoundments and canals on gound water quality and on ground water level fluctuations in the alluvium and in the consolidated rocks or fractured bedrock aquifers of the project area, should be discussed. We learn that yields of wells in the lower valley, presumably wells in the alluvium, currently range up to 2 cfs or almost 900 gpm; the impacts of the project on well yields should be considered. Finally, secondary effects on ground water such as the result of changes in evapotranspiration losses should be evaluated, if pertinent.

Response:

Dallas Divide Reservoir, all project canals, and irrigation on Log Hill Mesa, which included all the new land irrigation, have been deleted from the project plan. Ground water levels and quality are not expectd to change significantly in the alluvial aquifers along the Uncompahgre River

or Dallas Creek. The wells with the 2 second-foot flows are located in the irrigated area on Ash Mesa near the Montrose-Delta County line. These yields were noted during the irrigation season and the wells were nearly dry during the winter months. Because there would be only supplemental irrigation under the project, secondary evapotranspiration losses resulting from the project are not expected to be significant.

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

L7619 (RMR)CS

APR 14 1976

Memorandum

To: Commissioner, Bureau of Reclamation

Through: Assistant Secretary for Fish and Wildlife and Parks

From: Acting Associate Director, Park System Management

Subject: Review of Draft Environmental Statement - Dallas Creek Project, Colorado DES 76-11

As requested in your memorandum of March 17, 1976, we have reviewed the subject material and offer the following comments.

The National Register of Historic Places has been consulted. The final environmental statement should establish that the most current listing was consulted. Presently, this is published in the Federal Register of February 10, 1976. It should also establish that all monthly supplements to this listing were consulted.

Pages B-78 - B-79 identify historic and archeological sites. It should be recognized that such sites, even if they are only of local significance, could qualify for listing in the National Register of Historic Places. The final environmental statement should establish what further action is being taken with respect to these sites, and whether they are being further evaluated to determine whether they meet National Register eligibility criteria.

While we note that archeological survey of the project area has been completed, we suggest that the final environmental statement state what the project guidelines will be for the protection of cultural resource sites during project construction. The guidelines should provide for immediate work stoppage in the event previously unknown sites are discovered in the course of construction to ensure proper professional review of such resources and effective mitigative action.

Raymond L. Freeman

12
4/15/75

BICENTENNIAL 1776 AMERICAN REVOLUTION

Memorandum

To: Files

Subject: Response to United States Department of the Interior, National Park Service, Letter on the Dallas Creek Project Draft Environmental Statement, April 14, 1976

1. Comment:

The National Register of Historic Places has been consulted. The final environmental statement should establish that the most current listing was consulted. Presently, this is published in the Federal Register of February 10, 1976. It should also establish that all monthly supplements to this listing were consulted.

Response:

Section B-16 includes information that the Federal Register and all monthly supplements have been consulted.

2. Comment:

Pages B-78 - B-79 identify historic and archaeological sites. It should be recognized that such sites, even if they are only of local significance, could qualify for listing in the National Register of Historic Places. The final environmental statement should establish what further action is being taken with respect to these sites, and whether they are being further evaluated to determine whether they meet National Register eligibility criteria.

Response:

The historic sites mentioned were included to give the reader some background on the early settlements in the general area. The sites would not be affected by the project.

3. Comment:

We suggest that the final environmental statement state what the project guidelines will be for the protection of cultural resource sites during project construction.

Response:

This information is included in Section D-3a.

Advisory Council
On Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

April 23, 1976

Mr. G. G. Stamm
Commissioner
Bureau of Reclamation
U. S. Department of the Interior
Washington, D. C. 20240

Dear Mr. Stamm:

This is in response to your request of March 17, 1976, for comments on the environmental statement for the Dallas Creek Project, Colorado. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council on Historic Preservation has determined that while you have discussed the historical, architectural, and archeological aspects related to the undertaking, the Advisory Council needs additional information to adequately evaluate the effects on these cultural resources. Please furnish additional data indicating:

I. Compliance with Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971.

A. Under Section 2(a) of the Executive Order, Federal agencies are required to locate, inventory, and nominate eligible historic, architectural and archeological properties under their control or jurisdiction to the National Register of Historic Places. The results of this survey should be included in the environmental statement as evidence of compliance with Section 2(a).

B. Until the inventory required by Section 2(a) is complete, Federal agencies are required by Section 2(b) of the Order to submit proposals for the transfer, sale, demolition, or substantial alteration of federally owned properties eligible for inclusion in the National Register to the Council for review and comment. Federal agencies must continue to comply with Section 2(b) review requirements even after the initial inventory is complete, when they

obtain jurisdiction or control over additional properties which are eligible for inclusion in the National Register or when properties under their jurisdiction or control are found to be eligible for inclusion in the National Register subsequent to the initial inventory.

The environmental statement should contain a determination as to whether or not the proposed undertaking will result in the transfer, sale, demolition or substantial alteration of eligible National Register properties under Federal jurisdiction. If such is the case, the nature of the effect should be clearly indicated as well as an account of the steps taken in compliance with Section 2(b). (36 C.F.R. Part 800 details compliance procedures.)

C. Under Section 1(3), Federal agencies are required to establish procedures regarding the preservation and enhancement of non-federally owned historic, architectural, and archeological properties in the execution of their plans and programs.

The environmental statement should contain a determination as to whether or not the proposed undertaking will contribute to the preservation and enhancement of non-federally owned districts, sites, buildings, structures and objects of historical, architectural or archeological significance.

II. Contact with the State Historic Preservation Officer.

The procedures for compliance with Section 106 of the National Historic Preservation Act of 1966 and the Executive Order 11593 require the Federal agency to consult with the appropriate State Historic Preservation Officer. The State Historic Preservation Officer for Colorado is Stephen H. Hart, c/o State Historical Society of Colorado, Colorado State Museum, 200 14th Avenue, Denver, Colorado 80203.

Should you have any questions or require any additional assistance, please contact Brit Allan Storey of the Advisory Council staff at P. O. Box 25085, Denver, Colorado 80225, telephone number (FTS) 234-4946.

Sincerely yours,

Louis S. Wall
Assistant Director, Office
of Review and Compliance

Memorandum

To: Files

Subject: Response to Advisory Council on Historical Preservation Letter on the Dallas Creek Project Draft Environmental Statement, April 23, 1976

The responses are identified by the same symbols as the Council used to identify its comments. The comments are not repeated.

1. IA Response:

Results of the survey are included in Section B-16 and Attachment 5.

2. IB Response:

According to the archeological survey report, the project will not result in the transfer, sale, demolition, or substantial alteration of eligible National Register properties.

3. IC Response:

The area affected by the project has no such feature, as stated in Sections B-16 and C-13.

4. II Response:

The State Historic Preservation Officer for Colorado has been consulted, and copies of the archeological and historical site survey reports have been sent to him.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE
Montrose ASC County Committee
P. O. Box 239
Montrose, Co. 81401

April 15, 1976

Mr. David Crandall, Regional Director
Bureau of Reclamation
P. O. Box 11568
Salt Lake City, Utah 84147

Dear Sir:

The Montrose County Agricultural Stabilization & Conservation Committee have reviewed the Environmental Impacts of Proposed Action on the Dallas Creek Project.

It appears a very thorough study has been made on this project and there are many parts of this study that are unfamiliar to us.

As we do work with the farmers and ranchers of Montrose County in providing cost-sharing for conservation practices, we have spent considerable time and funds in protecting farmland along the Uncompahgre River.

We realize there will always be a certain amount of erosion along the river banks which farm and ranch operators must accept. However, we do feel the construction of the Ridgway Reservoir would reduce the damage to farmland caused by the occasional flooding of the Uncompahgre River.

The last heavy flood damage was during the Fall of 1969, caused by two or three days of rain in the river drainage. Following this flood, well over $100,000.00 was spent for rock riprap alone, and this covered only a small portion of the damage.

If the reservoir would serve to contain the excess water during flood periods, it would save a large portion of the expensive flood repair and prevention practices by the farmers and ranchers of both Montrose and Delta Counties.

The primary costs in the past have been heavy rock riprap with some replacement of irrigation structures.

We have nothing to do with damage to public property such as roads, highways, bridges, etc.

Aloys E. Schneider

Aloys E. Schneider, For ASC Committee

Memorandum

To: Files

Subject: Response to Letter of April 15, 1976, from the U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service, Montrose County Committee on the Dallas Creek Project Draft Environmental Statement

1. Comment:

If the reservoir would serve to contain the excess water during flood periods, it would save a large portion of the expensive flood repair and prevention practices by the farmers and ranchers of both Montrose and Delta Counties.

Response:

Assessment of the flood benefits of the project was provided to the Bureau of Reclamation by the Army Corps of Engineers. Information provided in the subject letter supports that assessment.

The review of the Draft Environmental Statement is appreciated.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Rocky Mountain Region
11177 West Eighth Avenue, Box 25127
Lakewood, Colorado 80225

8420

May 7, 1976

U. S. Department of the Interior
Bureau of Reclamation
Upper Colorado Regional Office
P. O. Box 11568
Salt Lake City, Utah 84111

Gentlemen:

Thank you for the opportunity to review the Draft Environmental Statement for the Dallas Creek Project. We have the following comments:

1. The statement does not indicate who will administer the recreation use after the project is completed. We understand that it is planned for the State of Colorado to do this. We believe it would be desirable to indicate this in the EIS.

2. It would be desirable to show the anticipated costs of developing and administering the recreation use.

3. The statement discusses recreation use in terms of "recreation days." This is a nonstandard unit of measure making evaluation difficult. The Recreation Advisory Council (of which the Secretary of Interior was a member) specified certain uniform terminology to be used so everyone would have the same frame of reference.

4. The statement does not contain a Benefit-Cost analysis. This is a major shortcoming.

5. The Water Resources Council had adopted "Principles and Standards for Planning Water and Related Land Resources." These were published in the Federal Register, Vol. 38, No. 174, dated September 10, 1973. The draft statement does not follow these "Principles and Standards." It is our understanding that it is mandatory that the Bureau of Reclamation follow these "Principles and Standards" in evaluating their projects. Since much of the information required by the "Principles and Standards" is missing it is not possible to objectively evaluate the proposal.

6. Page A-20, (1) Dallas Feeder Canal, Par. 1 - Does the canal traverse any old landslide areas? If so, what provisions have been made to insure that no seepage will occur in these areas.

7. Page A-32, Par. 4 - Restoration should include placing top soil over the buried pipe and revegetation of disturbed right-of-way.

8. Page B-3, Par. 1 - Will the prevailing westerly winds that cause wave action affect the silty clay soils on east shore? In some reservoirs, constant wave action can cause sediment problems near shore where soils are derived from shale.

9. Page B-3, Par. 1 - We seriously doubt if the frost-free period is 112 days in length at higher elevations.

10. Page B-15, Par. 3 - Do the waters of the Uncompahgre and Dallas Creek have sufficient alkalinity to precipitate the heavy metals into unavailable forms? What problems are anticipated from the heavy tailings load in the spring runoff?

11. Page B-18, Par. 1 - Eutrophication problems exist in some lakes at elevations over 6,900 feet. We don't believe high altitude should be listed as a factor limiting eutrophication.

12. Page B-41, Figure B-11 - It would be helpful if the location and size of reservoirs and associated facilities were drawn on this map.

13. Page H-2, Table H-1 - Since benefit/cost ratio is part of the input to deciding project feasibility, it should be appropriate to include B/C's for each alternative in this table.

14. The proposed site is within an area classified by USDA as being potentially valuable for Geothermal Resources. There is no discussion of this possibility.

15. No oil and gas possibilities are included in discussion of Mineral Resources. There are strata which might be reservoirs for oil and gas; however, they could be explored by directional drilling if Dallas Project is completed. Therefore, the project doesn't preclude extraction although it would make it more expensive.

16. No mention is made of the reservation principle and of adequate stream flows for purposes of National Forest System management below diversions on the West Fork of Dallas Creek.

Sincerely,

Richard W. Wilson

for S. H. HANKS
Acting Deputy Regional Forester, Resources

Memorandum

To: Files

Subject: Response to United States Department of Agriculture, Forest Service, Rocky Mountain Region, Letter of May 7, 1976, Commenting on the Dallas Creek Project Draft Environmental Statement

The responses are identified by the numbers used by the Forest Service to identify its comments.

1. Response:

This information has been added in Section A-5c.

2. Response:

It is the policy of the U.S. Department of the Interior that economic considerations are not included in an environmental impact statement. These considerations are fully covered in other documents, which are available for inspection at the Bureau of Reclamation Western Colorado Projects Office, ERDA Compound, Grand Junction, Colo., and the Upper Colorado Regional Office, 125 South State Street, Salt Lake City, Utah.

3. Response:

The term "recreation days" is used for a unit of recreation measurement in accordance with "Federal Recreation Fees", published by the Bureau of Outdoor Recreation, 1975.

4. Response:

Economic considerations are not included in an environmental statement according to U.S. Department of the Interior policy. The benefit to cost ratio for this project is estimated at 1:48:1.

5. Response:

The Dallas Creek Project was not evaluated according to the "Principles and Standards" since it was authorized in 1968 before the "Principles and Standards" became effective. Procedure No. 1 for Planning Water and Related Land Resources contained in the Federal Register of February 12, 1975, provided that Level C (implementation) plans which had been formulated in accordance with Senate Document No. 97 and transmitted to OMB prior to October 25, 1973, including those in this category which were transmitted to Congress for approval or authorization, will remain as formulated.

6. Response:

The Dallas Feeder Canal has been deleted from the project.

7. Response:

The buried pipe referred to here is part of the Log Hill Mesa Distribution System which has been deleted from the project.

8. Response:

This section of the statement does not discuss impacts of reservoirs, just the present environment of the project area. Wave action is not anticipated to be a problem at Ridgway Reservoir, however, because the reservoir lies in a narrow north-south valley and the prevailing westerlies will have a short fetch on the reservoir surface in which to build up an erosive action.

9. Response:

The "higher elevations" referred to here was meant to be the potential irrigable lands on Log Hill Mesa and in the Dallas Creek area.

10. Response:

The average pH of the Uncompahgre River and Dallas Creek near Ridgway is 8.1 and 8.2, respectively. This is sufficient to combine the heavy metals into insoluble compounds so they would precipitate out of the slow-moving reservoir water. Upon precipitation these insoluble compounds would become harmless components of the sediment in the reservoir floor. The concentration of heavy metals is much less during the spring runoff because of the diluting effect of the volume of water at that time of the year and does not pose any additional problem.

11. Response:

High altitude is one of the many factors that can affect eutrophication. The shorter growing season coupled in most cases with a lower water temperature tends to lower the total biological growth that can take place in a body of water.

12. Response:

Ridgway Reservoir, the only major project feature, has been added to Figure B-11.

13. Response:

See Response 2.

14. Response:

There is evidence of an increased geothermal gradient near Ouray, but the identified sources are too small to have any commercial value. There are no specific data on geothermal resources in the immediate vicinity of Ridgway Reservoir. Construction of the reservoir would not prevent future geothermal development although it could increase the cost somewhat.

15. Response:

A paragraph discussing this subject has been added under "Mineral Resources" in Section B-3d.

16. Response:

The diversion from West Fork of Dallas Creek has been deleted from the project.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 17107, Denver, Colorado 80217

April 15, 1976

Mr. David L. Crandall
Regional Director
Upper Colorado Regional Office
Bureau of Reclamation
P. O. Box 11568
Salt Lake City, Utah 84111

Dear Mr. Crandall:

The draft Environmental Impact Statement for the Dallas Creek Project has been reviewed by the Soil Conservation Service. We have the following comments:

1. Page A-47, second paragraph:

   We believe the final EIS should further evaluate the climate limitations of Log Hill Mesa for growing sugar beets and fruit. It appears that the highest elevation in the Uncompahgre Valley presently producing sugar beets is on the lower elevations of Log Hill Mesa, west of Colona, Colorado. Therefore, we believe the mid to higher elevations of Log Hill Mesa may not support sugar beets and fruit. We agree that small grains, hay and irrigated pasture could be successfully produced in this area with sprinkler irrigation.

2. Page B-10, second paragraph:

   We suggest this section be expanded to include a discussion on the erodibility and depth of the soils which occur on Log Hill Mesa. The suitability of these soil characteristics for the proposed irrigation development needs to be discussed in the final EIS. Soil survey investigations previously conducted by the Soil Conservation Service, indicate that shallow, rocky soils are prevalent on Log Hill Mesa. The soils are typically sloping and shallow to only moderately deep over the Dakota Formation.

We appreciate the opportunity to review and comment on this proposed project.

Sincerely,

M. D. Burdick
State Conservationist

cc: R. M. Davis, Administrator, SCS, Washington, D.C.
Office of the Coordinator of Environmental Quality Activities, Office of the Secretary, USDA, Washington, D.C.
Council on Environmental Quality (5 copies)

Memorandum

To: Files

Subject: Response to April 15, 1976, United States Department of Agriculture, Soil Conservation Service, Denver, Colorado. Comment Letter on the Dallas Creek Project Draft Environmental Statement

1. Comment--Page A-47, second paragraph:

The mid to higher elevations of Log Hill Mesa may not support sugar beets and fruit.

2. Comment--Page B-10, second paragraph;

We suggest this section be expanded to include a discussion on the erodibility and depth of the soils which occur on Log Hill Mesa.

Response to Comments 1 and 2:

Irrigation of lands on Log Hill Mesa has been deleted from the project plan.

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

REPLY TO
ATTENTION OF
SPKED-W

15 April 1976

Mr. G. G. Stamm
Commissioner
Bureau of Reclamation
US Department of the Interior
Washington, D.C. 20240

Dear Mr. Stamm:

This is in response to your letter of 17 March 1976 to the Assistant Director of Civil Works; Environmental Programs, Office of the Chief of Engineers, inclosing for comment a copy of the Draft Environmental Statement on the Dallas Creek Project, Colorado (INT DES 76-11).

We have reviewed the draft statement and have concluded that there are no Corps water resource developments or investigations in the project area which would be affected by the Dallas Creek Project. However, a Department of the Army permit from this office will be required, under Section 404 of Public Law 92-500, where construction involves placing fill or dredged materials in waterways.

Thank you for the opportunity to review this environmental statement.

Sincerely yours,

F. G. ROCKWELL, JR.
Colonel, CE
District Engineer

ROBERT D. CREMER, JR.
Lieutenant Colonel, CE
Deputy District Engineer

Memorandum

To: Files

Subject: Response to Department of the Army, Sacramento District, Corps of Engineers Letter on the Dallas Creek Project Draft Environmental Statement, April 15, 1976

1. Comment:

Department of the Army permit from this office will be required, under Section 404 of Public Law 92-500, where construction involves placing fill or dredged materials in waterways.

Response:

Public Law 92-500 would be complied with. The review of the Draft Environmental Statement is appreciated.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

OFFICE OF THE SECRETARY

WASHINGTON, D.C. 20201

MAY 28 1976

Mr. G. G. Stamm
Commissioner
Bureau of Reclamation
Department of the Interior
Washington, D.C. 20240

Dear Mr. Stamm:

We have reviewed the draft Environmental Impact Statement concerning the Dallas Creek Project, Colorado. On the basis of our review, we offer the following comments:

1. We have several reservations as to the adequacy of this document which is similar to those for other environmental assessments for water related actions in the West Central United States. While projected growth certainly justifies and warrants planning for new sources of water for the immediate area, interaction of the projected population as related to mining, industrial and agricultural growth throughout the region must be considered from the standpoint of the total impact on water in terms of quantity and quality. If, indeed, the availability of water resources is a constraint on regional growth, then the impact of such growth should be assessed in the document. The changes in regional ecology attributable to expansion should be addressed throughout the Colorado River Basin citing the anticipated load of pollutants resulting from shale oil extraction, open strip mining, and the opening of new or stand-by oil wells, etc.

   We feel that the statement as submitted does not present the total picture as it relates to effects upon the Colorado River Basin. It is anticipated that there will be a significant growth in manufacturing services, various potential polluting type industries, irrigated crop acreage, and food-processing operations in the Basin. Reviewing these anticipated growth factors and compounding the pollution potential of these industries, together with the increased pollution from oil shale development, strip mining, oil well production, power generation and attendant community

growth in the Upper Basin, one wonders whether the anticipated industrial and population growth can insure the preservation of the quality and provide for the enhancement of the Colorado River. Such activities will react to an increase in pollutants such as heavy metals, arsenic, amines, hydrocarbons, and others.

As noted in other environmental statements for the Colorado Basin, there are plans to build additional dams, water treatment plants, and other facilities which are necessitated by the increased population resulting from industrial growth. Accordingly, the Department of Interior should prepare a more comprehensive survey of the combined and cumulative projected impact on the Colorado River from such growth and devise a plan for a water improvement program to meet the projected needs of the Basin. Some of the basic informational material may be developed and discussed in the upcoming Denver Research Institute meeting on energy development in the Upper Basin. Additional material may be obtained from the Environmental Protection Agency utilizing their work plan for technical assessment of wastewater energy resource development. Non-inclusion of other projects affecting the quality of the Colorado River and attacking the pollution on a piecemeal basis fails to adequately address the above mentioned concern as required by NEPA.

2. Impoundments and irrigational systems of the type proposed may result in greatly increased populations of pest mosquitoes and disease vectors. Steps should be taken during the planning of construction and maintenance operations to eliminate or minimize associated mosquito producing habitats. Major pest mosquito species as well as vectors of encephalitis are known to occur in western Colorado. Outbreaks of encephalitis have been reported in this area among horses and humans during recent years. We recommend that studies be conducted in the Uncompahgre Valley to determine the species of mosquitoes, their relative abundance, and the probable impact of the proposed project on future mosquito production. Appropriate steps should be taken to assure that this impoundment and associated water collecting and delivery system does not create significant mosquito breeding areas and become a hazard to the health and welfare of people living in or visiting the area.

3. We do not concur with dual water systems.

4. A thorough analysis should be included in the final document of the projected adequacy of medical services for the expanded population during the next decade. This analysis should consider the retirement potential of primary care physicians in the area and the steps that will be taken to assure replacements and uninterrupted medical service.

Thank you for the opportunity to review the document.

Sincerely,

Charles Custard

Charles Custard
Director
Office of Environmental Affairs

cc: Boris Osheroff
Warren Muir
Joe Cover

Memorandum

To: Files

Subject: Response to Department of Health, Education, and Welfare, Office of the Secretary Comment Letter on the Dallas Creek Project Draft Environmental Statement, May 28, 1976

The responses are identified by the comment number used by HEW in its letter.

1. Response:

Two comprehensive studies which focus on the Colorado River Basin have been completed in recent years.

The Upper Colorado Region Comprehensive Framework Study was published in 1971. Sponsored and directed by the Water Resources Council, this interagency effort provided a broad guide to the best use of water and related land resources to meet short- and long-term needs of the Colorado River Basin. A report on the Westwide Study, titled Critical Water Problems Facing the Eleven Western States, was published in 1975 by the Department of the Interior in response to the Colorado River Basin Project Act (Public Law 90-537) of September 1968. This act directed the Secretary of the Interior to conduct reconnaissance investigations aimed at developing a general plan to meet the future water needs of the 11 States lying wholly, or in part, west of the Continental Divide. The Colorado River Basin received special consideration in the study and the report. In March 1976 a draft environmental statement was prepared and distributed by the Bureau of Reclamation covering the Colorado River Water Quality Improvement Program. This statement presents an overall view of the Colorado River Basin water development programs.

2. Response:

Discussions of the more important vector species are in Sections B-8, C-5, and D-4.

3. Response:

It is assumed that this comment refers to the dual outlet works planned for Ridgway Reservoir. This feature was included to moderate water temperature and quality by mixing water from two different levels of the reservoir.

4. Response:

The statement indicates that the projected population increases are expected whether or not the Dallas Creek Project is constructed. Inadequacies in medical services are not anticipated, for example, the

statement from the City of Montrose that is included in Section I-3c states, "In fact, the physician population in Montrose County has increased from the sixteen quoted in the Environmental Statement to twenty-nine."

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL

March 26, 1976

BUREAU OF LABORATORIES
VECTOR-BORNE DISEASES DIVISION
POST OFFICE BOX 2087
FORT COLLINS, COLORADO 80522

Mr. David L. Crandall
Regional Director
U.S. Department of the Interior
Bureau of Reclamation
Upper Colorado Regional Office
Post Office Box 11568
Salt Lake City, Utah 84111

Re: 730/120

Dear Mr. Crandall:

We have reviewed the draft environmental statement on the Dallas Creek Project, Colorado, and we are submitting our comments on adverse effects which might result from this project.

Water Resources Branch represents the U.S. Public Health Service in all matters of vector-borne disease control associated with water resources projects. In regard to these projects, we are interested that consideration be given in the early planning stages to minimize potential vector problems. Mosquito-producing habitats are commonly created in the development of a water resources project, and subsequent mosquito control problems emerge. The Dallas Creek Project involves impoundments and agricultural irrigation. In our experience of making mosquito field surveys of both irrigation systems and impoundments, we have shown that increased vector and pest mosquito production can be expected unless steps are taken in planning, construction, and maintenance to eliminate or minimize associated mosquito-producing habitats. Further, these habitat control measures are easier to "build in" during construction phases than to attempt to "build out" once the project is operational. Colorado reported 20 human cases and 250 equine cases of mosquito-borne encephalitis during 1975. It is in the public health interest to insure that additional mosquito-producing habitats are not created as a result of the Dallas Creek Project.

The production of mosquitoes is not mentioned as a possible adverse impact. Which vector species are found near Dallas Creek Project, and what is their relative abundance? Will mosquito populations be increased as a result of the project? What will be the risk of mosquito-borne encephalitis to those living near the project? If mosquitoes are produced

on the project, what steps will be taken to control them? We believe these questions should be addressed in the impact statement. We are sure that Mr. Ted Davis, Vector Control Specialist, Colorado Department of Health, 4210 East 11th Avenue, Denver, Colorado 80220, can possibly provide these answers, and he should be contacted in this matter. He is being notified by means of a copy of this letter.

We are enclosing two publications which describe environmental modifications necessary for the minimizing of mosquito-producing habitats on water resources projects. They are "Prevention and Control of Vector Problems Associated with Water Resources" and "Mosquito Prevention on Irrigated Farms." The modifications mentioned are accepted mosquito control measures.

Recreation and tourism are shown in the statement as economic impacts attributed to the project. The influx of visitors during the height of the mosquito season (July and August) will expose many to the threat of mosquito-borne disease problems. Also, the presence of vector ticks in the area is a long-standing public health problem, and Colorado tick fever is reported frequently from recreational areas of Colorado. Brush control measures at camping and similar sites of tourist congregation should be implemented.

We are pleased to be able to comment upon the Dallas Creek Project. If we can furnish any further technical assistance or clarify any point, please contact us.

Sincerely yours,

Richard O. Hayes

Richard O. Hayes, Ph.D., M.P.H.
Chief, Water Resources Branch

Enclosures

cc:
Mr. Ted Davis
Mr. Ralph C. Barnes

Memorandum

To: Files

Subject: Response to March 26, 1976, Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control Comment Letter on the Dallas Creek Project Draft Environmental Statement

1. Comments in Paragraphs 2, 3, and 5

It is in the public health interest to insure that additional mosquito-producing habitats are not created as a result of the Dallas Creek Project.

The production of mosquitoes is not mentioned as a possible adverse impact. Which vector species are found near the Dallas Creek Project, and what is their relative abundance? Will mosquito populations be increased as a result of the project? What will be the risk of mosquito-borne encephalitis to those living near the project? If mosquitoes are produced on the project, what steps will be taken to control them?

Recreation and tourism are shown in the statement as economic impacts attributed to the project. The influx of visitors during the height of the mosquito season (July and August) will expose many to the threat of mosquito-borne disease problems. Also, the presence of vector ticks in the area is a long standing public health problem, and Colorado tick fever is reported frequently from recreational areas of Colorado. Brush control measures at camping and similar sites of tourist congregation should be implemented.

Response:

Mosquitoes and ticks are discussed in Section C-5 and D-4 in this Final Environmental Statement.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80203

REF: 8W-EE
D-IBR-J34004-CO

MAY 10 1976

Mr. David Crandall
Regional Director
Upper Colorado Regional Office
Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

Dear Mr. Crandall:

The Region VIII office of the Environmental Protection Agency has reviewed the draft environmental impact statement for the Dallas Creek Project, Colorado. The following comments reflect our main concern that additional data will either need to be presented or developed to substantiate the Bureau's conclusion that water quality will not be degraded as a result of this project.

According to the draft EIS, impoundment of water containing heavy metal contaminents should reduce the downstream concentration due to sediment entrapment of these pollutants. EPA cannot concur in this conclusion unless further data is presented which verifies that sediment entrapment would result in long term reductions in heavy metals' concentration downstream of Ridgeway Reservoir. It is possible that as organic decomposition takes place in the benthic layer of the reservoir, acidic conditions could occur which would facilitate the dissolution of heavy metals and cyanide. Further, potential stratification of the reservoir could concentrate heavy metals in the lower strata and further aggravate the toxicity downstream during times of the year when releases are made from the lower outlet. During turnover of the reservoir in the spring and fall, it is possible that the metal-laden sediments would be disturbed, resulting in toxic metals throughout the entire reservoir. EPA requests that detailed water quality analysis be completed for these two reservoirs to assess the movement of toxic elements and their effect on the ecosystems of the reservoirs and downstream. See our attached comments for further clarification of this issue.

Another concern is the secondary impacts due to providing a water supply to the new community in Log Hill Mesa. Critical deer winter range will be lost, additional salt loading will occur as a result of irrigating new lands, and the additional 12,000 people will create new sediment sources from construction and recreational activities.

To a great extent this will be encouraged by federal assistance in meeting water demand. Partial development without Log Hill Mesa Development in conjunction with the ongoing Uncompahgre Improvement Program would reduce demand and substantially reduce adverse environmental effects while greatly reducing project costs. EPA requests that the Bureau analyze this option to determine if it better suits regional and national goals. The suitability of project waters at the point of diversion for municipal water supplies should be reviewed against "National Interim Primary Drinking Water Regulations," especially with regard to expected concentrations of heavy metals.

In addition to requesting water quality modeling of the proposed impoundments, it is suggested that the Bureau help fund water quality monitoring of the project streams. Poor quality waters will prevent establishment of potential recreational benefits and may effect intended water use; therefore, the Bureau may be interested in assisting the Colorado Statewide 208 Program in both monitoring the source of pollutants and possibly in identifying cost-effective methods of abatement. Please contact Gary Broetzman of the Governor's staff at 388-6111 ext. 231 if your agency is interested in assisting in this effort.

In accordance with the procedures EPA has developed to rate draft environmental impact statements, the draft EIS for the Dallas Creek Project will be listed in the Federal Register in Category ER-2. This means EPA has environmental reservations regarding the effect of the proposed project on water quality and requests additional information on this subject. See our attached detailed comments for further clarification of these issues and other points of interest to EPA.

After your review of these comments, my staff would be pleased to meet with your water quality specialists to discuss EPA concerns. Thank you for the opportunity to review this document.

Sincerely yours,

John A. Green
Regional Administrator

Enclosure

Detailed Comments
by the
U.S. Environmental Protection Agency
on the Dallas Creek Project
Draft EIS

As stated in our cover letter, EPA's primary concern is that physical-chemical reactions within the reservoir may eventually further degrade the existing poor quality water. Reduced atmospheric conditions, i.e., lowered Eh and pH values, at the sediment-water interface may facilitate accelerated dissolution of highly toxic compounds. Note that a small change in pH, from 8.5 to 8.2 would double the amount of free cyanide released. (See "Equilibria in Dilute Cyanide Waste Solutions" by David Milne, Sewage and Industrial Wastewater, Vol. 22, No. 7, 1950). Further, concomitant sediment exposure during reservoir destratification could result in increased concentrations of these toxic compounds potentially to toxic concentrations throughout the entire reservoir rather than reduction.

The draft EIS analyzes limits for toxic substances and nutrients from the recommended U.S. Public Health Service limits for drinking water. In many instances, recommended limits for fish protection and propagation are lower than these standards. For example: the copper limit of 1.0 mg/l is for aesthetic (taste) reasons while toxic effects on juvenile fish have been reported at concentrations below 1.0 mg/l. Cyanide values ranged up to 0.15 mg/l with the recommended drinking water limit at 0.2 mg/l total cyanide. The recommended limit for fish is .005 mg/l of free cyanide. Aluminum, which is an amphoteric metal, exhibits increased solubility under alkaline conditions and is toxic to fish at levels well below recommended levels for drinking water. At a pH of 9, 5 mg/l of dissolved aluminum killed fingerling rainbow trout in 48 hours. (Effect of Chemical Variations in Aquatic Environments: Volume II Toxic Effects of Aqueous Aluminum to Rainbow Trout, Everhart and Freeman, Ecological Research Series EPA-R3-73-011b, February, 1973). Silver concentrations as reported are high enough to affect trout and may be one of the heavy metals responsible for existing low fish populations. (See Quality Criteria for Water, U.S. EPA preliminary draft, 1976).

Euthrophication potential has not been sufficiently analyzed. It is erroneous to assume that high pH values would render phosphate unavailable for productivity. A 1966 Federal Water Pollution Control Administration study of the Uncompaghre River reported high growth rates of periphyton in water two and half miles downstream from Ridgeway. Reported values of phosphates and nitrates are high enough to enrich the reservoir and potentially produce algal blooms. In addition, the reported values for these pollutants and nutrients are averages for existing stream flow, but concentrating effects due to increased retention time have not been considered. It is highly recommended that the section on pollutant limits be revised to reflect recommended limits for aquatic life and a detailed modeling study be furnished or developed analyzing these complex and potentially damaging synergistic effects which could occur within the proposed impoundments.

There are several minor points which should be corrected for the final EIS. These include the following:

1. Page B-15 indicates that, "all project waterways have alkaline pH ranges." If this is meant to include the Upper Uncompahgre it is in error as acid mine drainages in Red Mountain Creek is the main source of dissolved heavy metals.

2. Page B-18 lists the temperatures for existing flowing streams but this should not be used to imply that impoundment temperatures will remain at these temperatures. Since the average maximum climatic temperature for July is 82 degrees F with extremes up to 94 degrees F, reservoir temperatures will be higher than flowing water temperatures. Some conclusion should be made here regarding expected reservoir temperatures versus trout requirements.

3. Page B-35 refers to a breakdown in the fish food chain since despite high productivity of fish food natural reproduction of game fish is very low. The food chain may not have broken down if toxic conditions are restricting fish propagation. Some clarification of this issue is needed.

4. Since the U.S. Fish and Wildlife Service has recommended against stocking Ridgeway reservoir, presumably due to low productivity from poor water quality, what is the Bureau's justification for including 24,400 man-days of fishing as a project benefit? If fish should be stocked, the the resulting fishery may be marginal, therefore, the estimated man-days of fishing is probably too high.

5. Page A-47 indicates that a computerized scheduling system will be used to assure proper timing and amount of irrigation. Evidently such a system will be beneficial in reducing return flow and consequent salt loading. EPA endorces such activities and suggests the benefit of this system could be further explained in the final EIS.

6. When the Bureau calculates irretrievable commitments in relation to the salinity increase in the Colorado River (pg E-1), they should include the cost of $230,000 year per mg/l. Total costs to downstream users will then be $850,000/year.

Memorandum

To: Files

Subject: Response to United States Environmental Protection Agency letter on the Dallas Creek Project Draft Environmental Statement

A representative of EPA met in Grand Junction on June 10, 1976 with representatives of the Western Colorado Projects Office, the Upper Colorado Regional Office, and Mr. Guy Harris, water quality consultant, to discuss these comments. The discussions covered the available data and additional work that should be done. The responses that follow reflect these discussions and the investigations that have been made since that meeting.

1. Comment:

1) Physical-chemical reaction within the reservoir may eventually further degrade the existing poor quality water. Reduced atmospheric conditions, i.e., lowered Eh and pH values, at the sediment-water interface may facilitate accelerated dissolution of highly toxic compounds. Note that a small change in pH, from 8.5 to 8.2, would double the amount of free cyanide released.

2) Further, concomitant sediment exposure during reservoir destratification could result in increased concentrations of these toxic compounds potentially to toxic concentrations throughout the entire reservoir rather than reduction.

Response:

1) In an anaerobic condition sulfates are produced. The lowering of the pH would be accompanied by the production of sulfates with which the metals would combine, forming metal sulfates that are nearly insoluble. As stated in Section C-2 there should be no degradation of water quality, but some improvement.

2) The interface of the bottom sediment affected by reservoir destratification would be less than one centimeter. The "turnover" would not change the pH of the water; the metals would stay insoluble.

2. Comment:

The draft EIS analyzes limits for toxic substances and nutrients from the recommended U.S. Public Health Service limits for drinking water. In many instances, recommended limits for fish protection and propagation are lower than these standards. For example: the copper limit of 1.0 mg/l is for aesthetic (taste) reasons while toxic effects on juvenile fish have been reported at concentrations below 1.0 mg/l.

Cyanide values ranged up to 0.15 mg/l with the recommended drinking water limit at 0.2 mg/l total cyanide. The recommended limit for fish is .005 mg/l of free cyanide. Aluminum, which is an amphoteric metal, exhibits increased solubility under alkaline conditions and is toxic to fish at levels well below recommended levels for drinking water. Silver concentrations as reported are high enough to affect trout and may be one of the heavy metals responsible for existing low fish populations.

Response:

This information has been added to Section B-4d.

3. Comment:

Eutrophication potential has not been sufficiently analyzed. It is erroneous to assume that high pH values would render phosphate unavailable for productivity. A 1966 Federal Water Pollution Control Administration study of the Uncompaghre River reported high growth rates of periphyton in water 2 1/2 miles downstream from Ridgway. Reported values of phosphates and nitrates are high enough to enrich the reservoir and potentially produce algal blooms. In addition, the reported values for these pollutants and nutrients are averages for existing streamflow, but concentrating effects due to increased retention time have not been considered. It is highly recommended that the section on pollutant limits be revised to reflect recommended limits for aquatic life and a detailed modeling study be furnished or developed analyzing these complex and potentially damaging synergistic effects which could occur within the proposed impoundments.

Response:

The reported values referred to were collected downstream of agricultural return flows. The proposed Ridgway Reservoir would be upstream of most agricultural return flows. Table B-3 includes recommended limits for aquatic life as well as for drinking water. Two algal assay tests were performed on water samples taken from the Uncompahgre River at the proposed dam site. The tests indicate that the waters are relatively productive. Excessive growth will not occur with the present level of development upstream and is not expected with the amount of projected future growth.

4. Comment:

Page B-15 indicates that, "all project waterways have alkaline pH ranges." If this is meant to include the Upper Uncompahgre, it is in error as acid mine drainage in Red Mountain Creek is the main source of dissolved heavy metals.

Response:

This matter is clarified in Section B-4d.

5. Comment:

Page B-18 lists the temperatures for existing flowing streams but this should not be used to imply that impoundment temperatures will remain at these temperatures. Since the average maximum climatic temperature for July is 82° F with extremes up to 94° F, reservoir temperatures will be higher than flowing water temperatures. Some conclusion should be made here regarding expected reservoir temperatures versus trout requirements.

Response:

Reservoir water temperatures at or near the surface would be higher than the flowing water temperatures but would be within the range for a cold water fishery.

6. Comment:

Page B-35 refers to a breakdown in the fish food chain since despite high productivity of fish food natural reproduction of game fish is very low. The food chain may not have broken down if toxic conditions are restricting fish propagation. Some clarification of this issue is needed.

Response:

Information has been added to Section B-6a.

7. Comment:

Since the Fish and Wildlife Service has recommended against stocking Ridgway Reservoir presumably due to low productivity from poor water quality, what is the Bureau's justification for including 24,400 man-days of fishing as a project benefit. If fish should be stocked, the resulting fishery may be marginal, therefore, the estimated man-days of fishing is probably too high.

Response:

Fishing in Ridgway Reservoir has not been included as a project benefit. If fish were stocked, a possible use of 16,000 man-days has been suggested by the Fish and Wildlife Service for the 80,000-acre-foot reservoir in the presently proposed plan.

8. Comment:

Page A-47 indicates that a computerized scheduling system will be used to assure proper timing and amount of irrigation. Evidently such a system will be beneficial in reducing return flow and consequent salt loading. EPA endorses such activities and suggests the benefit of this system could be further explained in the final EIS.

Response:

In the Draft Environmental Statement scheduling was planned for Log Hill Mesa which is no longer planned for development. Scheduling, however, is being instituted in the Uncompahgre Project as discussed in Section D-8.

9. Comment:

When the Bureau calculates irretrievable commitments in relation to the salinity increase in the Colorado River (pg E-1), they should include the cost of $230,000 year per mg/l. Total costs to downstream users will then be $850,000/year.

Response:

Changes made in the project plan since the Draft Environmental Statement was published have reduced the estimated stream depletion and therefore the increase in salinity due to concentration. The cost to downstream users from the 0.9 mg/l increase due to salt loading would be $207,000, while the cost from the 1.8 mg/l increase due to the concentrating effects of the stream depletion would be $414,000. The cost due to the salt loading has been included in the project benefit-cost ratio. The cost due to the concentrating effects of the stream depletion have not been included, however, since it is considered that the rights to divert and deplete streamflow in the Upper Colorado River Basin provided by the Colorado River Basin Compact of 1922 are accompanied by a corresponding right to concentrate the salt load of the stream without penalty.

10. Comment:

Another concern is the secondary impacts due to providing a water supply to the new community in Log Hill Mesa. Critical deer winter range will be lost, additional salt loading will occur as a result of irrigating new lands, and the additional 12,000 people will create new sediment sources from construction and recreational activities.

Response:

Water for Log Hill Mesa Community has been deleted from the project plan.

11. Comment:

In addition to requesting water quality modeling of the proposed impoundments, it is suggested that the Bureau help fund water quality monitoring of the project streams. Poor quality waters will prevent establishment of potential recreational benefits and may effect intended water use; therefore, the Bureau may be interested in assisting the Colorado Statewide 208 Program in both monitoring the source of pollutants and possibly in identifying cost-effective methods of abatement. Please contact Gary Broetzman of the Governor's staff at 388-6111 ext. 231 if your agency is interested in assisting in this effort.

Response:

Mr. Broetzman was informed by letter of June 11, 1976 that the Bureau of Reclamation is interested in assisting the Colorado Statewide 208 Program. This program is just getting underway and no specific method for assistance was given by Mr. Broetzman. Recommendations will be provided to the Bureau as the program develops.

3. Disposition of Comments Received on Draft Statement

b. Comments from the State of Colorado

Department of Health

Department of Highways

Department of Natural Resources

Colorado Geological Survet
Division of Parks and Outdoor Recreation
Division of Wildlife

State Historical Society of Colorado

COLORADO DEPARTMENT OF HEALTH

4210 EAST 11TH AVENUE · DENVER, COLORADO 80220 · PHONE 388-6111

Edward G. Dreyfus, M.D., M.P.H., Executive Director

March 30, 1976

Office of the Regional Director
Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, UT 84147

RE: Draft EIS, Dallas Creek Project (INT DES 76-11), Ouray & Montrose Counties, Colorado

Dear Sir:

The Colorado Department of Health has the following comments on this document:

1. The Air Pollution Control Division would mention that the only foreseeable air quality problem is fugitive dust during construction. It is suggested that a fugitive dust control plan be implemented in order to reduce these emissions to the greatest possible extent.

2. The Division of Engineering and Sanitation has several significant comments:

   a. There is concern that municipal water for Ridgway and Log Hill Mesa would be taken from the Uncompahgre upstream from the proposed Ridgway Reservoir instead of from the Dallas Creek Drainage, which has much better raw water quality.

      Because of mine and other drainage, the Uncompahgre River water will be most difficult to treat for municipal purposes since it contains many toxic substances.

      Reference - Pages A-28, A-45, A-46, B-15, B-17, B-18, B-19, B-20, B-21, B-22, B-71, B-72, B-74.

   b. Water supply facilities for the campground and picnic areas must be designed to meet Colorado Drinking Water Standards.

      Reference - Pages A-38, A-40.

   c. Sewage facilities for item (b) above must be designed to meet requirements of the local board of health and this Department's regulations.

      Reference - Pages A-38, A-40, D-11.

d. Solid wastes generated at the above locations must be disposed of in a proper landfill.

Reference - Pages A-39, A-40.

e. The field office must have water supply, sewage, and solid waste facilities meeting state and local requirements.

Reference - Page A-43.

f. Expected population increases will require the construction of adequate water treatment and supply systems, and adequate solid waste disposal facilities.

Reference - Pages C-37, C-38, C-39, C-40.

3. The Water Quality Control Division has comments as follows:

a. Expected population increases may require the expansion of existing municipal systems for the collection and treatment of wastewaters, especially at Montrose. This point should be addressed in the DES.

b. Increased use of Dallas Creek and Uncompahgre waters for irrigation will probably adversely affect an already serious TDS problem in the Uncompahgre River. Water Quality Control Division data indicates an approximate threefold increase in TDS between Ouray and Delta. Data for 32 samples at Ouray shows a mean concentration of 408 mg/l, while at Delta, the mean for 83 samples is 1412 mg/l. This does not agree with the statements about TDS on page B-19.

Because the Colorado River is already viewed as having a serious salinity problem, and the Uncompahgre is a major tributary to the Colorado River, the potential increase in salinity due to this project should not be minimized in the final EIS.

Very truly yours,

FOR DIRECTOR, WATER QUALITY CONTROL DIVISION

Kenneth W. Webb

Kenneth W. Webb, P.E., Chief
Water Quality Management Planning Section

KWW/mb

cc: R. Siek

Memorandum

To: Files

Subject: Response to March 30, 1976, Colorado Department of Health Letter on the Dallas Creek Project Draft Environmental Statement

Responses reference numbered comments in the Colorado Department of Health's letter without restatement of the comments.

1. 1 Responses:

All Bureau of Reclamation construction specifications contain paragraphs requiring the contractor to control fugitive dust as well as other potential air pollutants.

2. 2a Response:

A special report prepared as part of the Dallas Creek Project studies, "The Impact of Various Metals on the Water Quality in Ridgway Reservoir,"(39) concluded that "the waters of Ridgway Reservoir can be used for public water supply, livestock watering, and agricultural uses." It is probable, however, that an exchange agreement would be reached between Tri-County Water Conservancy District and the Uncompahgre Valley Water Users Association to use higher qaulity Gunnison River water for municipal purposes in the Uncompahgre Valley and releases from Ridgway Reservoir for irrigation. The exact distribution of the project municipal water supply has not been determined and it is possible that none of the water would be provided to Ridgway or Loghill Village.

3. 2b, c, and d Response:

Water supplies, sewage facilities, and solid waste disposal would comply with all Federal, State, and local requirements as mentioned in Section A-5c.

4. 2e Response:

Facilities will be designed to meet State and local requirements as mentioned in Section A-9.

5. 2f, 3d Response:

The increases in population projected in the statement are expected to occur whether or not the Dallas Creek Project is constructed. Montrose is presently expanding its water distribution and sewage systems as stated in Section C-7a and in the statement from the City of Montrose, which is included in Section I-3c.

6. 3.b. Response:

During project investigations, approximately 50, 120, and 70 water samples were taken with measured flows at Ridgway, Colona, and Delta, respectively. Power function correlations and flow duration curves were developed for each station. Average TDS of the Uncompahgre River was determined to be 345 mg/l at Ridgway, 336 mg/l at Colona, and 1,442 mg/l at Delta. Salt loading from the Dallas Creek Project is expected to be 9,800 tons annually which could result in an average increase in TDS in the Uncompahgre River, just before it enters the Gunnison at Delta, of as much as 1,710 mg/l. Information on alinity appears in Section B-4d.

DALLAS CREEK

COLORADO DEPARTMENT OF HEALTH

4210 EAST 11TH AVENUE · DENVER, COLORADO 80220 · PHONE 388-6111

Edward G. Dreyfus, M.D., M.P.H. Executive Director

June 8, 1976

JUN 14 '76

Office of the Regional Director
Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

RE: Draft EIS, Dallas Creek Project, Ouray and Montrose Counties, Colorado

Gentlemen:

Since our original review and comments in March on the DES referred to above, we have conducted a subsequent assessment, and wish to make additional comments prior to the preparation of the final environmental impact statement.

With the State of Colorado starting an areawide water quality management planning process for point and non-point sources of pollution, we assume that, at some point in time, the proper local, State or Federal water quality management agency will identify and plan to abate all or a portion of metal mine drainage into the Uncompahgre drainage system. Since the actual implementation of abatement procedures may be extremely expensive and take several years, plus the fact that some non-point source will not lend themselves to regulatory actions, we request the Bureau to assess the environmental effect under present conditions, i.e. the Uncompahgre has, and will continue to have for some time, excessive amounts of heavy metals.

Bureau of Reclamation data plus two metal mine drainage studies in the Colorado Water Resources Circulars Nos. 21 and 25 lead to the following conclusions.

General:

1. There are a number of mine drainages feeding Ridgeway Reservoir that will contribute to the reservoir large quantities of heavy metals and toxic elements such as arsenic, lead, mercury, cadmium, nickel, iron, copper, zinc and manganese.

2. The effects of some of these heavy metals are additive or synergistic. For example, cadmium is more toxic in the presence of copper and zinc.

3. Selenium is a special problem. Almost the entire Uncompahgre Valley contains seleniferous rock, as a product of the volcanism of an earlier geologic era, or seleniferous shales and sandstones, including the Dakota Sandstone and Mancos Shale. Carbolic acid formed naturally apparently leaches out selenium which then forms various selenium compounds.

4. Most plants will take up selenium in their tissues; some plants such as locoweed are selenium concentrators. Cattle and stock feeding on these plants get "alkali" disease or the "blind staggers", that is, selenium poisoning.

Public Water Supply:

1. Water from the proposed Ridgeway Reservoir would violate drinking water standards for selenium, iron and manganese. Care should be taken that the reservoir is not used for water supply at some far future date.

2. Water supply for the recreation areas around the reservoir will need to be imported from another source.

Use of Water for Livestock and Irrigation:

1. Unless the high levels of manganese and zinc can be removed, livestock probably will refuse to drink water drawn from the proposed Ridgeway Reservoir, whenever other water is available. Copper, arsenic and mercury and selenium should be continually monitored if the water is to be used for livestock watering.

2. Water with selenium content at Ridgeway shows 8 samples above even the levels of .05 mg/l -- standard for stock watering. (30% of 54 samples were above the .01 mg/l standard for selenium in drinking water.)

3. Because of the presence of selenium in the soils, hays and grasses and in some feedgrains, and the accumulative toxic effects of selenium, the use of water from Ridgeway Reservoir for standardized agricultural uses will pose a particular hazard for livestock.

4. The maximum concentration of selenium in irrigation waters recommended in the 1972 Water Quality Criteria document (for EPA by NAS-NAE) is .02 mg/l for continuous use on all soils. This is because of the low levels of selenium required to produce toxic levels in forages.

Use of Water for Fishing and Recreation:

1. The heavy metals and toxic elements including lead, mercury, arsenic and cadmium will accumulate in the sludge of the proposed Ridgeway Reservoir. There are occasional dumps of cyanide from the mines above Ouray. Continual monitoring will be necessary if body contact sports such as water skiing and swimming are allowed.

2. Because lead, mercury and cadmium will enter the reservoir from the mine drainages above Ouray, fishing at Ridgeway Reservoir should be carefully controlled with continual monitoring of tissues of fish for heavy metal concentrations.

3. The U. S. Bureau of Fish and Wildlife has recommended that catchable fish be stocked at the reservoir. It is doubtful that more than a small percentage of these fish will survive the heavy metal concentrations very long. Periodic fishkills could occur unless the cooperation of mine operators is secured so that dumping of toxic substances is discontinued.

Recommendation:

If the Environmental Impact statement and the construction of the Dallas Creek Project is approved, additional baseline water quality and water chemistry studies should be undertaken and measures implemented to mitigate the influx of toxic elements into waters of the project.

Very truly yours,

FOR DIRECTOR, WATER QUALITY CONTROL DIVISION

Kenneth W. Webb

Kenneth W. Webb, P.E., Chief
Water Quality Management Planning Section

KWW/DSP/mb

Memorandum

To: Files

Subject: Response to June 8, 1976, Colorado Department of Health Letter on the Dallas Creek Project Draft Environmental Statement

Responses reference numbered comments in the Colorado Department of Health's letter without restatement of the comments.

1. General Comment 1:

The presence of mine drainages in the Uncompahgre River watershed has been acknowledged and their effect on the suitability of the water quality for uses proposed for the Dallas Creek Project has been thoroughly analyzed. A special report, "The Impact of Various Metals on the Water Quality in Ridgway Reservoir"[39] concluded that "the waters of Ridgway Reservoir can be used for public water supply, livestock watering, and agricultural uses."

2. General Comment 2:

The special study referred to above analyzed the synergistic as well as antagonistic effects of all parameters affecting the water quality. The maximum value for cadmium found in 28 samples was .002 mg/1. The values for copper and zinc are also very low.

3. General Comments 3 and 4:

The study referred to in 1 above discusses selenium in great detail. It was concluded that water from the reservoir would contain less selenium than is contained in the inflows. The Bureau of Reclamation is not aware of any problems with selenium poisoning (locoweed) on presently irrigated lands. No new lands would be developed with the project, thereby elminating the possibility of creating problems from some presently unknown source.

4. Public Water Supply Comment 1:

Selenium concentrations up to 0.01 mg/l have been recorded in the Uncompahgre River at Ridgway. The Environmental Protection Agency has set a maximum concentration of 0.01 mg/l of selenium for primary drinking water. The reservoir would cause a reduction in selenium concentration as it precipitates to the bottom of the reservoir.

Records show that the maximum concentration of total iron was 4.2 mg/l. All the iron for this sample was in a precipitate form. The maximum concentration of soluble iron was 0.05 mg/l. The Public Health Service has recommended a limit of 0.3 mg/l on iron for public water supplies. It is not believed that iron would be a problem in the use as a municipal

supply as it would settle out in the reservoir. Any iron that remains in the water can easily be removed by the user by adding slaked lime in the treatment plant.

Manganese has been found in concentrations as high as 0.4 mg/l in the Uncompahgre River at Ridgway. The Public Health Service recommends manganese be limited to a maximum of 0.05 mg/l. This limit was established on aesthetic and economic considerations rather than physiological hazards. Other recommended limits are 0.5 mg/l for irrigation water, 10.0 mg/l for livestock watering, and 1.0 mg/l for fish and aquatic life. Manganese will precipitate out in the reservoir because of the pH of the water which averages 8.1.

5. Public Water Supply Comment 2:

The water from Ridgway Reservoir can be treated to meet drinking water standards; therefore, it will be utilized in the recreation areas for public consumption.

6. Use of Water for Livestock and Irrigation Comment 1:

Both zinc and manganese will precipitate out in the alkaline environment of the reservoir which will have a pH of 8.1. Zinc concentrations have been recorded up to 0.31 mg/l which is well below the Public Health Standard of 5.0 mg/l. The water of the Uncompahgre River is presently used as a major source of stockwater without problems. Water from the reservoir will have lower concentrations than this present source.

The Bureau of Reclamation by letter of June 11, 1976, informed Mr. Gary Broetzman, State 208 Coordinator, that it is interested in assisting the 208 Program in monitoring water pollutants and in identifying cost-effective methods of abatement in the Uncompahgre River Basin. Monitoring of copper, arsenic, mercury, and selenium should be included in the 208 Program for the Uncompahgre Valley.

7. Use of Water for Livestock and Irrigation Comment 2:

Only two samples were found with selenium over the maximum standard of 0.01 mg/l for drinking water. These were 0.011 mg/l and 0.012 mg/l for the Uncompahgre River at Colona and Ouray, respectively. Examination of Bureau of Reclamation data, STORET data from the Colorado Department of Health, Colorado River Water Conservation District, and others did not reveal the large number of samples referred to as being over the maximum standards.

8. Use of Water for Livestock and Irrigation Comment 3:

Water from the Uncompahgre River has been used for the irrigation of hays, grasses and feed grains on these lands since the turn of the century.

There are no documented cases of accumulative toxic effects of selenium on livestock to date on irrigated lands in the proposed project area.

9. Use of Water for Livestock and Irrigation Comment 4:

As discussed in item 2 above, no samples have been analyzed with selenium concentrations as high as 0.02 mg/l, let along an average of 0.02 mg/l. Therefore no problem is expected from the irrigation of forage crops.

10. Use of Water for Fishing and Recreation Comment 1:

Any accidental dump of cyanide from the mines above Ouray would be partially alleviated by decomposition from bacterial action in a moving stream. In addition, the Bureau of Reclamation has gone on record as being interested in assisting the State 208 Program in monitoring water pollutants and in identifying cost-effective methods of abatement in the Uncompahgre Basin.

11. Use of Water for Fishing and Recreation Comments 2 and 3:

The Fish and Wildlife Service originally recommended stocking catchables, but the Bureau of Reclamation and the Fish and Wildlife Service have determined that the cost of such a program would be unjustified. Therefore, fish stocking and fishery use of Ridgway Reservoir have not been included in the project plan.

It is important to note that when catchable-sized trout are planted in a body of water they are usually managed under a program whereby harvest would occur rather quickly. Under the catchable program proposed for Ridgway it was never intended that these fish would remain long and thus accumulation of heavy metals would not be considered a problem under this program. Monitoring of fish tissues for heavy metals should be incorporated into the 208 Program in the event a fishery develops.

A-95 Review - D.E.I.S.
Dallas Creek

120.

STATE DEPARTMENT OF HIGHWAYS

JACK KINSTLINGER — EXECUTIVE DIRECTOR

DALLAS CREEK

STATE OF COLORADO

DIVISION OF HIGHWAYS
E. N. HAASE
CHIEF ENGINEER

DISTRICT 5
C. A. Morain
DISTRICT ENGINEER

P.O. BOX 1551—HIGHWAY BUILDING • DURANGO, COLORADO 81302 (303) 247-3771

RECEIVED USBR SLCU
OFFICIAL FILE COPY
APR 26 1976

Date	Initials	To
4/22	JHP	200
4/22	RVS	200
		700
		750
		750
Subs. Corresp.		
Date Ans'd		

April 20, 1976

Office Regional Director
Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

Dear Sir:

The Colorado Division of Highways has reviewed the Draft Environmental Impact Statement for the Dallas Creek Project. We note with disappointment that the impacts of the relocation of U.S. Highway 550 are not given adequate attention in the D.E.I.S. to enable us to evaluate those impacts in context with the impact of the overall project. The deficiencies in the document are ones of omission rather than commission.

On pages A-9, A-10 and D-8 a more complete description of the highway relocation is needed. This would include the terminii of the highway relocation, a typical section, and right of way widths as well as alternate locations studied and the reason for their rejection.

On Page A-14 it is mentioned that a possible quarry area would be visible from the relocated highway. A description of possible mitigative measures should be included.

On page A-19 it is mentioned that access to the reservoir would be provided by improving an existing dirt road from State Highway 62 to the dam site. Traffic projections on this road are necessary for us to be able to determine what, if anything, will be required in the way of construction at the intersection with S.H. 62.

On page A-20 the Dallas Feeder Canal is described but not enough information about the size of the canal and construction requirements of the canal is given to enable us to evaluate what may be necessary in the way of construction of a structure where the canal crosses S.H. 62.

In the discussion of the Alkali Creek site on page A-38 mention should be made of its access point on U.S. 550 and the type of road approach that would be required at that point.

In the discussion of the construction program on page 43 the relationship of the Colorado Division of Highways to the project should be outlined and the employment figures for each segment of the project should be outlined.

On pages B-6, C-44 and C-46 in the discussions of geologic formations, a number of landslide areas and geologic faults are mentioned but the relationship of these to the highway relocation is not given in enough detail.

On pages C-1 and C-2 in the general discussion of the impact of the overall project on water quality, the specific water quality impacts and mitigative measures associated with the U.S. 550 relocation should be broken out especially in regard to Cow Creek (page E-2).

Due to the large number of projected recreation days mentioned on page C-30 there will probably be a need for upgrading U.S. Highway 550 both north and south of the project area and State Highway 62 as well. This constitutes a major secondary impact of the Dallas Creek Project which should be addressed. The upgrading may be necessary in the near future if the influx of construction workers discussed on pages C31-35 increases traffic flows significantly in conjunction with the increased development discussed on page C-43.

In the discussion of consultation with other agencies on pages I-1 to I-3 no mention is made of the involvement of the Colorado Division of Highways in the project development.

In Attachment 2 possible material sources for the U.S. 550 relocation should be noted.

We appreciate the opportunity to review this Draft E.I.S. and we will be glad to assist you in any way.

Very truly yours,

C. A. Morain
District Engineer

by C. J. Watson
C. J. Watson
District Environmental Manager

CJW/ba

cc: Richard L. Brown, Colo. Div. of Planning
W. J. Capron
H. R. Atchison
Morain/Dutton
J. H. Mayfield
File

Memorandum

To: Files

Subject: Response to Colorado State Department of Highways, Durango, Colorado, Comment Letter of April 20, 1976, on the Dallas Creek Project Draft Environmental Statement

1. Comment:

On pages A-9, A-10 and D-8, a more complete description of the highway relocation is needed. This would include the terminii of the highway relocation, a typical section and right-of-way widths, as well as alternate locations studied and the reason for their rejection.

Response:

Available information on the highway is included in Section A-5a, and in response to Comment 3 of the statement from the Ouray County Commissioners which is included in this chapter in Section I-3c.

2. Comment:

On page A-14 it is mentioned that a possible quarry area would be visible from the relocated highway. A description of possible mitigative measures should be included.

Response:

The statement that the quarry site would be visible from the relocated highway was in error and has been corrected in Section A-7. Even though the area would not be visible from the highway, measures are planned to restore the area so far as possible to its natural condition and these are discussed in Section D-3a.

3. Comment:

On page A-19 it is mentioned that access to the reservoir would be provided by improving an existing dirt road from State Highway 62 to the dam site. Traffic projections on this road are necessary to determine what, if anything, will be required in the way of construction at the intersection with S.H.62.

On page A-20 the Dallas Feeder Canal is described but not enough information about the size of the canal and construction requirements of the canal is given to evaluate what may be necessary in the way of construction of a structure where the canal crosses S.H. 62.

Response:

The Dallas Divide Reservoir and Dallas Feeder Canal have been deleted from the project plan.

4. Comment:

In the discussion of the Alkali Creek site on page A-38 mention should be made of its access point on U.S. 550 and the type of road approach that would be required at that point.

Response:

This discussion has been added in Section A-5.

5. Comment:

In the discussion of the construction program on page 43 the relationship of the Colorado Division of Highways to the project should be outlined and the employment figures for each segment of the project should be outlined.

Response:

This information has been included in Section A-9.

6. Comment:

On pages B-6, C-44, and C-46 in the discussions of geologic formations, a number of landslide areas and geologic faults are mentioned but the relationship of these to the highway relocation is not given in enough detail.

Response:

Discussion of faults and landslide areas has been expanded in Section B-3b to include their relationship to highway relocation.

7. Comment:

On pages C-1 and C-2 in the general discussion of the impact of the overall project on water quality, the specific water quality impacts and mitigative measures associated with the U.S. 550 relocation should be broken out especially in regard to Cow Creek (page E-2).

Response:

The impact of road relocation upon water quality would be only a short term impact on turbidity and sediment load, occurring primarily during construction and extending only until revegetation was complete.

8. Comment:

Due to the large number of projected recreation days mentioned on page C-30, there will probably be a need for upgrading U.S. Highway 550 both north and south of the project area and State Highway 62 as well. This constitutes a major secondary impact of the Dallas Creek Project which should be addressed. The upgrading may be necessary in the near future if the influx of construction workers discussed on pages C-31-35 increases traffic flows significantly in conjunction with the increased development discussed on page C-43.

Response:

Whether or not U.S. Highway 550 and State Highway 62 have to be upgraded in the future should not depend on the Dallas Creek Project. Dallas Divide Reservoir and service to Log Hill Mesa have been deleted from the project plan, so possible increased use of Highway 62 as a result of the project would be insignificant. Much of the projected recreation use of Ridgway Reservoir is based on the supposition that tourists now traveling Highway 550 would avail themselves of the camping facilities there. The influx of construction workers would be only for a period of 5 years. The presence of the reservoir might stimulate some private development in the vicinity as discussed in Section C-8, but this is not expected to be extensive enough to be a traffic problem.

9. Comment:

In the discussion of consultation with other agencies on pages I-1 to I-3, no mention is made of the involvement of the Colorado Division of Highways in the project development.

Response:

This oversight has been corrected in the final statement.

10. Comment:

In Attachment 2 possible material sources for the U.S. 550 relocation should be noted.

Response:

The material for the highway relocation would come from essentially the same borrow areas as for Ridgway Dam (See Section A-7).

STATE OF COLORADO RICHARD D. LAMM, Governor

DEPARTMENT OF NATURAL RESOURCES

HARRIS D. SHERMAN, Executive Director
Gerald D. Sjastaad, Deputy Director
103 Columbine Bldg., 1845 Sherman St. Denver, Colorado 80203 892-3311

DALLAS CREEK
Department of Administration

Division of Mines
Division of Parks & Outdoor Recreation
Division of Water Resources
Division of Wildlife
Geological Survey
Colorado Geological Survey
Water Conservation Board

JUL 13 '76

July 12, 1976

Mr. David L. Crandall
Regional Director
Bureau of Reclamation
Upper Colorado Region
P. O. Box 11568
Salt Lake City, Utah 84111

Dear Mr. Crandall:

You have already received comments from a number of state agencies regarding particular aspects of the Dallas Creek Project Draft Environmental Statement. These comments should be considered in the preparation of the final environmental statement. It is the purpose of this letter to set forth the position of the state government and to resolve any conflicts among state agencies relating to the proposed Dallas Creek Project, if in fact any such conflicts exist.

The definite plan report upon which the draft environmental statement was predicated contemplated the construction of several major facilities including the Ridgway Dam and Reservoir with a total capacity of 125,000 acre-feet, the Dallas Divide Dam and Reservoir with a total capacity of 17,600 acre-feet, the Dallas Feeder Canal, and the Log Hill Mesa Conduit and pumping plants to serve the Log Hill Mesa area. As thus constituted, the project would increase usable water supplies in the project area by an average of 52,100 acre-feet annually. Of the total supply, 19,100 acre-feet was allocated to irrigation, 27,500 acre-feet to municipal use, and 5,500 acre-feet to light industrial use.

We understand that your most recent studies indicate that the Dallas Creek and Log Hill Mesa features of the Dallas Creek Project be eliminated at this time. This would leave as the only remaining major feature of the project the Ridgway Dam and Reservoir which in fact has been the principal feature of the project from the beginning. However, since a portion of the planned capacity for that reservoir was allocated to Log Hill Mesa, the active capacity of the reservoir should be reduced to approximately 80,000 acre-feet. Under this plan approximately 11,000 acre-feet of water would be available annually for the irrigation of farmlands and approximately 28,000 acre-feet would be available for municipal and light industrial use. Flood control capacity and surcharge would be reviewed and established as required to satisfy flood control purposes. A permanent pool of 25,000 acre-feet for recreation, aquatic habitat and sediment retention would remain as currently planned. The total take area for reservoir occupation and recreational use would amount to about 3,500 acres, of which about 960 acres are currently in public ownership. Under such a revised plan, project construction costs would be reduced significantly.

Under this proposed project revision, the adverse impact upon existing fish and wildlife resources would be reduced. On the contrary, the fish and aquatic habitat along that portion of the Uncompahgre River from the upper limits of the reservoir to at least twelve miles downstream from the dam would be improved. Therefore, the criteria set forth for mitigation of fish and wildlife values in the draft statement would no longer be valid. Also, we believe that fishing easement downstream from Ridgway should be acquired on a willing seller basis only. Accordingly, we recommend that paragraph 4 and the first sentence of paragraph 5 on page D-10 of the draft environmental statement be modified to read as follows:

"4. Measures Designed to Reduce or Restore Wildlife Losses.

About 1,000 acres of rangeland would be purchased or acquired as a part of the project, somewhere within the tri-county area of Delta, Montrose and Ouray counties as an intensive game management area to offset the loss to wildlife habitat of about 1,000 acres of public lands which would be within the take area of Ridgway Dam and Reservoir. Fencing would be constructed around the reservoir right-of-way boundaries which would have the effect of curtailing livestock grazing within the reservoir boundaries and thereby improving wildlife habitat. Additional fencing and game underpasses would be constructed as required along both sides of the relocated U. S. Highway 550 in order to minimize vehicular-big game collisions. Revegetation would restore ground cover lost during clearing activities."

"5. Measures Designed to Increase Utilization of the Reservoirs and River.

In order to enhance fishing opportunities which the reservoir would make possible, fishing easements would be purchased or acquired along both sides of the Uncompahgre River for about twelve miles immediately below Ridgway Dam, to such extent as such easements can be secured from property owners on a negotiated basis."

There are a number of other changes which should be made in the draft statement to conform with both the revised statements suggested above and to reflect the proposed elimination of the Dallas Creek and Log Hill Mesa project features. In addition, we recommend that the proposed dual outlet feature at Ridgway Dam be eliminated. It is our understanding that the dual outlet concept originated from a belief that temperature control was required for downstream fishery purposes. Neither the Colorado Division of Wildlife nor the Colorado Water Conservation Board believes that such temperature control is required. The elimination of this unnecessary second outlet would effect a significant cost savings.

We also ask that the Bureau of Reclamation study further the potential toxic metal problem which was discussed by the Environmental Protection Agency in its comments and was further addressed by the Water Quality Control Division of the Colorado Department of Health in its recent letter. We understand that the Ridgway Reservoir will not be used as a source of domestic water, but believe that the concerns raised by the Environmental Protection Agency and our Department of Health should be more fully investigated.

With such modifications in the project plan and environmental impact statement as are recommended in this communication, the State of Colorado fully supports the Dallas Creek federal reclamation project and urges that construction be initiated during this calendar year.

Again, we wish to thank the Bureau of Reclamation and your office in particular for patiently working with us over these many months on this extremely important project.

Sincerely,

Harris D. Sherman
Executive Director

HDS/dlh

Memorandum

To: Files

Subject: Response to letter from the State of Colorado, Department of Natural Resources, July 12, 1976, commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

The Department of Natural Resources recommended certain changes in the mitigation discussion.

Response:

Material suggested has been incorporated in Chapter D.

2. Comment:

We recommend that the proposed dual outlet feature at Ridgway Dam be eliminated. It is our understanding that the dual outlet concept originated from a belief that temperature control was required for downstream fishery purposes. Neither the Colorado Division of Wildlife nor the Colorado Water Conservation Board believes that such temperature control is required. The elimination of this unnecessary second outlet would effect a significant cost savings.

Response:

The dual outlet works are included to allow manipulation of water temperature and quality by mixing waters from two different levels of the reservoir. The Bureau of Reclamation believes this is a desirable feature and the Fish and Wildlife Service concurs.

3. Comment:

We also ask that the Bureau of Reclamation study further the potential toxic metal problem which was discussed by the Environmental Protection Agency in its comments and was further addressed by the Water Quality Control Division of the Colorado Department of Health in its recent letter. We understand that the Ridgway Reservoir will not be used as a source of domestic water, but believe that the concerns raised by the Environmental Protection Agency and our Department of Health should be more fully investigated.

Response:

Concerns of the Environmental Protection Agency and the Colorado Department of Health have been considered as discussed on responses to letters of these agencies.

RICHARD D. LAMM
Governor

DEPARTMENT OF NATURAL RESOURCES

COLORADO WATER CONSERVATION BOARD

102 COLUMBINE BUILDING 1845 SHERMAN STREET
DENVER, COLORADO 80203

FELIX L. SPARKS
Director
KEN D. MORRILL
Deputy Director

TELEPHONE
303-892 3411

April 28, 1976

Mr. David L. Crandall
Regional Director
Upper Colorado Region
U. S. Bureau of Reclamation
P. O. Box 11568
Salt Lake City, Utah 84111

Dear Mr. Crandall:

This board has been designated as the lead agency within the Colorado Department of Natural Resources to assemble comments of interested agencies within the department concerning the draft environmental impact statement for the Dallas Creek project. The only comments which we have received are from the Division of Wildlife and the Colorado Geological Survey. Those comments are attached hereto for your consideration. It is our understanding that comments of other state agencies have been forwarded to you directly.

The comments enclosed herewith and which you have heretofore received reflect the views of the state agencies submitting the comments and may or may not reflect the views of the chief executive of this state. At the present time, there are some conflicting views within the executive department of the state government concerning fish and wildlife mitigation measures as described in the draft environmental impact statement. The complete official reply of the state of Colorado, therefore, on the draft environmental impact statement will be submitted to you in the near future under the signature of the governor of this state.

Very truly yours,

FELIX L. SPARKS
Director

FLS:mm
Enclosures
cc: Mr. Ed Wiscombe

P.S. After we had prepared the letter, we received comments from the Division of Parks and Outdoor Recreation which are also enclosed.

Rec'd 4-30-76

STATE OF COLORADO

RICHARD D. LAMM
GOVERNOR

JOHN W. ROLD
Director

COLORADO GEOLOGICAL SURVEY
DEPARTMENT OF NATURAL RESOURCES
254 COLUMBINE BUILDING — 1845 SHERMAN STREET
DENVER, COLORADO 80203 PHONE 892-2611

April 29, 1976

Felix L. Sparks
Water Conservation Board
1845 Sherman Street
Denver, Colorado 80203

Dear Mr. Sparks: RE: DALLAS CREEK PROJECT/DRAFT E.I.S.

We have reviewed this draft E.I.S. as to basic geology, present geologic conditions, and the possible interaction of construction and permanent facilities upon these conditions. This was done with the knowledge that on a project of this magnitude, a detailed geologic investigation is necessary, but for practical reasons, not all this information can be presented in the E.I.S.

We feel, though, that certain areas of geologic concern were not adequately addressed in this report. Basically, these are cause and effect factors, probable future conditions, and proposed mitigating actions. Our concerns are detailed as follows.

1) Geologic Map: To be able to make a meaningful review of the geology of an area and the impact of a major project, it is necessary to have an adequate geologic map at a scale that suits the nature of the project. The geologic map on page B-9 at a scale of 1=145,800 (approximate) is adequate for the project as a whole, but not adequate for individual structures such as the dam sites, canals, and tunnels. The scale of the 7 1/2' topo sheets (1-24,000) would offer the detail necessary to make a proper analysis.

   We also hope that the geologic map on page B-9 was up-dated from the original Geologic Map of Colorado as published in 1935.

2) Basic Geology: Bedrock formations and surficial deposits were briefly discussed. The bedrock formations have lithologies that vary from igneous intrusives and sandstones to mudstone and shales. It is these latter type rocks, in general related to the Morrison and Mancos Shales, that would be most susceptible to a radical change in stability due to saturation by water. This effect by water (in the reservoirs, canals, tunnels) as to the stability of these rocks has not been clearly identified in this E.I.S. The E.I.S. is also lacking in what mitigating action may be necessary to prevent such occurrences as new or renewed landslides, slumps, and canal bank failures.

   In this proposed project, the Mancos forms part of the Dallas Divide Dam reservoir, the Dallas Feeder Canal crosses areas of Mancos derived soils, the Dallas Feeder Tunnel is entirely in Mancos Shale, and the Ridgeway Conduit crosses Mancos derived soils.

3) Landslides: A number of old landslides were identified in the reservoir areas and briefly mentioned in the E.I.S. We are concerned what effect saturation by water and change of reservoir level will have on these slides. Also, what are the chances of new slide areas developing? What effect will landslides have on the function of the reservoir, and is their any danger of rapid reservoir level change due to massive landslides? These critical areas of concern need answers that are clearly spelled out in the E.I.S.

4) Seismic Effect: Facts and figures on seismic occurrences in this part of Colorado were presented but were in no way related to dam and tunnel design nor were "best guesses" given as to design failures or natural slope failures (landslides).

The topic of reservoir loading was not mentioned or what, if any, seismic effect this could generate.

These concerns may have been covered in other published reports on the Dallas Creek Project but need to be discussed with mitigating actions outlined in the E.I.S.

Sincerely,

L. R. Ladwig
Engineering Geologist

Reviewed and concurred in:

William P. Rogers

William P. Rogers, Chief
Engineering and Environmental Geology Section

cc: Dave Walker - Dept. of Natural Resources

LRL/WPR/jp

Memorandum

To: Files

Subject: Response to Colorado Geological Survey, Department of Natural Resources letter on the Dallas Creek Project Draft Environmental Statement, April 29, 1976

1. Comment:

Geologic Map: To be able to make a meaningful review of the geology of an area and the impact of a major project, it is necessary to have an adequate geologic map at a scale that suits the nature of the project. The geologic map on page B-9 at a scale of 1=145,800 (approximate) is adequate for the project as a whole, but not adequate for individual structures such as the dam sites, canals, and tunnels. The scale of the 7 1/2' topo sheets (1-24,000) would offer the detail necessary to make a proper analysis.

We also hope that the geologic map on page B-9 was up-dated from the original Geologic Map of Colorado as published in 1935.

Response:

The map was intended to show the general geology of the area. The 1: 24,000 scale suggested would produce a map too large for this document. The Bureau has made detailed geologic studies and records of these studies are available for inspection at the Western Colorado Projects Office, Bureau of Reclamation, Grand Junction, Colo. Minor revisions have been made in the map to reflect recent information obtained in Bureau studies.

2. Comment:

Basic Geology: Bedrock formations and surficial deposits were briefly discussed. The bedrock formations have lithologies that vary from igneous intrusives and sandstones to mudstone and shales. It is these latter type rocks, in general related to the Morrison and Mancos Shales, that would be most susceptible to a radical change in stability due to saturation by water. This effect by water (in the reservoirs, canals, tunnels) as to the stability of these rocks has not been clearly identified in this E.I.S. The E.I.S. is also lacking in what mitigating action may be necessary to prevent such occurrences as new or renewed landslides, slumps, and canal bank failures.

Response:

The Mancos Formation is not present in the Ridgway Reservoir Basin. The valley bottom is the Morrison mudstone and the canyon walls are capped by Dakota sandstone. The possibility of landslides around Ridgway Reservoir is discussed in Section C-10. There is no known practical way to

prevent such land movement. The proposed take line has been extended to include, within the reservoir right-of-way, all slide areas that might be activated by the reservoir.

3. Comment:

In this proposed project, the Mancos forms part of the Dallas Divide Dam Reservoir, the Dallas Feeder Canal crosses areas of Mancos derived soils, the Dallas Feeder Tunnel is entirely in Mancos Shale, and the Ridgway Conduit crosses Mancos derived soils.

Response:

These features have all been deleted from the project.

4. Comment:

Landslides: A number of old landslides were identified in the reservoir areas and briefly mentioned in the E.I.S. We are concerned what effect saturation by water and change of reservoir level will have on these slides. Also, what are the chances of new slide areas developing? What effect will landslides have on the function of the reservoir, and is there any danger of rapid reservoir level change due to massive landslides? These critical areas of concern need answers that are clearly spelled out in the E.I.S.

Response:

This question is discussed in Section C-10. While it is possible that landslides might become activitated, it is believed that because of the topography and geology any such movement would be of low volume and velocity. Thus no danger to the function or operation of the reservoir is anticipated.

5. Comment:

Seismic Effect: Facts and figures on seismic occurrences in this part of Colorado were presented but were in no way related to dam and tunnel design nor were "best guesses" given as to design failures or natural slope failures (landslides).

The topic of reservoir loading was not mentioned or what, if any, seismic effect this could generate.

Response:

The tunnel has been deleted from the project. All Bureau of Reclamation dams are designed and constructed to withstand the maximum credible earthquake in accordance with good engineering practices. Reservoir loading in several areas of the world has been cited as the reason for an increase in seismic activity but also there has been no increase noted at other reservoir sites. There is no known technique for predicting the effect of reservoir loading.

STATE OF COLORADO
Richard D. Lamm, Governor
DEPARTMENT OF NATURAL RESOURCES
Harris D. Sherman, Executive Director

DIVISION OF PARKS AND OUTDOOR RECREATION
1845 SHERMAN, DENVER, COLO. 80203
GEORGE T. O'MALLEY, JR., Director

April 28, 1976

Mr. Larry Sparks, Director
Water Conservation Board
1845 Sherman Street
Denver, Colorado 80203

Dear Mr. Sparks:

We appreciate this opportunity to review the Draft Environmental Impact Statement covering the Dallas Creek Project. There are some concerns which we have about the proposal.

The text was prepared several months ago and since that time the 1976 Colorado Comprehensive Outdoor Recreation Plan has been completed. It generally shows needs for the kinds of facilities proposed with one important difference - the need for all kinds of recreation trails. We suggest these be added to the proposed project.

Visitation seems credible but perhaps is high if other reservoirs are built nearer to populated areas. The trails proposed above, if added, would enhance greater visitation.

The Board of Parks and Outdoor Recreation has gone on record indicating the Division of Parks and Outdoor Recreation will accept administration of park and recreation responsibility for the area.

Sincerely,

George T. O'Malley, Jr.
Director

GTO:yd
cc: David Walker

Memorandum

To: Files

Subject: Response to Colorado Division of Parks and Outdoor Recreation Letter on the Dallas Creek Project, Draft Environmental Statement, April 28, 1976

1. Comment:

The text was prepared months ago and since that time the 1976 Colorado Comprehensive Outdoor Recreation Plan has been completed. It generally shows needs for the kinds of facilities proposed with one important difference - the need for all kinds of recreation trails. We suggest these be added to the proposed project.

Response:

Trails are included in our recreation development plans at both the Alkali and Cow Creek Recreation sites.

2. Comment:

Visitation seems credible but perhaps is high if other reservoirs are built nearer to populated areas.

Response:

Dallas Divide Reservoir has been deleted from the project. This may serve to increase the recreation use at Ridgway Reservoir.

STATE OF COLORADO
Richard D. Lamm, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
Jack R. Grieb, Director
6060 Broadway
Denver, Colorado 80216 (825-1192)

April 23, 1976

Mr. Felix L. Sparks, Director
Colorado Water Conservation Board
1845 Sherman, Room 251
Denver, CO 80203

Dear Larry:

The Division of Wildlife (DOW) has reviewed the Dallas Creek Project Environmental Impact Statement and has commented by responding to the questions set forth in the March 30, 1976, memorandum by Mr. Harris Sherman. In addition, specific comments relating to the Draft Statement are attached.

1. Is the EIS an adequate and accurate assessment of potential environmental impact?

   The sections on fish and wildlife are essentially adequate and accurate. The draft, however, fails to discuss the problem of relocating U.S. Highway 550 through a high concentration of deer east of the proposed Ridgway Reservoir. The existing highway between Ridgway and Chaffee Gulch already has one of the highest deer kills in the state and the relocation and upgrading of this highway will result not only in increased deer kills but an additional hazard to the public. Following several interagency on-site meetings, the DOW recommended to the Fish and Wildlife Service that 17.2 miles of the relocated highway be fenced with deer-proof fence to prevent deer from crossing the highway. This recommendation has been sent to the Bureau of Reclamation by the Fish and Wildlife Service and should be discussed, together with the cost, in the final statement.

2. Are any adverse impacts acceptable or are less adverse alternatives for accomplishing project goals available?

   The adverse impacts on wildlife are acceptable if the fish and wildlife development plan, as described on pages A-34 through A-37, is implemented. The project, as presently planned, will be extremely detrimental to the wildlife resources as explained in the Draft Statement. Several alternatives are discussed which would significantly reduce the impact on wildlife and still accomplish many of the project goals. One of the most detrimental features of the

planned project on wildlife is development of Log Hill Mesa. Recent game counts have shown that over 4,600 mule deer are supported by this critical winter range.

We would prefer a plan which would incorporate all or part of alternative "b" Without Log Hill Mesa Development (page H-9) and "c", Water Savings Program on the Uncompahgre Project. In addition, we would prefer that lands irrigated on Log Hill Mesa be restricted to only class 1 and 2 lands thereby eliminating class 3 lands from cultivation.

3. Are there reasonable modifications or new alternatives that will enhance environmental quality or avoid adverse impacts?

Since the plan to supply water for energy purposes was dropped, we have advocated a reduction in the size of Ridgway Reservoir because it would reduce adverse impacts on wildlife. We still do not understand the necessity for the larger reservoir.

4. Does the Division have any program or project not identified in the EIS which would be affected?

We have a program which pays for game damage to agricultural crops and provides for fencing to protect haystacks. Although this program is discussed briefly on pages B-40 and C-22, we anticipate a serious problem on Log Hill Mesa which will result in additional costs to the State of Colorado. The final statement should emphasize this problem and discuss measures to alleviate additional costs.

The Division's fish stocking program will undoubtedly be affected because of increased demand from fishermen. We feel that fish for federal water projects should be supplied by the Fish and Wildlife Service.

5. Is any monitoring of projects effects recommended?

We question the suitability of Ridgway Reservoir and the Uncompahgre River for a cold water fishery. We recommend that post-impoundments studies, funded by the Section 8 program, be made in Ridgway Reservoir and on the river below the dam.

6. Would the project generate significant secondary or indirect effects which are not identified and which may affect interests of a division?

   The statement does describe secondary effects which would result from development of the Log Hill Community. The influx of some 12,000 people (page C-38) to this critical wildlife area will result in a significant reduction of the existing wildlife resource which will reduce local income from hunters. The impact of this development, and other subdivisions around Ridgway Reservoir, will have a much greater impact on wildlife than irrigation.

Sincerely yours,

Jack R. Grieb by Clarence W. Sandfort
Assistant Director

Jack R. Grieb
Director

JRG:cs
cc: Division of Planning
C. E. Till
Jim Young
W. Sandfort

SPECIFIC COMMENTS ON
THE DRAFT ENVIRONMENTAL STATEMENT
FOR THE DALLAS CREEK PROJECT

Division of Wildlife

Page	Paragraph	
A-10	4	The fence built along both sides of relocated U.S. Highway 550 should be deer-proof.
B-33	3	The number of fisherman days spent on the East Fork of Dallas Creek should be included. The Fish and Wildlife Service estimated this to be 125 fisherman days annually.
B-34	1	The catch rate on the West Fork of Dallas Creek was 1.25 native trout in 1970.
B-35	1	Invertebrate data for Dallas Creek has been sent to the Bureau of Reclamation with our report. No invertebrates were collected from Pleasant Valley Creek.
B-37	1	The elevation and water temperature of both forks of Dallas Creek should be similar and it is doubtful that these factors are the reason for a significant difference in aquatic invertebrate populations.
B-42	2	"Elk in Montrose and Delta Counties do not frequent areas to be affected by the project." They would, however, be affected in Ouray County because their distribution generally coincides with that of deer.
B-44	1	Mountain Lion generally follow deer movements and feed on deer populations.
B-44	4	The rabbit populations in Ouray County are estimated to be 24 per square mile or a total of 6,000 cottontails.
B-44	5	The snowshoe hare population in Ouray County are estimated to be 175. The highest density is 8.5 hares per square mile.
B-45	3	Our study revealed between 300 and 400 ducks in Ouray County.
B-46	1	The blue grouse population for Ouray County is estimated to be 175 birds.

Page	Paragraph	
B-46	2	We estimate the pheasant population to be 50 and the quail population to be 50
B-46	3	The band-tailed pigeon is a migration species to Ouray County with an estimated population of 750 birds. Approximately 2,000 mourning doves migrate to the project area annually.
B-48	2	Golden eagles also nest in the Cimarron Ridge area.
B-49	2	The decline in wildlife populations without the project should be quantified.
C-13	1	The Fish and Wildlife Service should be responsible for stocking fish at Dallas Divide Reservoir because it is a federal water project.
C-13	2	The loss of 35 fisherman days on Pleasant Valley Creek should be cited.
C-15	3	The loss of 130 fisherman days on Dallas Creek should be cited.
C-22	2	The discussion of deer damage should include the increased cost to the State of Colorado as a result of additional irrigation.
C-23	4	The additional people attracted to the project area will affect bighorn sheep, mountain lion, and bear populations although the impact is not expected to be significant.
C-27	4	The raptor population will be affected by the inundation of hunting ranges because a significant food source will be lost.
C-28	3	The amount of riparian habitat to be established on Log Hill Mesa will not begin to compensate for that lost on the Uncompahgre River.
C-29	2	The impact of additional people attracted to the project area will have a significant impact on the peregrine falcon population and should be noted.

Page	Paragraph	
C-31	1	The use of the reservoir right-of-way for hunting is questionable.
C-10	2	Measures designed to reduce environmental losses should include deer-proof fence on both sides of relocated U.S. Highway 550.
E-2	1	The relocation of U.S. Highway 550 will also eliminate forage for big game. The reduction of natural hunting range and additional people will cause some raptors to move.

Memorandum

To: Files

Subject: Response to Colorado Division of Wildlife Comment Letter on the Dallas Creek Project Draft Environmental Statement, April 23, 1976

Responses reference numbered comments in the Colorado Division of Wildlife's letter without restatement of the comments.

1. 1 Response:

Provisions for deer fence along the relocated highway are presented in Section A-5b and D-5b. The cost of the fence is estimated at $440,000 on basis of January 1976 costs.

2. 2 Response paragraph 1:

The project has been scaled down considerably since the draft statement was distributed. Accordingly, the detrimental effects on wildlife would be considerably less than previously indicated.

3. 2 Response paragraph 2:

The project plan is now essentially the one referred to as "Without Log Hill Mesa Development." An Irrigation Management Scheduling program, which is one of the features of "Water Savings Program on the Uncompahgre Project," is being introduced to the Uncompahgre Project.

4. 3 Response:

The capacity of Ridgway Reservoir is now planned for 80,000 acre-feet instead of 125,000 acre-feet as described in the Draft Environmental Statement.

5. 4 Response paragraph 1;

The irrigation of lands on Log Hill Mesa has been deleted from the project plan as well as all water to Loghill Village.

6. 4 Response paragraph 2:

Game damage is not expected to be a serious problem with the Loghill Mesa development eliminated from the project plan and a wildlife management area acquired near Ridgway Reservoir. No fish stocking program is presently planned.

7. 5 Response:

The possibility for post-impoundment studies on Ridgway Reservoir will be considered. The Colorado Division of Wildlife has completed the pre-impoundment study for the Dallas Creek Project and any future study would be designed to complement this work.

8. 6 Response:

Service to Log Hill Mesa and Loghill Village has been eliminated. County subdivision ordinances and enforcement would largely determine the extent of any residential development. Potential adverse impacts on wildlife at Ridgway Reservoir are recognized in Chapter C: however, the mitigation program proposed by the Bureau should lessen these adverse effects.

Responses reference specific comments that were included by the Division of Wildlife. The comments are reproduced following the letter from the Division and are not restated here.

9. Response to Specific Comment A-10:

A deer proof fence is planned as discussed in Sections A-5b and D-5b.

10. B-33 through B-37

Information is included in Section B-6a and B-6d.

11. B-42 through B-48

The information supplied has been included in Chapter B to the extent that it is applicable to the presently proposed plan.

12. B-49

The future of the area without the project cannot be accurately predicted, but it is assumed that present trends in wildlife habitat will continue. This trend includes increasing use of pinon-juniper and sagebrush habitat for permanent and recreation housing and the resultant impact on wildlife. No attempt has been made to relate this gradual loss in habitat to population changes, but uncompensated habitat losses will eventually reduce populations.

13. C-13, paragraph 1

Dallas Divide Reservoir has been deleted from the project plan.

14. C-13, paragraph 2

No loss is anticipated in fisherman days on Pleasant Valley Creek as reported by the Fish and Wildlife Service[32] and shown in Table C-1.

15. C-15

Under the proposed plan, 70 man days of fishing would be lost on Dallas Creek and tributaries as shown in Table C-1.

16. C-22

Under the present plan, which does not include new irrigation lands, deer damage problems would not be aggravated.

17. C-23

This information is included in Section C-4b(3).

18. C-27

This information is included in Section C-4g.

19. C-28

Log Hill Mesa development is no longer in the project. Losses of riparian habitat would not be replaced and would be lost with the project. This loss is quantitied in Table C-2.

20. C-29

As stated in Section B-7i, the Colorado Division of Wildlife observed one adult peregrine falcon near the town of Ridgway during their field studies of the project. There were no other confirmed sightings, and attempts to locate nesting sites by ground and aerial surveys were not successful. The project should not have any effect on this falcon because the areas impacted by the project are apparently seldom used by this species.

21. C-31

Hunting would not occur in the two recreation areas because of the intensive use there. Hunting opportunities, however, would be available within the right-of-way west of the reservoir. Specific regulations governing use of the area would be determined by appropriate State agencies and the Bureau of Reclamation.

22. C-10

The deer-proof fence is included in the project plan as discussed in Sections A-5b and D-5b.

23. E-2

The loss of habitat to the highway is documented in Table C-2. Raptors probably would not use the corridor during the construction period because of heavy traffic. Impacts on raptors are discussed in Section C-4g.

THE STATE HISTORICAL SOCIETY OF COLORADO

Colorado State Museum, 200 Fourteenth Avenue, Denver 80203

May 10, 1976

Mr. E. G. Bywater
Assistant to the Regional Director
Bureau of Reclamation
Upper Colorado Regional Office
Post Office Box 11568
Salt Lake City, Utah 84147

RE: DEIS/Dallas Creek Project

Dear Mr. Bywater:

The above draft environmental impact statement has been reviewed for historical and archaeological resources. Because of the broad scope of the project and the areas covered, we ask for consultation with your agency [Executive Order 11593, subsection 2(b)] to discuss the historical resources listed in the environmental inpact statement and in the State Historical Society inventory. Mrs. Joy Farr can be contacted at the State Historical Society, 200 East Fourteenth Avenue, Denver, Colorado 80203, telephone 321-7265.

The office of the state archaeologist requests more information about the archaeological resources of the area, including specific plans for mitigation of sites listed in the environmental statement. Details of the extent of the surveys and the archaeologist who conducted them are also requested. Dr. Bruce Rippeteau can be contacted at the office of the State Archaeologist, Ketchum Building 5A, University of Colorado, Boulder, Colorado 80302.

Thank you for your cooperation.

FOR THE STATE HISTORIC PRESERVATION OFFICER

Sincerely,

000705

James Edward Hartmann
Curator, Buildings and Sites

Memorandum

To: Files

Subject: Response to the State Historical Society of Colorado comment letter of May 10, 1976, on the Dallas Creek Project draft environmental statement

1. Comment:

Because of the broad scope of the project and the areas covered, we ask for consultation with your agency (Executive Order 11593, subsection 2(b) to discuss the historical resources listed in the environmental impact statement and in the State Historical Society inventory. Mrs. Joy Farr can be contacted at the State Historical Society, 200 East Fourteenth Avenue, Denver, Colorado 80203, telephone 321-7265.

Response:

A representative of the Bureau of Reclamation met with Mrs. Joy Farr on June 3 and July 20, 1976, and discussed the Colorado University survey report. It was discussed with Mrs. Farr that no identified historical resources would be affected by the project as discussed in Sections B-16 and C-13.

2. Comment:

The office of the state archaeologist requests more information about the archaeological resources of the area including specific plans for mitigation of sites listed in the environmental statement. Details of the extent of the surveys and the archaeologist who conducted them are also requested. Dr. Bruce Rippeteau can be contacted at the office of the State Archaeologist, Ketchum Building 5A, University of Colorado, Boulder, Colorado 80302.

Response:

A representative of the Bureau of Reclamation met with a Dr. Bruce Rippeteau on June 3 and July 20, 1976. It was discussed with Dr. Rippeteau that no significant archaeological resources have been identified that would be disturbed by the project and that mitigative measures would be employed if any such sites were discovered during construction activiites. These aspects are discussed in Sections B-16, C-13, and D-3a.

3. Disposition of Comments Received on Draft Statement

c. Comments from Local Governments and Related Bodies

*Delta County - Board of County Commissioners
*Montrose County - Board of County Commissioners
Ouray County - Board of County Commissioners
City of Montrose
Town of Ridgway

Colorado River Water Conservation District
*Tri-County Water Conservancy District
*Uncompahgre Valley Water Users Association

Ridgway Schools

*These letters express general agreement with the project plan. No issue is raised for which a response is considered necessary. The review of the Draft Environmental Statement, however, is appreciated.

1 of 2

BOARD OF COUNTY COMMISSIONERS

Delta County, Colorado 81416

COMMISSIONERS

1st DISTRICT
WAYNE A. GORE
ROUTE 2, BOX 304
DELTA, COLO. 81416

2nd DISTRICT
JOHN W. HAWKINS
ROUTE 2
HOTCHKISS, COLO. 81419

3rd DISTRICT
KENNETH TEN OTENHUIS
ROUTE 2
HOTCHKISS, COLO. 81419

COUNTY ATTORNEY
NICHOLAS E. DARROW

ADMINISTRATIVE ASSISTANT
DACY M. AXELSON

April 7, 1976

RECEIVED
USBR-Grand Junction
APR 9 1976
Date
Reg. Pers.
Susp date
Ans date

Mr. Ed Wiscombe, Director
Western Colorado Projects Office
Bureau of Reclamation
Building 8, ERDA Compound
Grand Junction, Colorado 81501

Dear Mr. Wiscombe,

This letter is the official response of Delta County regarding the Draft Environmental Statement for the Dallas Creek Project. It is an excellent report and all those who worked on it are to be commended. The Delta County Commissioners, Planning Commission and Planning Department all strongly endorse the proposed project and I know this same feeling is held by the majority of the people in this area. I request that this letter be made part of the record of the hearing to be held on April 17th. We plan to be represented at the meeting, but do not wish to unnecessarily prolong the session with repetitive endorsements of this very necessary project.

Board of County Commissioners

Wayne A. Gore

Wayne A. Gore
Chairman

GFF:elb

/ 2 /.

DALLAS CREEK

BOARD OF COUNTY COMMISSIONERS

Delta County, Colorado 81416

COMMISSIONERS

1st DISTRICT
WAYNE A. GORE
ROUTE 2, BOX 306
DELTA, COLO. 81416

2nd DISTRICT
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3rd DISTRICT
KENNETH TeGROTENHUIS
ROUTE 2
HOTCHKISS, COLO. 81419

COUNTY ATTORNEY
NICHOLAS E. DARROW

ADMINISTRATIVE ASSISTANT
DACY M. AXELSON

April 19, 1976

Mr. David C. Crandall
Regional Director
Bureau of Reclamation
P. O. Box 11568
Salt Lake City, Utah 84147

RE: Dallas Creek Project
Draft Environmental Statement

Dear Mr. Crandall:

We have studied the Environmental Impact Statement of the Dallas Creek Project and feel that it is a comprehensive and complete report. We particularly agree with the statements on Economic Conditions on page B-56 of the Statement, concerning the importance of agriculture in this area and the increasing importance of light industry, recreation and tourism.

We feel that the Dallas Creek Project will benefit the economy of Delta County in these economic areas as well as improve the domestic water supply.

BOARD OF COUNTY COMMISSIONERS

Wayne A. Gore

Wayne A. Gore, Chairman

sh

MONTROSE COUNTY
P.O. Box 1289
Montrose, Colorado 81401

COUNTY COMMISSIONERS
Dennis W. Morris, District 1
John A. Kramer, Jr. District 2
Earl G. Robuck, District 3

Office of the Regional Director of
the Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

Re: Dallas Project
Environmental Statement

The Board of County Commissioners of Montrose County has reviewed the draft environmental statement of the Dallas Project. In our opinion the statement details all of the possible environmental impacts of the project. While we do not necessarily agree in all cases with the conclusions reached as to the effects of the impacts, we do believe that all possible impacts are discussed.

We would emphasize that the project as designed will protect existing agricultural production and encourage future production in the project area. This will be effected by better control and more efficient use of irrigation water. The irrigation water will be available for the full growing season and, therefore, will be more efficiently and economically applied. This will result in less saturation and leaching of the soils with less salt and other chemical loading of return flows. It will protect existing direct flow irrigation rights from change of use to domestic, municipal and industrial uses. There has been a particular trend in Montrose County due to residential, commercial and industrial development to change the application of water from agriculture use. The only presently available water for such new development is existing irrigation rights. Due to the much higher market value of domestic, municipal and industrial water, there is no way to retain irrigation water for irrigation use other than developing additional water. The Dallas Project will capture and store a new supply of water for these expanding uses, retaining existing irrigation water for its historical use.

The project as designed will permit and encourage orderly rural development. Montrose County is particularly interested and involved in this area and every effort is being made to safeguard environmental conditions concurrently with orderly development. The project will make available domestic water for existing rural homes and constitute a common source for new growth and development. It will eliminate a multiplicity of small water systems requiring numerous storage facilities, treatment plants and transmission facilities with their resultant damage to the environment.

The project will effectively reduce flood damage. Flood damage presently consists primarily of riparin soil erosin, salt loading and property damage. Flooding also is detrimental to esthetic values of the area because of land ravaging and man-made defensive measures such as riprapping. Montrose County has nine bridges over the Uncompahgre River within the County boundaries. Because of flooding, constant riprapping and other maintenance measures are required.

In our opinion the adverse effects on the environment of the project are minimal, and are more than offset by the advantages to the environment.

Board of County Commissioners
Montrose County

By John A. Kramer Jr.

STATEMENT OF WARREN COMMERER FOR THE BOARD OF COUNTY COMMISSIONERS OF OURAY COUNTY

DALLAS PROJECT HEARINGS, April 17, 1976, Montrose, Colorado.

Throughout the preliminary discussions and activities leading to the presently proposed Dallas Creek Project, the Board of County Commissioners of Ouray County has received considerable pressure to take stands on the project, both for and against. Opinion in Ouray County has been divided; some residents have seen the possibility of growth and financial gain while others have seen a threat to a quality of life and environment which they wish to maintain. Until recently, there has been insufficient information available for the Board of County Commissioners to take a stand and they have remained neutral. The first indication of the details of the plan received by the Board is contained in the Draft Environmental Statement of the Dallas Creek Project, received late in March, 1976. After reviewing the statement, the Board of County Commissioners of Ouray County wishes to submit its strong opposition to the plan as presently proposed.

At the outset, it should be made clear that neither the Board of County Commissioners nor the majority of residents of Ouray County are opposed to growth or change. We recognize, however, that we have a quality of life and environment most of which is worth preserving. Over the past seven years, Ouray County has formulated and begun to implement a master plan for present and future development which is designed to protect and perpetuate the best the County has to offer while providing for orderly and controlled growth. In furtherance of this master plan, subdivision and zoning regulations have been adopted, and are being constantly revised, which establish some of the most effective land use controls in the State of Colorado. These controls have been submitted to the electorate and have received overwhelming endorsement. The Draft Environmental Statement makes no consideration whatsoever of the master plan or the attempts to implement it and insure orderly growth within the County. There has been absolutely no attempt on the part of the Department of the Interior or the Bureau of Reclamation to consult or coordinate with the County Commissioners or the County Planner and Land Use Administrator. The proposed plan, or any similar large scale development within the County would obviously have far-reaching effects and should be formulated in such a manner as to mesh with County planning. Until there is coordination and consultation leading to plans which are consistent with the needs and desires of the County, the Board of County Commissioners object to the implementation of the project.

Specifically, the Commissioners object to the following aspects of the project as proposed.

The County master plan attempts to maintain good agricultural land and practices. The proposed project completely disregards such attempts. It calls, first of all, for acquisition of approximately twenty miles of fishing easements on the east fork of Dallas Creek, the west fork of Dallas Creek and the Uncompahgre River below the Ridgway reservoir. Presumably these easements would be acquired by condemnation. The areas which would be affected by these easements are presently under heavy agricultural use. The statement contains no evaluation of the effect of such easements on existing agricultural uses. The Bureau projects heavy recreational use in the entire project area (268,000 recreation days on the Ridgway reservoir alone by 1990) and, if these projections prove to be true, heavy use of fishing easements would be extremely disruptive of present agricultural use. There would be no practical way to control the users of such easements and to insure non-interference with farming and ranching. In several instances, the proposed easements would bisect existing prime grazing and pasture land and, in all instances, the easements, regardless of width, would be inconsistent with agricultural practices in the area.

The proposed relocation of U.S. Highway 550 east of the Ridgway reservoir, as indicated on page C-7 of the statement, disregards agricultural uses. The plan shows the new road going through presently irrigated meadow land with high agricultural use and potential. The plan apparently does not examine the possible use of adjacent non-productive land for road purposes. A thorough assessment of possible use of such land should be made.

The plan makes no consideration of existing water rights and use. The diversions, especially the Dallas Feeder Canal, would be built across privately owned agricultural land, most of which is presently irrigated. It would interfere with existing irrigation ditches and facilities and would create a hazard to livestock, especially calves and sheep. Water in the upper Dallas area, especially on the east and west forks of Dallas Creek, is fully appropriated under state water law and appears to be protected by such law. If use of the water for agricultural purposes continues to be as heavy as it has been in the past, there will be no water to divert during the irrigation season, from approximately June 15 to October 1. Continued use of appropriated and decreed water would make diversion into the proposed canal impossible. On the other hand, diversion into the proposed canal would make continued

irrigation in the upper Dallas area impossible. The canal would, of course, be unuseable during the winter months since there is no runoff in the area after approximately October 15. The entire diversion scheme should be re-evaluated, taking into consideration established and decreed water rights and use. This re-evaluation should be not only for the Dallas Creek area but for the entire project area.

The proposed plan contemplates acquisition of large blocks of land for wildlife habitat, presumably from land presently under private ownership and also presumably to replace the land used by the reservoir and land which could be used for agricultural purposes as a result of irrigation on Log Hill. The land which would be irrigated on Log Hill is presently under private ownership and, if the owners so choose, is not now available for wildlife habitat. It is intolerable that taxpayers should be expected to assume the double burden of purchasing additional land to replace this as wildlife habitat and, at the same time, suffer the loss from the tax rolls of large additional blocks to be used as wildlife habitat. This constitutes direct taxpayer subsidy to presently non-existing but proposed irrigators and is strongly opposed by the Board of County Commissioners.

The plan, according to the statement, would remove 781 acres of irrigated land and approximately 4,227 acres of non-irrigated land from the tax rolls of Ouray County. The plan speculates that the loss in tax revenue would be replaced by providing irrigation for 3,880 acres of land on Log Hill. It is, to say the lease, sheer hypothesis that loss to Ouray County tax rolls would be replaced by irrigation in that area.

The plan makes no economic provisions for the impact of growth in the project area, especially in the Town of Ridgway. For the past twenty years, Ridgway has suffered from the uncertainty of this project. During a large part of that time, it appeared the project would innundate Ridgway and this caused municipal decay and deterioration and economic loss to many Ridgway residents. When, several years ago, it became apparent that the town would not be inundated by the project, it began to pull itself up by its bootstraps and has now constructed a new school and a new sewer system and begun plans for a new municipal water distribution system. The result is that the town now suffers an inordinately high tax burden and, with the inevitable growth impact of the reservoir, this burden will be increased. Ridgway, as well as other growth impact areas, should, as part of the cost of the project, be given federal and state assistance with housing, water distribution, streets,

schools and other public improvements. The plan makes no provision for such assistance and without such provision, the Board of County Commissioners must oppose it.

On page C-5 of the statement, there is an examination of the effect on water temperature of the proposed dual outlet system from the dam. The only consideration made is of the effect on "good trout growth". The formulators of the plan completely disregard the effect of water temperature on agricultural users below the dam. Germination and growth of crops are directly affected by the temperature of irrigation water. It is impossible to tell from the analysis on page C-5 and subsequent pages, whether the temperature of irrigation water would be reduced. This matter should be thoroughly re-evaluated, not only in view of the effect on the trout population but the effect on irrigators.

The Board of County Commissioners of Ouray County recognizes the importance of water to western Colorado and we realize that we must use it or lose it. We do not object to water development but, in our opinion, the proposed plan is replete with considerations for wildlife and recreation but gives very little, if any, consideration to the human environment or the needs and desires of the people who work and live in Ouray County. The plan disrupts established agricultural patterns throughout the County, causes an adverse impact on one of the two communities in the County without provision for economic assistance for such impact and is generally destructive of a lifestyle and environment which the inhabitants of the County wish to maintain. We are willing to work with the Bureau of Reclamation on viable proposals and we are hopeful that this can be done on an amicable basis. We are, however, ready to resist proposals which disregard the needs of this County.

Memorandum

To: Files

Subject: Response to Written Testimony of Warren Commerer for the Board of County Commissioners of Ouray County at the Dallas Creek Project Draft Environmental Statement Public Hearing, April 17, 1976, Montrose, Colorado

1. Comment:

The Draft Environmental Statement makes no consideration whatsoever of the (Ouray County) master plan or the attempts to implement it and insure orderly growth within the County. There has been absolutely no attempt on the part of the Department of the Interior or the Bureau of Reclamation to consult or coordinate with the County Commissioners or the County Planner and Land Use Administrator. The proposed plan would obviously have far-reaching effects and should be formulated in such a manner as to mesh with County planning.

Response:

Since this testimony the Bureau has met with the County Commissioners on two occassions. The first meeting was to discuss the Draft Environmental Statement and some of the recent plan changes were influenced by that meeting. The second meeting was to discuss the recreation plans at Ridgway Reservoir. The Bureau will continue to work with the Board.

2. Comment:

The County master plan attempts to maintain good agricultural land and practices. The proposed project completely disregards such attempts. It calls, first of all, for acquisition of approximately twenty miles of fishing easements on the East Fork of Dallas Creek, the West Fork of Dallas Creek and the Uncompahgre River below the Ridgway Reservoir.

Response:

The acquisition of fishing easements on East and West Forks of Dallas Creek has been deleted from the project plan. Easements are still to be acquired along 12 miles of the Uncompahgre River downstream from Ridgway Reservoir, but on a "willing seller" basis. Protection for the landowners would be provided as discussed in Section D-6.

3. Comment:

The proposed relocation of U.S. Highway 550 east of the Ridgway Reservoir, as indicated on page C-7 of the statement, disregards agricultural uses. The plan shows the new road going through presently irrigated meadow land

with high agricultural use and potential. The plan apparently does not examine the possible use of adjacent non-productive land for road purposes. A thorough assessment of possible use of such land should be made.

Response:

A thorough assessment has been made of a number of alternative routes by the Bureau of Reclamation and the Colorado Department of Highways. The alignment for the highway relocation was selected to minimize losses to agricultural land. Consideration was given to routes that would completely avoid farm land but economic considerations and maintenance problems make this impractical. An alignment change in the section along Cow Creek has been made since the distribution of the draft environmental statement. This change was made after consultation with the Colorado Department of Highways, the Ouray County Commission, and the local landowners. The route along Cow Creek would encroach on agricultural land but would be adjacent to the creek so that lands would not be divided.

4. Comment:

The plan makes no consideration of existing water rights and use. . . The entire diversion scheme should be reevaluated, taking into consideration established and decreed water rights and use. This reevaluation should be not only for the Dallas Creek area but for the entire project area.

Response:

Existing water rights were carefully analyzed by engineers experienced in hydrology and water law. With the project, all water rights would continue to receive their full water supply as dictated by Colorado Water Law. The project has been revised to exclude diversions from the East and West Forks of Dallas Creek and storage in Dallas Divide Reservoir.

5. Comment:

The proposed plan contemplates acquisition of large blocks of land for wildlife habitat, presumably from land presently under private ownership and also presumably to replace the land used by the reservoir and land which could be used for agricultural purposes as a result of irrigation on Log Hill. It is intolerable that taxpayers should be expected to assume the double burden of purchasing additional land to replace this as wildlife habitat and, at the same time, suffer the loss from the tax rolls of large additional blocks to be used as wildlife habitat.

Response:

The wildlife mitigation area has been reduced to 1,000 acres from the 6,000 acres presented in the Draft Environmental Statement. The irrigation of land on Log Hill Mesa has been deleted from the project plan.

6. Comment:

The plan, according to the statement, would remove 781 acres of irrigated land and approximately 4,227 acres of non-irrigated land from the tax rolls of Ouray County. The plan speculates that the loss in tax revenue would be replaced by providing irrigation for 3,880 acres of land on Log Hill. It is, to say the least, sheer hypothesis that loss to Ouray County tax rolls would be replaced by irrigation in that area.

Response:

Revisions in the project plan since the publication of the Draft Environmental Statement have resulted in a reduction of private land to be taken for project purposes to 2,845 acres for construction and operation of project features and 1,000 acres for a wildlife management area. Irrigation of land on Log Hill Mesa has been deleted from the project plan.

7. Comment:

The plan makes no economic provisions for the impact of growth in the project area, especially in the Town of Ridgway. The town now suffers an inordinately high tax burden and, with the inevitable growth impact of the reservoir, this burden will be increased. Ridgway, as well as other growth impact areas, should, as part of the cost of the project, be given federal and state assistance with housing, water distribution, streets, schools, and other public improvements.

Response:

The Bureau of Reclamation does not have authority to provide monies to municipalities to relieve growth-related problems. There are other Federal and State agencies with programs, for which Ridgway might qualify. In the event that any Government employees would elect to live in Ridgway during the construction period, the schools would receive payments for their children. It must also be pointed out that the projected population growth for the area which was presented in the statement will occur with or without the Dallas Creek Project.

8. Comment:

On page C-5 of the statement, there is an examination of the effect on water temperature of the proposed dual outlet system from the dam. The only consideration made is of the effect on "good trout growth". The formulators of the plan completely disregard the effect of water temperature on agricultural users below the dam.

Response:

The water temperature discussion referred to implies that attempts would be made to maintain the river temperature to as close to 55° F. as

possible. This would call for raising the natural temperature in cold seasons and lowering it in warm seasons. It would therefore follow that during the seed germination period warmer water would be released from the reservoir, and colder water would be released later in the summer. No matter what the temperature of the soil and air that influence it now, it is doubtful that any measurable difference could be detected by the time the water was delivered to the fields.

CITY OF MONTROSE

STATEMENT

BY

CITY OF MONTROSE, COLORADO

ON

DRAFT ENVIRONMENTAL STATEMENT

DALLAS CREEK PROJECT

The City Council of Montrose has studied the Draft Environmental Statement on the Dallas Creek Project prepared by the Upper Colorado Regional Office, Bureau of Reclamation, Department of the Interior.

The Council feels that the Draft Environmental Statement on the whole covers the major positive and negative impacts of the Project on the environment.

MUNICIPAL AND INDUSTRIAL WATER

The Council would like to point out the statement on page B-71 regarding municipal and industrial water. During the past five years, the City of Montrose has obtained fifty-eight (58) percent of its municipal water from an interim supply obtained by the Tri-County Water Conservancy District from the Uncompahgre Valley Water Users' Association. This water is made available only on a temporary basis until the Dallas Creek Project is constructed.

During the period 1970 to 1975, the City of Montrose water usage has increased fifty-four (54) percent. The City Council and staff estimate the current rate of growth at approximately five

ELEPHONE 303-249-4534 MONTROSE, COLORADO 81401 433 SOUTH FIRST STREET

(5) percent per year or an estiamted population of nearly 12,000 by 1985. To support this growth and to be assured of a domestic water supply, it is essential that the Dallas Creek Project commence as soon as possible.

The City currently supplies the Tri-County Water Conservancy District with their treated water which serves over 1,500 rural families. The Tri-County service area is growing at about the same percentage increase as the City of Montrose.

The City of Montrose is cooperating in a project with other water entities in the Uncompahgre Valley, known as Project 7, to develop water supplies, coordinated treatment facilities, and transmission and distribution systems.

It is fully expected that an exchange agreement between Uncompahgre Valley Water Users' Association and Tri-County Water Conservancy District with the City can be executed so the diversion point of the City's water can continue to be the South Canal. This would guarantee high quality water for municipal use and no new transmission lines to transport the raw water to the existing water treatment plant.

SALINITY

As stated above, the City of Montrose plans to continue to divert its water for municipal use from the South Canal so the very slight increase in salt concentration should not affect our municipal use. Other communities in the immediate area (Olathe, Delta, Grand Junction) also obtain their municipal water supply from sources other than the lower Uncompahgre, Gunnison, and Colorado Rivers.

EFFECT ON STREAMS, FISHERIES, AND AQUATIC WILDLIFE

The City of Montrose has recently completed a twenty-four acre park

adjacent to the Uncompahgre River. The reduced turbidity, toxic impurities, and sedimentation will increase the esthetic value of the park. In addition our cost of irrigating the park will be reduced because of the reduction in sedimentation.

The flood control safety provided by the Ridgway Dam will afford a great deal more safety to those structures and facilities that are built in the existing flood plain.

RECREATION

The City of Montrose feels that the recreational impact (driving for pleasure, hiking and walking, camping, fishing, boating, water skiing, picnicking, etc.) of the Dallas Creek Project will be even greater that the 347,400 recreation days stated in the Draft Environmental Statements (pages A-38 and A-40). In addition it is felt by the City that the downstream recreational opportunities will be increased.

SUPPORT SERVICES

As the Draft Environment Statement discusses, the City of Montrose has the necessary community resources, to accommodate the Project during the construction phase. In fact, the physicia population in Montrose County has increased from the sixteen quoted in the Environmental Statement to twenty-nine. The City has some necessary expansions to make in its water and sewer systems, but has already initiated plans to correct the situation.

In summary, the City Council feels that the positive environmental factors for the Dallas Creek Project far outweigh the negative considerations.

Sincerely,

Robert O. Strong
Mayor

Memorandum

To: Files

Subject: Response to Written Testimony from the City of Montrose on the Dallas Creek Project Draft Environmental Statement

The review of the Draft Environmental Statement and the updated information provided by the City of Montrose are appreciated. The information supports the conclusions reached from the study of data available at the time the Draft Environmental Statement was written. Since the new data would not change the conclusions reached, it has not been incorporated in the statement itself.

DALLAS CREEK
RECEIVED USBR SLC
OFFICIAL FILE COPY
APR 28 '76

Date	Initials	To
Subj. Corresp.		
Data Am'd		

TOWN OF RIDGWAY
RIDGWAY, COLORADO

April 24, 1976

000599

Mr. David L. Crandall
Regional Director - Upper Colorado Region
Department of the Interior
Bureau of Reclammation
P. O. Box 11568
Salt Lake City, Utah 84111

Dear Mr. Crandall:

Re: Dallas Project

We support the Ouray County Commissioners in their statement which was presented on April 17th at a hearing in Montrose, Colorado as follows:

"The plan makes no economic provisions for the impact of growth in the project area, especially in the Town of Ridgway. For the past twenty years, Ridgway has suffered from the uncertainty of this project. During a large part of that time, it appeared the project would innundate Ridgway and this caused municipal decay and deterioration and economic loss to many Ridgway residents. When, several years ago, it became apparent that the town would not be inundated by the project, it began to pull itself up by the bootstraps and has now constructed a new school and a new sewer system and begun plans for a new municipal water distribution system. The result is that the town now suffers an inordinately high tax burden and, with the inevitable growth impact of the reservoir, this burden will be increased. Ridgway, as well as other growth impact areas, should, as part of the cost of the project, be given federal and state assistance with housing, water distribution, streets, schools and other public improvements. The plan makes no provision for such assistance and without such provision, the Board of County Commissioners must oppose it."

Concerning other interests, the Town of Ridgway emphatically states it will not relinquish any of its adjudicated water rights. We would like to see pumping stations moved farther north and do not want to relinquish the right to water, but we desire potable water.

We too are willing to work with the Bureau of Reclammation on viable proposals.

Very truly yours,

000599

Town Board of Trustees
Town of Ridgway

I-130

George Hale, Mayor

GCH:md

Memorandum

To: Files

Subject: Response to Town of Ridgway Comment Letter of April 24, 1976, on the Dallas Creek Project Draft Environmental Statement

1. Comment:

We support the Ouray County Commissioners in their statement which was presented on April 17th at a hearing in Montrose, Colorado as follows:

"The plan makes no economic provisions for the impact of growth in the project area, especially in the Town of Ridgway. For the past twenty years, Ridgway has suffered from the uncertainty of this project. During a large part of that time, it appeared the project would inundate Ridgway and this caused municipal decay and deterioration and economic loss to many Ridgway residents. When, several years ago, it became apparent that the town would not be inundated by the project, it began to pull itself up by the bootstraps and has now constructed a new shcool and a new sewer system and begun plans for a new municipal water distribution system. The result is that the town now suffers an inordinately high tax burden and, with the inevitable growth impact of the reservoir, this burden will be increased. Ridgway, as well as other growth impact areas, should, as part of the cost of the project, be given federal and state assistance with housing, water distribution, streets, schools and other public improvements. The plan makes no provision for such assistance and without such provision, the Board of County Commissioners must oppose it."

Response:

The Bureau of Reclamation has no authority or funds to reimburse municipalities or school districts for such impact. Possibly Ridgway could qualify for aid under other Federal or State programs. If application should be made for aid under any of these programs, the Bureau will supply any available information to support the application.

2. Comment:

The town of Ridgway emphatically states it will not relinquish any of its adjudicated water rights. We would like to see pumping stations moved farther north and do not want to relinquish the right to water, but we desire potable water.

Response:

No adjudicated water rights would be lost under project development. Since publication of the Draft Environmental Statement, the Ridgway Pumping Plants have been deleted from the project plan.

120

DALLAS CREEK

COLORADO RIVER WATER CONSERVATION DISTRICT

USSR SEC FILE

APR 26 '76

Date	Initials	To
	AHH	750
		700
		720
Subs. Corresp.		
Date Ans'd		

April 23, 1976

Office of Regional Director
Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

Re: Comments Draft Environmental Statement on the Dallas Creek Project, Colorado (INT DES 76-11)

Gentlemen:

Thank you for the opportunity to review the Draft Environmental Statement for the Dallas Creek Project. Our comments follow.

We request that in the discussion on salinity aspects in sub-paragraph "c" on page C-16 where we find language to the effect that the salinity concentration of the Colorado River at Imperial Dam will be increased by an estimated 2.8 mg/l or approximately 0.3% of the total salt concentration at Imperial Dam, specific language be included in this section of the final environmental statement to the effect that salinity control measures are under way and are provided for in current and future congressional appropriations. Such measures are intended to permit the upper Colorado River basin states to continue to develop and apply to beneficial use their compact allocated share of the water resources of the Colorado River basin and the statement recognizes this on page D-10. However, salinity is also mentioned in the summary and we request that in the final environmental statement language referencing the Upper Basin's development and use of its compact-apportioned waters also be included in the summary.

We are pleased to note that the Project (pages D-10 and D-11) will improve water quality below Ridgway Reservoir and enhance sport fishing and that reservoir minimum pools will be large enough to support cold water sport fishing. An environmental plus.

The acquisition of 6,000 acres of private land for game management and about 19 miles of fishing easements along the Uncompahgre River and East and West Forks of Dallas Creek are discussed on page D-10. We request that these proposals be carefully reviewed with affected landowners, ranchers and County Commissioners and that they be eliminated or revised.

With the above suggestions, we believe that the Bureau of Reclamation has complied with the requirements of the National Environmental Policy Act and the Draft is essentially a good environmental impact statement. With these few revisions, we suggest it be published as a Final Environmental Impact Statement. This District supports the construction of the Dallas Creek Project and we urge the Bureau of Reclamation to aggressively complete the final statement and submit it to the Council of Environmental Quality for final action and begin construction of the Project as soon as possible.

Very truly yours,

Roland C. Fischer

ROLAND C. FISCHER
Secretary-Engineer

RCF:bh

Memorandum

To: Files

Subject: Response to April 23, 1976, Colorado River Water Conservation District Comment Letter on the Dallas Creek Project, Draft Environmental Statement

1. Comment-Paragraph 2:

We request that in the discussion on salinity aspects in sub-paragraph "c" on page C-16 where we find language to the effect that the salinity concentration of the Colorado River at Imperial Dam will be increased by an estimated 2.8 mg/l or approximately 0.3% of the total salt concentration at Imperial Dam, specific language be included in this section of the final environmental statement to the effect that salinity control measures are under way and are provided for in current and future congressional appropriations. Such measures are intended to permit the upper Colorado River basin states to continue to develop and apply to beneficial use their compact allocated share of the water resources of the Colorado River basin and the statement recognizes this on page D-10. However, salinity is also mentioned in the summary and we request that in the final environmental statement language referencing the Upper Basin's development and use of its compact-apportioned waters also be included in the summary.

Response:

Because of reductions in the project plan, the project-induced salinity increase from depletion is now estimated at 1.8 mg/l or 0.2 % of the total at Imperial Dam. Language similar to that requested has been added to Section D-8.

2. Comment-Paragraph 4:

The acquisition of 6,000 acres of private land for game management and about 19 miles of fishing easements along the Uncompahgre River and East and West Forks at Dallas Creek are discussed on page D-10. We request that these proposals be carefully reviewed with affected landowners, ranchers, and County Commissioners and that they be eliminated or revised.

Response:

The fishing easements along East and West Forks of Dallas Creek have been deleted from the project plan and the wildlife management area has been reduced to 1,000 acres. The acquisition of land for wildlife management and 12 miles of access easements along the Uncompahgre River would be on a "willing sell" basis.

THE TRI-COUNTY WATER CONSERVANCY DISTRICT

249-3369
P.O. BOX 716
MONTROSE, COLORADO 81401

Office of the Regional Director of
the Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

Re: Dallas Project
Environmental Statement

The Board of Directors of the Tri-County Water Conservancy District has examined in detail the draft environmental statement of the Dallas Creek Project. The Board's study of the Statement has been directed primarily to the completeness of the Statement and secondarily to the discussion concerning the effects of the individual environmental impacts. The Board believes that all possible environmental impacts have been considered in the statement. The Board does not necessarily agree as to the effect or extent of the effects of the environmental impacts as set forth therein.

The advantages of the availability of a single and overall source of domestic water should be stressed. At the present time, the entire area to be served by the Project is undergoing a rapid development expansion. The various areas are presently served by numerous water delivery agencies whose individual facilities must be continually expanded. Further, additional water delivery facilities must be constructed. The numerous reservoirs, treatment facilities, water transmission lines, rights of way, roads, etc. constitute and will continue to constitute harmful environmental effects which will be lessened or eliminated by the Dallas Project. Orderly and dispersed growth will be aided by availability of rural domestic water rather than such growth and development concentrating in a less ordered manner at limited points of available water.

The effect of the Project through the increased water production both in volume and time will directly result in environmental advantages. Irrigation water will be available for the entire growing season and therefore will be more

efficiently and economically used. Efficient and economic use of irrigation water will cause less soil saturation, less leaching and less salt and other chemical loading of return flows. Not only will agricultural productivity be increased but at the same time soil conservation and environmental advantages will be realized.

The agricultural industry in the area will be stabalized by the protection of existing irrigation water rights. With increasing residential, commercial and industrial developments irrigation water rights have been withdrawn from irrigation and applied to the new development, with the resultant loss to agriculture. The Project will develop water which now is unavailable which will be used for domestic purposes, and halt such further change of use.

The Board respectively submits that the advantages of the Project, including advantageous environmental impacts, more than offset the minimal adverse effects.

Board of Directors
Tri-County Water Conservancy District

By Harold Westerson
President

THE GUNNISON TUNNEL PROJECT

The Uncompahgre Valley Water Users Association

P. O. Box 69 Phone (303) 249-3813
Montrose, Colorado 81401

MONTROSE
Carl W. Reish
Lee E. Ford
George C. Kubin

OLATHE
W. A. Weeks, Jr., President
James P. Grett, Vice President
A. E. Seymour, Secretary

DELTA
Garner L. McKnight
Floyd Beach
Eldon L. Siarkovich

HAROLD C. ANDERSON
Manager

ROBERT K. KENNEDY
Assistant Manager
and Treasurer

April 12, 1976

Office of Regional Director
Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

Western Colorado Projects Office
Bureau of Reclamation
Building 8, ERDA Compound
Grand Junction, Colorado 81501

Gentlemen:

Our Association has reviewed and studied the DRAFT ENVIRONMENTAL STATEMENT prepared by the Upper Colorado Regional Office of the Bureau of Reclamation, Department of Interior, (INT DES 76-11) pertaining to DALLAS CREEK PROJECT COLORADO and offer the following comments for consideration.

First, we wish to compliment the Bureau of Reclamation for the time and effort expended in preparing what we believe to be an excellent report, and we do not disagree or oppose the material and facts as presented.

We particularly agree with the following information set forth in the Environmental Statement, to-wit:

1. That the construction of the reservoir will serve to diminish sediments presently in the Uncompahgre River as it now flows past the proposed dam site and this will result in a higher quality of water in the river below the dam site, both for agricultural and other proposed uses.

2. That proper management in the operation and control of releases from the reservoir will not result in damage to land or users of the water below the dam site.

3. That with controlled releases, flood control problems will be virtually eliminated, and snow melt floods would be definitely controlled.

4. We do not anticipate any increase in salinity in the Uncompahgre Valley and the minute increases in salinity as anticipated

at Imperial Dam would be greatly outweighed by the benefits which will accrue by the project.

5. Water which would be made available from the reservoir would reduce the demand for irrigation water rights to satisfy municipal and industrial demand and thereby protect senior irrigation rights for agricultural use.

In closing, we again endorse the Environmental Statement and sincerely believe that it favorably supports the feasibility of the project.

Respectfully submitted,

THE UNCOMPAHGRE VALLEY WATER USERS ASSOCIATION

By _____

Harold C. Anderson, Manager

ARD OF EDUCATION:
HENRY STANTON, PRESIDENT
GERALD ETHRIDGE, VICE-PRESIDENT
. LORENE HESS, SECRETARY
. ILENE MACLENNAN, TREASURER
DAVID WOLFORD, DIRECTOR

RIDGWAY SCHOOLS
POST BOX 237 • RIDGWAY, COLORADO 81432
AREA CODE (303) 626-5473

May 13, 1976

David L. Crandall, Regional Director
Upper Colorado Region
Department of the Interior
Bureau of Reclamation
P. O. Box 11568
Salt Lake City, Utah 84111

Dear Mr. Crandall:

On behalf of the Ridgway Board of Education, I would like to inform you of the impact of the "Dallas Project" and how it has affected the District in the past and how it could affect it in the future.

For the past 20 years the town of Ridgway has been threatened by the possibility of being located at the bottom of the reservoir, and this has affected the economics, the growth, and the stability of both the community and the School District; with newcomers going elswhere to locate their families; i. e. there were 3 homes built between 1950 and 1970 with the pending project site; as compared to 6 homes built and many remodeling jobs done since 1972 after the project site had been definitely determined to be below the town of Ridgway.

Up until 1973 the School District was in dire need of a new building, however, the taxpayers felt that it was not economically feasible to build a new educational structure when the future existance and possible location of the entire community was questionable. As a result, when the new building was finally built in 1973, the District had to pay considerably more for the building due to inflation during the past 10 to 15 years.

The "Dallas Project" will affect the future of the School District in terms of economic impact with regard to temporary growth during the construction phase, loss of the railroad and the deletion of farm and ranch lands from the present tax rolls. For example, approximately 4500 acres for the actual project, 6000 acres for wildlife resources and a present four mile highway being increased to six miles in order to travel around the reservoir. The temporary growth of the student enrollment during the construction phase would necessitate the acquisition of additional educational and transportation supplies and equipment. The loss of the railroad and the deletion of farm and ranch lands from the tax rolls will result in a loss

of approximately one-third of the District's revenues. The burden of the increased cost and the loss of revenues as a direct result of the dam will primarily rest with the local citizens for many years to come.

Due to the above reasons, impact reimbursement to the District would seem reasonable for your consideration.

If you have any questions concerning the above information, please feel free to contact me at your convenience.

Thank you for your cooperation.

Sincerely,

Harry W. Masinton

Harry W. Masinton,
Superintendent of Schools

HWM/ljf

P. S. It would be greatly appreciated also, if you would send a copy of the "Dallas Creek Project - Draft Environmental Statment" to be included in the files of the Ridgway School-Community Library.

Memorandum

To: Files

Subject: Response to Ridgway Schools Letter of May 13, 1976, Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

For the past 20 years the town of Ridgway has been threatened by the possibility of being located at the bottom of the reservoir, and this has affected the economics, the growth and the stability of both the community and the school district. The project will affect the economic future of the district because of temporary growth during the construction phase, loss of the railroad, and the deletion of farm and ranch lands from the present tax rolls. The losses to the tax rolls will burden the local citizens for many years to come. For these reasons, impact reimbursement to the district would seem reasonable.

Response:

The Bureau of Reclamation has no direct authority of funds to reimburse school districts for the costs that may be associated with such impact. Under similar circumstances, however, school districts have been able to obtain financial assistance through programs of the Federal Government dealing with school assistance in Federally affected areas. If it should become necessary for the district to apply for assistance under one of these programs, the Bureau of Reclamation will supply any available information in support of the application.

Since the Ridgway schools letter was written, the project plan has been considerably reduced in scope and the proposed wildlife management area has been reduced from 6,000 to 1,000 acres so the effect on the tax base would not be as severe as anticipated earlier. The railroad abandonment was initiated by the Denver and Rio Grande Western Railroad Company and is a separate action from the project. The abandonment has been approved by the Interstate Commerce Commission.

3. Disposition of Comments Received on Draft Statement

d. Comments from Organizations

*First National Bank, Montrose, Colorado

*International Engineering Company, Inc.

*Montrose County Chamber of Commerce

*Montrose County Democratic Central Committee

*Montrose County Repbulican Party

*Montrose Potato Growers Co-op Association

*Motel Tourism and Convention Chairman

*National Farmers Organization

*Olathe Chamber of Commerce

*Olathe Potato Growers Co-operative Association

Ouray County Protective Association

*Project 7

Sierra Club

*Uncompahgre Valley Cattlemen and Horsegrowers Association

*United Bank of Montrose

*Western Community Planners, Inc.

*Western Slope Wool Growers

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*These letters express general agreement with the project plan. No issue is raised for which a response is considered necessary. The review of the Draft Environmental Statement, however, is appreciated.

THE FIRST NATIONAL BANK
ESTABLISHED 1889

MONTROSE, COLO.

JACK PIXLER
PRESIDENT

April 12, 1976

District Office
Bureau of Reclamation
Grand Junction, Colorado 81501

Re: Environmental Impact Statement
Dallas Project

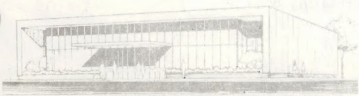
Gentlemen:

I would like to address most of my remarks to the economic and social concerns of the above mentioned impact statement. However, I would like to point out that I find the statement very complete in its discussion of fish and wildlife areas.

There is no question but that fishing will be considerably improved in the area covered by this project. First of all we will have the reservoir which will undoubtedly provide a great many man days fishing. It is very common now to drive from Montrose to Ridgway at any time of the year and not see a fisherman on the stream. Fishing is not good on the river due to the nature of the run off. There is considerable irrigation water returned to the river from ranches in the Ridgway and Pleasant Valley area and creates high turbidity and sedimentation. Most of the present irrigating occurs above the dam site so the reservoir will control this situation much better than it is at present.

There seems to be a concern in the statement that wildlife will be affected primarily because of the Log Hill Project which will be built. Some statements indicate that this development is dependent upon the Dallas Project being built. It is common knowledge at this time that the Log Hill Project is presently going forward with most of the utilities already in place and it does not depend on the Dallas Project being built. Therefore, the influence that the Log Hill population might have on wildlife will occur regardless of the Dallas Project. Our experience in the Uncompahgre Valley indicates that irrigated lands provide a considerable amount of wildlife habitat and the addition of several thousand acres of irrigated land on Log Hill Mesa will undoubtedly be beneficial to many kinds of wildlife.

The impact statement is quite impressive in the manner in which it outlines the economic impact on the Uncompahgre area. The employment to be offered during the construction period is substantial, particularly to a population no greater than we presently have. The fact that approximately seventy per cent of the construction labor force is already available in the area



and that employment would not create a substantial influx of any people is very beneficial to the municipalities that would be affected. Our experience from the Morrow Point and Crystal Reservoir projects indicates that many of the people that do come to our area to work on projects of this nature remain as permanent residents. I am certain that this is due in part to the attractive area in the Uncompahgre Valley but additional jobs are certainly critical to their being able to stay. The Dallas Project takes on an even more important aspect when we realize that our area is a depressed area in comparision to the front range of Colorado as well as most parts of the nation. The average family income will be greatly improved due to the additional commercial and industrial activity that will be created by the availability of municipal and industrial water.

The City of Montrose, of course, will receive the greatest benefit from the project both during the construction and afterward. Our city officials have indicated that the additional activity related to housing construction, etc. carrying with it a greater demand for municipal services will not create a problem since major improvements to water and sewer systems are in the planning stages and should be completed by 1980.

The Montrose Memorial Hospital has begun a major expansion to the hospital totaling $3,600,000.00. This expansion will be completed by March 1978 and will provide an outstanding health care center for the entire area. The construction of the Dallas Project will not create a problem for the health delivery system in the Uncompahgre Valley, but rather will be of great assistant in providing the necessary patient population to lower the overall health care costs.

The construction stages will create many jobs in the service areas during the construction period. These jobs generally are of a supplemental nature available primarily to women and will provide much needed supplemental income for many low income families in the valley.

The availability of additional municipal and industrial water for future growth will provide employment opportunities to upgrade family incomes for the future. Related to this, many additional rural residences will be built providing for a higher quality living standard for those people preferring not to live in urban areas. Overcrowding in many cities in the United States can be aleviated by opening up rural areas such as the Uncompahgre Valley for residential building. The Dallas Project will certainly provide this opportunity.

I am certain that no one doubts the additional need for recreation in our society of today. The completion of the Dallas Project will provide a great deal of additional recreation opportunities for many people throughout the country. The impact statement outlines this in detailed fashion and quite accurately, in my opinion. The importance of this sort of activity in the next twenty years will certainly grow.

In conclusion I would like to state that, in my opinion, the Dallas Project Environmental Impact Statement is complete and accurate in all areas and leaves no doubts that the results of this project have many benefits and very few detrimental affects.

Respectfully yours,

THE FIRST NATIONAL BANK

By, Jack Pixler

Jack Pixler
President

JP/ch
3 pages

INTERNATIONAL ENGINEERING COMPANY, INC.
SAN FRANCISCO · PHOENIX · DENVER · BOISE

Austin B. Milhollin, P.E. -Manager
Alan F. Huggins, P.E. -Chief Engineer

DENVER OFFICE
1777 So. Bellaire St.
Denver, Colo. 80222
Phone: (303) 757-8586

April 13, 1976.

Western Colorado Project Officer,
U.S. Bureau of Reclamation,
Building 8, ERDA Compound
Grand Junction, CO 81501

Dear Sir:

This is a letter in support of the Dallas Creek Project in Ouray County, Colorado and the necessary water impoundment, water supply, irrigation, flood control and recreation facilities to be realized thereby.

Please enter this letter in the April 17, 1976 public hearing in Montrose on the Dallas Creek Projec since I will be unable to attend in person Thank you.

While our firm has no involvement in the project, we are always willing to support one like the Dallas Creek Project owing to its substantial contribution to the people, especially in Western Colorado.

Respectfully,

Wm H Claire

Wm. H. Claire
Director of Planning

WHC:mf

Montrose County
Chamber of Commerce

P. O. Box 1061
550 North Townsend Avenue
Montrose, Colorado 81401
249-5515

April 17, 1976

To: David Crandall, Regional Director, Bureau of Recl

From: Montrose County Chamber of Commerce

Subject: Dallas Creek Project Environmental Statement

ECONOMY - POPULATION

The climate of Montrose and Delta Counties is basically desert with average annual rainfall of Montrose over nine inches and Delta less than eight inches; therefore, it is easy to understand why the economy of the Uncompahgre Valley depends upon the availability of municipal and agricultural water.

The no growth syndrome has not been a problem in this valley (see attached graph) and the growth periods have paralled the availability of new water.

Prior to the Gunnison Tunnel, irrigation was developed along the Uncompahgre River to grow meat and fresh vegetables for the hungry San Juan Mining towns. Because of the seasonal run off and the need to get water to the semi arid-rich mesas that dominate the valley the dream of the Gunnison Tunnel was realized in 1909 with the resulting surge in population. In 1936 the Taylor Dam established the water for the Valley and a second major surge in population was realized.

The Uncompahgre Valley is still a low density population and water hungry towns, farms and ranches are in need of a stable water supply (Dallas Dam) to satisfy the national trend of population from urban to rural with the resulting needed economic growth.

HUNTING - FISHING - RECREATION

The impact of the Dallas Dam on the hunter, the fisherman and the recreation hungry public will be less than any other water project that has been developed in Colorado West. Most of the area is owned by private and in many cases absentee land owners. With access to public lands in many cases controlled by the land owner, the number of public users of the area are much lower than other areas.

"City of the Black Canyon"

April 17, 1976

Page 2, David Crandall, Regional Director, Bureau of Reclamation

FISHING

Compared to other Colorado West streams the Dallas Dam area streams are not good fisheries. The Uncompahgre is polluted by San Juan Mountain mine tailings and because of a high degree of elevation drop and periodical cloud bursts the other streams wash out and must start over or be stocked again. The control of the Uncompahgre below the dam from the mine pollution and flow should more than compensate for any loss to stream fishing.

RECREATION

If the area developes lodges and recreational ranch facilities, there should be an increase in the Dallas Dam area economy. The only population increase will be in the summer with resort employees. The presence of first class resorts is lacking in this valley, and Dallas Dam can be a start to fill that need to this area.

CONCLUSION

There will be a certain amount of untidiness during construction, the necessity of relocating 9 farm families, the giving up of approximately 1,900 acres to Dallas Divide and Ridgway Reservoirs; but these disadvantages are minimal to the great gain in domestic and irrigation water supply, increased fishing and recreation, improved game reserve areas, and Uncompahgre Valley beautification, boost in the economy and tax base from Ouray to Delta.

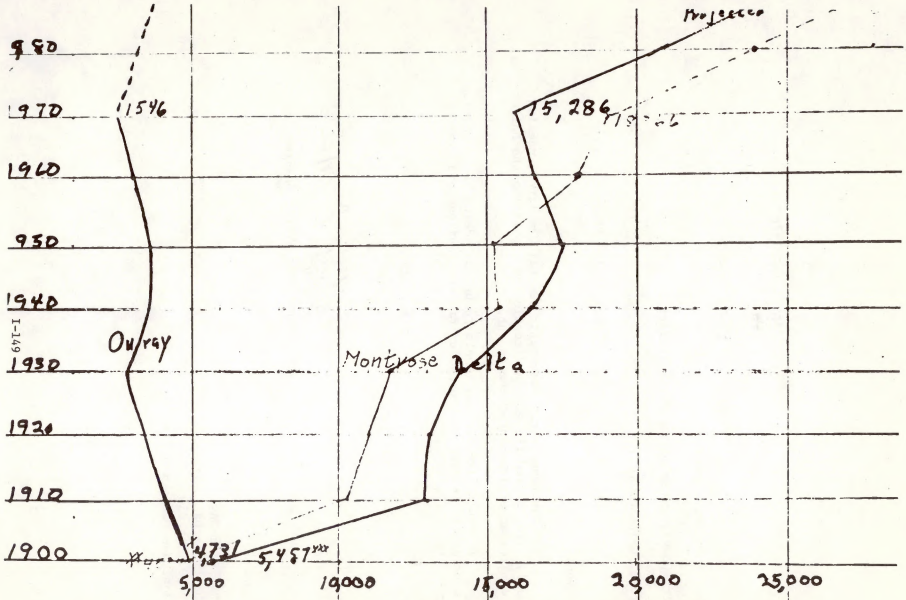
The Montrose Chamber of Commerce enthusiastically supports the Dallas Project.

Retail Merchants Committee of the Chamber of Commerce adds its support to this Chamber Statement.

Respectfully submitted,

George G. Balderston

Dr. George G. Balderston, President
Montrose County Chamber of Commerce



Population Trends Uncompahgre Valley
*Ouray *Delta - *Montrose Counties

April 14, 1976

Bureau of Reclamation
Mr. David Crandall
c/o Tri-County Water Conservancy District
P. O. Box 716
Montrose, Colorado 81401

Re: Dallas Project

Gentlemen:

The Montrose County Democratic Central Committee, meeting March 31, 1976, passed the attached resolution supporting the Dallas Project from an environmental standpoint.

We would like our sentiments to be considered in connection with your public hearing on the Dallas Project Environmental Impact Statement April 17, 1976.

Sincerely,

Guy L. Mock

Guy L. Mock
Democratic County Chairman

GLM:bp
Enclosure

cc. Mr. Dick Day
Montrose Daily Press
P. O. Box 850
Montrose, Colorado 81401

RESOLUTION

of

MONTROSE COUNTY DEMOCRATIC CENTRAL COMMITTEE

March 31, 1976

BE IT RESOLVED that the Montrose County Democratic Central Committee supports the concept that the benefits derived by the overall environment from the Dallas Divide Project are much greater than the detrimental impacts upon the environment by construction of the Dallas Divide Project.

Further, this committee supports the rapid completion of the Dallas Divide Project.

TO: Mr. David Crandall, Regional Director, Bureau of Reclamation

FROM: Executive Committee of Montrose County Republican Party

SUBJECT: Draft Environmental Statement - Dallas Creek Project

The Executive Committee of the Montrose County Republican Party has endorsed the Draft Environmental Statement of the Dallas Creek Project. We have reviewed the Environmental Impact Statement and have found it broadminded in its presentation of both the positive and negative aspects of the environmental effects of the Dallas Creek Project. In the overall picture of our area's environment, the Dallas Creek Project is definitely an asset to the Uncompahgre Valley.

Walter F. Allison CHRM.

Executive Committee
Montrose County Republican Party

TO: Mr. David Crandall, Regional Director
Bureau of Reclamation, U.S. Department of the Interior

FROM: Montrose Potato Growers Co-op Association

SUBJECT: Dallas Creek Project - Draft Environmental Statement

Montrose Potato Growers Co-op Association considers the Environmental Impact Statement for the Dallas Creek Project a good report in general. In particular, we would comment on the section (H-3) - ALTERNATIVES TO THE PROPOSED PROJECT. Growth is inevitable in the Uncompahgre Valley - with or without the Dallas Project. And as mentioned in this report, on page H-3, "In the Uncompahgre Basin there are strong demands for increased water supplies, and there is a sizeable under-developed water resource. As long as these two conditions exist, there will be attempts to bring them together."

If the Dallas Creek Project is scrapped, one or several other interests will develop these resources. With private or semi-public development, the residents of this area would have less control over environmental impact factors including "minimum streamflows, inactive reservoir storage, public recreation facilities, or mitigation of wildlife habitat losses."

Richard L. Cait mgr.

Montrose Potato Growers Co-op
Association

WESTERN MOTEL

1200 EAST MAIN · PHONE (302) 249-3481 · MONTROSE, COLORADO 81401

AAA

"Our Biz is where the Cactus Is!"

April 12, 1976

Statement to: U.S. Department of the Interior
Bureau of Reclamation

From: Jack Bohall
Motel Tourism and Convention Chairman

Subject: Dallas Creek Project

Montrose, nestled in the southwest corner of Colorado, is a clean, tourist-oriented mountain town of 8,000 people. The Montrose area is jammed with thousands of people from all over the United States between Memorial Day and Labor Day. Tourists enjoy the beautiful lakes, streams, wilderness areas, the Black Canyon of the Gunnison, and the friendly people of Montrose.

The summer sun shines bright and the area is prosperous, as motels have 95% occupancy. Tourism provides 35% of the areas economic livelihood. Then the sun dims and winter sets in--after five months of prosperity, comes seven months of disaster for many of the motels and tourist associated facilities. During the winter, motel occupancy is so low that the average annual occupancy is 61%. For all the motels in Montrose, we think that the Dallas Creek Project would inject life-saving dollars for year around stability from tourism.

In 1975 the upswing in the state's income came with the help of tourism and related businesses. This put more than 49 million dollars into the state coffers in the form of taxes and 8 million tourists spent over 700 million dollars in Colorado.

A tourist dollar is spent thusly:

Eating and drinking	23.7%
Lodging	21.1%
Food stores	7.8%
Other retail	19.0%
Gas & services	15.8%
Other	8.0%

From past experience in the building of Blue Mesa, Crystal and Morrow Point Dams, we know that six years in construction of the Dallas Creek Project will bring in many dollars during all seasons to the motels and related businesses. For the Dallas Creek Project 70% of the 700 created jobs will be local labor; however, 1,050 created supplier and related services will bring in many customers for the motels.

"Western Hospitality at it's Best"
YOUR HOSTS: JACK & THELMA BOHALL

Last year non-resident hunting and fishing licenses brought the state almost seven million dollars. Since Montrose and the area are both prime hunting and fishing, you can readily see what an economic impact 42,000 more fishing days could mean to our area.

The 268,000 recreation days created by the Dallas Creek Project with the picnicking, camping, boating, swimming, water skiing, hiking and sight seeing could help stabilize our economy--making our fringe area a profitable period--thus making the motels and all related tourist facilities more economically feasible.

Jack Boball

TO: Mr. David Crandall, Regional Director, Bureau of Reclamation

FROM: National Farmers Organization

SUBJECT: Dallas Creek Project - Draft Environmental Statement

On page E-2 of the Environmental Impact Statement of the Dallas Creek Project, under "Unavoidable Adverse Effects of the Project", the report states:

> "Approximately 1,940 acres of farm and range land would no longer be usable as such after inundation by Dallas Divide and Ridgway Reservoirs."

This is correct; but, in connection with this negative aspect of the Dallas Project, we would like to point out the valuable reclaimation of farming land. As noted on page F-3 of this report, "there will be new agricultural production on about 3,880 acres of full service irrigation land." The availability of irrigation water for previously dry farmed lands will facilitate diversified farming and the production of badly needed livestock feeds and other crops not in the surplus category.

In addition, the Dallas Project will increase productivity on farms presently served with irrigation water. These irrigated farms will receive a more even year-round flow throughout the whole farming season. It has been estimated that supplemental water to existing acreage received by Uncompahgre Valley Water Users Associations from the Dallas Project would be equivalent to adding 12,000 acres to the project area.

Richard E. Cook

Richard E. Cook
Colorado State President
National Farmers Organization

Olathe, Colorado
April 13, 1976

David Crandall, Regional Director
U. S. Bureau of Reclamation
Room 7416 Federal Building
125 South State St.
P. O. Box 11568
Salt Lake City, Utah 84147

Dear Mr. Crandall:

The following resolution was passed at the regular monthly meeting of the Olathe Chamber of Commerce on April 5, 1976:

> Be it resolved that the Olathe Chamber of Commerce go on record, that in their estimation the beneficial affects of the Dallas and Ridgeway Dams, will be far greater for people in the area, than any adverse affects would have on the environment.

Resolution passed unanimously.

Yours truly,

R. J. Davis

R. J. Davis

FICE PHONE 323-5764
REHOUSE PHONE 323-5913

THE OLATHE POTATO GROWERS CO-OPERATIVE ASSOCIATION

CAR LOT GROWERS AND SHIPPERS OF
POTATOES · ONIONS · BEANS

OLATHE, COLORADO

April 16, 1976

David Cranall, Regional Director
Burea of Reclamation
P.O. Box 11568
Salt Lake City, Utah 84147

SUBJECT: Dallas Creek Project, Draft Environmental Statement

Both positive and negative aspects of the Dallas Creek Project are well covered in the Draft Environmental Statement for the Dallas Creek Project. The Olathe Potato Growers would like to put its stamp of approval on this report in general.

For specific comment, we refer to Present Pattern of Land Use, (P 54). Agriculture is of primary importance in this area. Along with regulations governing residential encroachment on agricultural and range land, we need the assurance of adequate irrigation water for the farms. The Olathe Potato Growers feel that the Dallas Creek Project will provide the necessary municipal and irrigation water to meet the projected population increase in our area.

Thanking you for your time.

Sincerely,

Richard N. Percival

Richard N. Percival,
Produce Manager

OURAY COUNTY PROTECTIVE ASSOCIATION
P. O. Box 177
Ridgway, Colorado 81432
April 21, 1976

Mr. David L. Crandall
Regional Director
Upper Colorado Regional Office
Bureau of Reclamation
Department of the Interior
Salt Lake City, Utah

Dear Mr. Crandall:

We have examined the Dallas Creek Project (Colorado) Draft Environmental Statement and have reached the conclusion that it does not accurately or completely present the facts.

We submit for your consideration, therefore, the following comments:

1. DESCRIPTION OF THE PROPOSAL, Table A-1 allocates certain municipal water use as follows:

Ridgway - 300 acre feet annually
Montrose - 10,000 acre feet annually
Loghill Mesa Community - 4,000 acre feet annually

The Bureau of Reclamation MUST be aware that Ridgway presently has its own operating water supply system with water reserves estimated to be adequate to supply a population of 3,000 persons and that the Town of Ridgway has REJECTED all offers of Tri-County Water Conservancy District to take over and/or become involved, in any manner, in the operation of same.

The City of Montrose, contrary to its claims of a water shortage, presently has a surplus of UNTREATED WATER and has, for many years, leased and/or sold considerable quantities of said surplus water to a number of ranchers for irrigation use. The Bureau statement (Page C-35) that "There should be no strain imposed on water and sewage facilities of the City of Montrose by Project workers" supports our position in that regard.

The Loghill Mesa Community is presently virtually non-existent in terms of residents. That portion of Loghill Mesa which has reportedly been "under development" by Western Community Planners, Inc. for many years cannot, as of this date, boast of a SINGLE RESIDENT although the developers state that they presently have an adequate water supply for one-third of their total proposed development.

The inclusion of such erroneous and/or fictitious water allocations can only serve to refute claims of real need for the Project.

2. DESCRIPTION OF THE PROPOSAL, Page A-20 proposes to permanently deface and desecrate the presently most photogenic and most photographed portion of the San Juan landscape by construction of the Dallas Feeder Canal (Pages A-21 and A-22). Subject landscape, which has graced myriad calendars, magazines, and postcards will, if the Dallas Feeder Canal is constructed, bear mute but sickening testimony to the to the unthinking devastation by ruthless, selfish men henceforth.

3. DESCRIPTION OF THE PROPOSAL, Page A-8, proposes to substitute a reservoir which, admittedly, will expose a broad expanse of ugly mud flats to view in place of the beautiful Uncompahgre River bed and the adjacent meadows and to relocate U. S. Highway 550 adjacent to said reservoir. Such construction of the reservoir and the relocated highway would flaunt the ugliness in the faces of all who enter Ouray County from the north. This phase of the Project would result in the removal of in excess of 5,000 acres of land from the Ouray County tax rolls. Promises of increased valuation of certain land on Loghill Mesa which MAY be irrigated with water from the proposed Project to offset that loss are intangible and would probably never be fulfilled.

In conjunction with construction of the Ridgway Reserv ir, it is proposed that the "little used" (Page A-10) Denver and Rio Grande Western Railroad track between Montrose and Ridgway be abandoned thereby taking another big bite out of the Ouray County tax rolls. We wonder how the people of Montrose would react to a proposal to abandon ALL Denver and Rio Grande Western Railroad facilities in Montrose County.

4. DESCRIPTION OF THE PROPOSAL. Page A-23 proposes to impound water transmitted from the east and west forks of Dallas Creek via the Dallas Feeder Canal to the proposed Dallas Divide Reservoir for storage and subsequent transmission primarily to Loghill Mesa via a conduit along the southerly face of Loghill and while time (much time) may PARTIALLY heal the scars, the cost of that phase of the proposed Project and the inherent damage to the landscape and wildlife seem too great a price to pay to supply municipal water to a non-existent subdivision and irrigation water to certain Loghill Mesa land upon which it, most likely, will never be used.

5. DESCRIPTION OF THE PROPOSAL. Page A-37 proposes to acquire, with Project funds, 15 miles of fishing easements along the Uncompahgre River below Ridgway Dam and an additional 4.4 miles of fishing easements along the east and west forks of Dallas Creek. Any such acquisitions over the protests of the present rightful owners would result in loss of control of the land and a MAJOR DEVALUATION THEREOF. Any attempt to acquire such easements by condemnation proceedings would constitute a misuse of authority and would infringe upon the Constitutionally guaranteed rights of the affected landowners.

It is further proposed to acquire and develop approximately 6,000 acres of land in the vicinity of the proposed Ridgway Reservoir for "intensive management as a wildlife resource area" with Project funds. While we most certainly agree that ALL wildlife in the area would be adversely affected by construction of the Project and that steps must be taken , in the event of such construction, to preserve and protect wildlife, the removal of that 6,000 acres from the Ouray County tax rolls deals another severe blow to Ouray County Government and to every Ouray County Taxpayer as well. To add insult to injury, Ouray County taxpayers within the Tri-County Water Conservancy District will be asked to obligate their property to guarantee repayment to the United States Government of the chargeable portion of the Project costs.

In every phase of the DESCRIPTION OF THE PROPOSAL, Ouray County is asked to give, give, and give while the lower valley residents within the District are to receive virtually all of the tangible benefits which MAY be realized as a result of construction of the Project.

Ouray County is offered only the intangible benefits which MAY accrue in the event that someone, someday, elects to establish residence in the Western Community Planners, Inc. development on Loghill Mesa or in the event SOME of the irrigation water proposed to be delivered to Loghill Mesa is actually used there for irrigation purposes which MAY somewhat increase the assessed valuation of such land.

The Draft Environmental Statement minimizes the adverse effect of construction of the Project upon wildlife and seeks to divert attention from the REAL problem by dealing in the number of acres actually involved in the Project operation. These Project acres are located in the very heart of the best wildlife habitat in Ouray County. Construction and operation of the Project would adversely affect wildlife uponTHOUSANDS of acres adjacent to and/or encircled by various components of the Project. Most of the deer and elk herds presently in Ouray County will be driven from the Project area and forced to seek refuge elsewhere.

The Draft Environmental Statement completely ignores the probable effect of the Dallas Creek Project upon many of the lush alpine meadows in Ouray County ABOVE the elevation of said Project. Many such meadows have historically been irrigated with previously unclaimed and, otherwise, unused water which has been, in the past, the very surplus and/or flood waters which the Project proposes to claim for impoundment. We sincerely believe that construction of the Project will result in a complete and dismal loss of many such Ouray County meadows.

The Draft Environmental Statement promises increased recreation in the Project area but, again, completely ignores the probable adverse effect upon the local tourist industry which is very profitable and generates many tax dollars. Much of the natural beauty which presently attracts tourists to Ouray County is planned to be permanently disfigured or destroyed and must, necessarily, have an adverse effect upon tourism in Ouray County. Blue Mesa Reservoir, which is located only a short distance from the proposed Dallas Creek Project already provides much better recreation and fishing facilities than could ever be provided by the smaller, lower quality Ridgway Reservoir.

We consider the plan for construction of the Dallas Creek Project to be documentary evidence of the premeditated rape of Ouray County. The statements supporting said proposal submitted by some lower valley entities and individuals testify to their willingness to participate in the planned rape along with the resultant social, economic, and environmental chaos proposed to be inflicted upon Ouray County in return for the highly questionable benefits which may be realized by a few unthinking persons in the lower valley.

Please be advised that we shall continue to resist all such similar proposals by any and every means at our disposal.

Sincerely,

OURAY COUNTY PROTECTIVE ASSOCIATION

Dick Barker

Dick Barker, Chairman

Donald Ethridge, Executive Committee

Donald Ethridge

Carl Ingo, Executive Committee

Carl Ingo

Lester Lowery, Executive Committee

Lester Lowery

Memorandum

To: Files

Subject: Response to Ouray County Protective Association, Ridgway, Colorado Comment Letter of April 21, 1976, on the Dallas Creek Project Draft Environmental Statement

Responses reference comments in the Ouray County Protective Association's letter without restatement of the comment.

1. Response:

The Bureau of Reclamation studies made in cooperation with the Tri-County Water Conservancy District as outlined in Sections B-13a and B-14a indicate needs for additional water in Montrose and Ridgway. These cities as well as Loghill Village would have the option of purchasing water from the Conservancy District if they so desired.

The city of Montrose has surplus water during the early spring and late fall periods but presently experiences shortages during the summer because it lacks storage facilities to carry over any surplus. The surplus supply is only an interim supply which was contracted for from the Uncompahgre Water Users Association "until water is available from the Dallas Creek Project."

2. Response:

The Dallas Feeder Canal has been deleted from the project plan.

3. Response:

Ridgway Reservoir would be a fluctuating reservoir, but the aesthetic degradation would not be as extreme as stated in the comment. The reservoir would normally start to rise in early spring, reaching the highest level in May or June. Drawdown would be slow and gradual with the lowest level reached in late winter. Reservoir operation is discussed in Section A-5a.

The project plan has been scaled down since the Draft Environmental Statement was published. Under the present plan the total amount of land to be set aside for Ridgway Reservoir and the relocated highway would be 3,830 acres, of which 2,845 acres are under private ownership and 985 are Federally owned. Irrigation of lands on Log Hill Mesa has been deleted from the plan.

4. Response:

Diversion from the East and West Forks of Dallas Creek, the Dallas Feeder Canal, Dallas Divide Reservoir, and all service to Log Hill Mesa have been deleted from the project plan.

5. Paragraph 1 Response:

As a result of plan reformulation since publication of the Draft Environmental Statement, the acquisition of fishing easements on the East and West Forks of Dallas Creek has been deleted from the project plan and it has been determined that easements along the Uncompahgre River would be obtained on a "willing seller" basis.

5. Paragraph 2 Response:

The proposed wildlife management area has been reduced to 1,000 acres. As to repayment of the chargeable portion of the project costs, about 74 percent would be by charges to water users, 19 percent by power revenues from the Colorado River Storage Project, and 7 percent by ad valorem taxes assessed by Tri-County Water Conservancy District. Only 13 percent of the Tri-County assessed valuation is in Ouray County.

Page 2, Paragraph 7 Response:

As pointed out in the response to several of the preceding comments, the project plan has been substantially reduced. The concerns for wildlife expressed in this comment should thereby be largely alleviated.

Page 2, Paragraph 8 Response:

The Bureau of Reclamation, the same as any appropriator, is subject to the State laws protecting senior water rights from junior appropriations. If the high meadows have senior water rights, they would not be affected. In the event that they do not have senior water rights, the meadows would naturally receive the high precipitation normal to the area and elevation.

Page 3, Paragraph 1 Response:

With the removal of the Dallas Feeder Canal from the project plan, much of the concern for aesthetic degradation should be allayed. Ridgway Reservoir is expected to receive heavy recreational use which should give the local area a tremendous economic boost. The amount of recreation use at Blue Mesa Reservoir indicates a need for additional water-based recreation opportunities.

P R O J E C T 7

Valley Wide Water Planning
P. O. Box 456
Montrose, Colorado 81401

April 12, 1976

Mr. Gilbert G. Stamm
Commissioner, U. S. Bureau of Reclamation
Department of the Interior, Washington, D. C.

Dear Mr. Stamm: We have studied the Draft Environmental Statement for the Dallas Creek Project, with interest. The statement appears sound and in the best interest of the Uncompahgre Valley and of the Upper Basin States.

The report indicates that the proposed multipurpose Dallas Creek Project will develop an average of 33,000 acre feet of water annually for municipal and industrial use, which will meet the projected water demands in a more orderly means than we are involved in now. The impact on the small independent water companies and the over-extended municipal plants within the Uncompahgre Valley would enable more centralized treatment facilities at the dam site and to join our presently interconnected network of transmission lines throughout the Uncompahgre Valley.

The opportunity to review the report is appreciated. We are glad that the Project has been found to be both feasible and desirable.

Sincerely yours,

Edwin S. Hofmann

Edwin S. Hofmann, Chairman

ESH:mm
cc: File

Route 1
50 Seneca Road
Gunnison, Colo. 81230
June 23, 1976

Bureau of Reclamation
P.O. Box 1728
Grand Junction. Colo. 81501

Gentlemen,

The attention of the Gunnison group if the Sierra Club has been called to the proposed rerouting of highway 550 around Ridgeway Reservoir as shown in the draft EIS of the Dallas Creek Project.

It would appear that the proposed route would adversely affect agricultural productivity by dividing existing productive agricultural lands.

The Gunnison group of the Sierra Club deplores the sacrifice of agricultural land for highway construction when other alternatives meet applicable highway design standards, and urges that alternative routes be examined which would maximize the retention of agricultural productivity.

Yours sincerely,

John S. Tarr
Chairman Gunnison Group, Sierra Club.

c. Colorado State Highway Department

Memorandum

To: Files

Subject: Response to the Gunnison Group of the Sierra Club Comment Letter on the Dallas Creek Draft Environmental Statement, June 23, 1976

1. Comment:

It would appear that the proposed route of the Highway 550 relocation would adversely affect agricultural productivity by dividing existing productive agricultural lands. Alternative routes should be examined which would maximize the retention of agricultural productivity.

Response:

The alignment for the highway relocation was selected to minimize losses to agricultural land. Consideration was given to routes that would completely avoid farm land but economic considerations and maintenance problems made this impractical. The route now planned along Cow Creek would encroach on agricultural land but would be adjacent to the creek so that lands would not be divided.

To: U.S. Department of the Interior, Bureau of Reclamation

From: Uncompahgre Valley Cattlemen and Horsegrowers Association

Subject: DALLAS CREEK PROJECT - DRAFT ENVIRONMENTAL STATEMENT

The Uncompahgre Valley Cattlemen and Horsegrowers Association would like to comment favorably on the Environmental Impact Statement for the Dallas Creek Project.

Of particular interest to our group is the subject of crop yields and livestock production on page A-47 of this report. As stated in this report: "about 3,880 acres of dry land on Log Hill Mesa (will) be converted to irrigated fields. Of the land to be newly irrigated, about 2,360 acres are now primarily in native vegetation and 1,520 acres are presently cleared or dry farmed."

Livestock feeds are the present primary crop on this land and with the addition of irrigated water, these will improve in quality and increase in production. Livestock production, which is the predominant agricultural enterprize of this area would also benefit as the grazing and livestock feed crops improve.

We believe that the irrigation benefits from the Dallas Creek Project will be a definite asset to the livestock production in our area.

Richard S. Lane, Sec.

Uncompahgre Valley Cattlemen
and Horsegrowers Association

401 Main Street
P.O. Box 1189
Montrose, Colorado 81401
Telephone: (303) 249-4525

United Bank of Montrose

Hall H. Keltz,
President

Office of Regional Director
Bureau of Reclamation
Federal Building
125 South State Street
Salt Lake City, Utah 84147

Dear Sir:

I have been reviewing the environmental impact of the proposed construction for the Ridgway and Dallas Divide reservoirs and the diversion of the Dallas creeks, the impact of the canal systems and road construction along with various related features. The compilation of impacts of the proposed construction is very impressive for its thoroughness in considering almost every conceivable resulting effect. Certainly it seems that all impacts have been gone into in great depth and both favorable and unfavorable aspects have been weighed carefully. I will not presume to make comments on the accuracy of the evaluations that have been made by the experts. I am aware that certain sacrifices and losses need to be weighed against the many benefits. I will attempt to address myself to new aspects as viewed by an average individual inhabitant of the area.

The lake that will be produced will have a natural beauty, peaceful and clean in appearance and blending with the quiet adjacent surroundings. The lake, through the evaporation process, will no doubt increase the rain and snow fall over the adjacent area. This could prove quite beneficial, especially in the lower Uncompahgre

Valley which is now semi-arid. It is my understanding that the loss of the valley ranch and farm land will be replaced with irrigation of the present dry land on Log Hill Mesa. It would also appear that it is possible for some irrigation of dry land on Sims Mesa. I am sure that the building of the project will enhance the mesa land that is not suitable for farming, for home construction. This has been quite evident by the fact that many private and permanent homes have been constructed in recent years on high lands and cliffs near Ouray. The beauty of the area has been attracting both local and out of state interest in permanent home sites. There is a very definite trend to move into an area where there is more open space, clean air and a variety of recreational possibilities.

With more and more demand for Colorado and especially Western Slope water, we can have assurance that local water will be retained within our valley. We will not face a shortage of irrigation water as we have at times in the past. We will also be assured of a permanent source of municipal water, which is drastically needed, especially a winter time supply of higher quality water than we have at the present.

Industry today is looking for small, wholesome communities to relocate some of their light manufacturing. In nearly all cases, water is one of the major considerations in their site selection. With assured water source and the establishment of light industry, we will have a more stable, prosperous economy. More opportunities

will be available to our younger people to make an adequate living. If the retention of our younger people was the only benefit resulting from the construction of this project, that alone would far outweigh the loss of the few physical features that we would be sacrificing. The best investment we can make both in our community and nationwide is in our younger generation. Certainly, if we can contribute to making it possible for our children in greater numbers to prosper, live a wholesome life, and remain in this area, this is a major consideration.

The controlled, efficient use of this water that is available to us, to be utilized for agriculture and economic benefit, is vital to the future of this area. If there are further unnecessary delays in accomplishing this project our entire valley will suffer greatly. It will be difficult to understand if every effort is not made to speed up the construction of this project. It is urgent that we move with all possible speed to save millions of tax dollars that may be lost, due to inflation, if there are unnecessary delays.

Yours truly,

Hall H. Keltz
President

WESTERN COMMUNITY PLANNERS, INC.

307 MAIN, SUITE 3
MONTROSE, COLORADO 81401
(303) 249-7761

March 31, 1976

United States Department of the Interior
Bureau of Reclamation
Upper Colorado Region
Western Colorado Projects Office
P. O. Box 1728
Grand Junction, Colorado 81501

Dear Sir:

Thank you for sending us a copy of the Draft Environmental Statement on the Dallas Creek Project. We congratulate you and the Bureau for this excellent presentation.

We strongly support the Dallas Creek project and its concepts. If we can be of help in bringing the project to fruition please let us know.

Yours very truly,

Bob

Robert F. Draper

RFD:amg

TO: Mr. David Crandall, Regional Director, Bureau of Reclamation

FROM: Western Slope Wool Growers

SUBJECT: Dallas Creek Project - Draft Environmental Statement

Western Slope Wool Growers agree with this Environmental Impact Study of the Dallas Creek Project in general; and in particular, we would like to emphasize the statements on page H-3 (Alternatives to the Proposed Project).

> "Nondevelopment as an alternative to the Dallas Creek Project, ...is restricted to nondevelopment as a Federal project. ...Because of the high costs involved, it is doubtful that any estensive irrigation developments could be accomplished without government involvement."

This was proven back in the early history of this area when a local resident went to the Montrose County Commissioners in 1894 with an idea for a tunnel to bring the waters of the Gunnison River to this valley. The Commissioners allocated $100 to be matched by an equal amount from Lauzon for an investigation into this project. This first allowance of money proved that the project was too large to be accomplished by private capital. Several years later, the State passed a bill appropriating $25,000 to build the tunnel. This appropriation provided enough preliminary study and investigation to prove the insufficiency of $25,000 to construct the tunnel. The passage of the National Reclamation Act in 1902 was the impetus for the actual construction of the Gunnison Tunnel, which ended up costing nearly $3,250,000. The comparison of projects in the Uncompahgre Valley (Gunnison Tunnel and Dallas Project) is for the purpose of emphasizing that the Dallas Creek Project cannot be built adequately by private or semi-private funds, and still retain the proposed safeguards for the environment of this area.

Ronald L. Brown

Ronald L. Brown, President
Western Slope Wool Growers

3. Disposition of Comments Received on Draft Statement

e. Comments from Individuals

Letters from the following persons contained a number of comments on the Draft Environmental Statement and Project plan, and the comments have been responded to individually in this section.

Ralph E. Clark III
Fisher Ranch
R. W. Johnston, Jr. (for Lewis Don Cramer, Pete Hess, and Mrs. Raymond Lowery)

Joyce Jorgensen
Florence Landon
Lester and Delphane Lowery

Kent Nelson
Bill Ponce
Kathleen M. Quadri
Ruth N. Siemer
Mr. & Mrs. G. V. Weber

The persons listed below submitted comments that expressed opposition to one or more of the following project features: The Dallas Feeder Canal, Dallas Divide Reservoir, the Ridgway Pumping Plants, Log Hill Mesa Conduit, the Log Hill Mesa Distribution System, and municipal or irrigation service on Log Hill Mesa. These features have all been deleted from the project plan.

Fannie Collard
Mrs. A. L. Duncan
Gladys L. and Gary Fournier
James R. Guadagno
Esther Lewis (with Charles A. Morgan, Lorain Harney, and Walter Domka, Sr.)
Edgar A. McNew
Marie Scott
Dick Swyhart
Mr. and Mrs. Jong Wittingham
Mr. and Mrs. David Wolford

The following persons submitted letters with comments favorable to the project but expressing strong opposition to the acquisition of fishing easements along the Uncompahgre River below Ridgway Dam and the taking of land for a wildlife management area.

Since publication of the Draft Environmental Statement the wildlife management area has been reduced from 6,000 to 1,000 acres and the fishing easements along Uncompahgre River are to be acquired on a "willing seller" basis only. Measures would be taken to protect landowners selling the easements as discussed in section D-6 of this Final Statement.

Mr. and Mrs. Raymond K. Huggins
Robert B. Jutten
William W. and Louise L. Jutten
William B. Lomax

RALPH E. CLARK III
519 EAST GEORGIA AVENUE
GUNNISON, COLORADO 81230
(303) 641-2907

DALLAS CREEK PROJECT

April 20, 1976

Western Colorado Projects Office
Bureau of Reclamation
Building 8, ERDA Compound
Grand Junction, Colorado 81501

Re: Comments on draft environmental statement on Dallas Creek Project, DES 76-11.

150
151
152
710
720
730

Gentlemen:

Thank you for the opportunity to review and comment upon the draft environmental statement on the Dallas Creek Project, Colorado (INT DES 76-11). The following are personal comments from my perspective resulting from my review of the draft environmental statement (DES) and other relevant material. They are submitted for your consideration and assistance in the preparation of the final environmental statement on the proposed project.

1. The DES contains a good presentation of the details of the Dallas Creek Project. A particularly useful section, pages C-31 to C-44, identifies the secondary impacts and implications of the proposal through the application of "rules-of-thumb". The implications, consequences, and requirements of area growth thus identified must be addressed by other affected governmental entities, particularly those of local government, as a part of their review of the draft. The ability, for example, of communities to undertake the improvement of their existing facilities such as sewage treatment (page (p.) D-9) as well as their ability to meet the demands of additional growth should be assessed.

2. A benefit-cost analysis should be appended which identifies the major benefit and cost elements of the proposal and the alternatives. The analysis should indicate the estimated cost of delivered water per acre for agricultural use and the cost per delivered gallon for water to be used for municipal and industrial purposes. The estimated total project cost of $42,655,030.00 contained in the 16th Annual Report: Colorado River Storage Project and Participating Projects for Fiscal Year 1972 prepared by the Bureau of Reclamation indicates a relatively high cost of acre foot of water to be supplied in comparison to other similar projects. A more current comparison of the cost effectiveness of this project in relation to other Bureau projects should be presented.

3. The analysis of the proposal and alternatives should include the proposed methods for repayment and the repayment schedules for each. The cost allocations for the proposal and the alternatives should also be indicated. The incidence of the repayment costs should be identified for the particularly large capital and operational expenses such as the water supply system for the Loghill Mesa and Loghill Mesa Community.

Western Colorado Projects Office
Bureau of Reclamation
Grand Junction, Colorado

Re: Comments on Dallas Creek Project DES.

4. Over 60% of the usable water supply produced by the proposed project is designated for municipal and industrial uses (p. A-2). The assumption of 300 gallons per day per capita water demand is indicated as including a component of commercial and municipal governmental usage (p. B-72). The extent of this component should be identified as the per capita demand is rather large in comparison to expected household requirements. The specific potential users for commercial, industrial, and governmental water allocations should be identified by type and location with the specific potential water demand of each. This would permit an evaluation of the feasibility of the alternatives to the proposal.

5. Water use is a function of water costs, among other factors, and the DES should include an evaluation of the projected demands for water by all potential users in relation to delivered costs.

6. As the provision of additional water is described as a necessary (pps. B-56 and B-61) and it would appear a sufficient condition for industrial and municipal growth, the basis for the growth trend assumptions (p. B-64) should be presented to permit assessment of their sensitivity to future change.

7. The potential role of the Tri County Water Conservancy District in allocating water resources within the project area should be explained, particularly in regard to the redirection of water which may subsequently be found to be in excess of the actual future demands and could be contractually redirected toward heavy industrial users.

8. The rule-of-thumb examination of the implications of additional water indicated an approximate need for a corresponding additional 13,500 acre increase in urbanized land use (p. C-44). As it is most likely that this will come from a conversion of agricultural land, the effects of this upon water demand should be evaluated.

9. The statement that Senate Bill 35 of 1972 has established stringent regulations governing residential encroachment on agricultural and range land (p. B-54) should be explained. Though further conversion of agricultural land to residential uses may be discouraged in expressions of policy, in actual practice there has been little restraint of this conversion demonstrated within the project area.

10. The proposed project will provide extensive facilities and a water supply to the Loghill Mesa Community. The land use map, Attachment 6 - page 1, does not indicate that this subdivision has any lots sold or even that it is platted in accordance with Senate Bill 35. In several locations (pps. B-56 and C-38) the DES indicates that this large private development may not be as extensive or perhaps even feasible without the water supply being pumped to the turnout (p. A-45).

Ralph E. Clark III
Gunnison, Colorado

Western Colorado Projects Office
Bureau of Reclamation
Grand Junction, Colorado

Re: Comments on Dallas Creek Project DES.

To the degree that the proposed Dallas Project provides water and facilities below the market cost to the developer, these features of the project are a subsidy to the developer and offer protection for the developer's speculative investment. The need for a community to be larger than the current city of Montrose should be more soundly established, particularly one which is remote from the most likely commercial and industrial growth within the project area. The specific costs of water service and facilities to the Loghill Mesa Community and the Loghill Mesa area should be identified as well as the incidence of revenues for their repayment.

11. The annual electrical requirement of 6,270,000 kilowatt-hours of electricity for the operation of the Ridgeway Pumping Plants (p. C-48) is a very large commitment of this region's available electrical energy. This amount is sufficient for the residential requirements of a population of approximately ~~140,000~~. In view of the projected electrical energy demands related to resource extraction within the region and the timing of the potential increases in the supply of electrical energy, this allocation should be reevaluated. The electrical energy requirements for salinity control should also be considered in relation to this allocation of energy to pumping. The incidence of the costs for the operation of this pumping system should be identified as a part of this reevaluation.

In summary, as it appears that the proposed project favors a subsidy to unnecessary and speculative land development by the inclusion of the Dallas Divide Reservoir and the Ridgway Pumping System; that the anticipated use of additional water on Loghill Mesa for agriculture is for the production of low value forage crops; and that the anticipated growth within the project area will generally be from Montrose down the river to the Delta area; the Dallas Divide Reservoir and the pumping features of the project are unnecessary and should be eliminated.

I would appreciate receiving a copy of the final environmental statement on the project.

Respectfully:

Ralph E. Clark III

RALPH E. CLARK III
519 EAST GEORGIA AVENUE
GUNNISON, COLORADO 81230
(303) 641-2907

June 16, 1976

JUN 1 1976

Western Colorado Projects Office
Bureau of Reclamation
Building 8, ERDA Compound
Grand Junction, Colorado 81501

Re: Correction of comments in my letter of April 20, 1976, on draft environmental statement on Dallas Creek Project, DES 76-11.

Gentlemen:

In reviewing my comments submitted on the draft environmental statement covering the Dallas Creek Project, I noted a significant uncorrected typographical error on page 3, paragraph 11 of my letter. The letter reads, "This amount is sufficient for the residential requirements of a population of approximately 140,000." The figure "140,000" is in error and should be corrected to be "1,400.".

I regret any inconvenience that this error may have caused in the consideration of my comments on the draft environmental statement.

Respectfully:

Ralph E. Clark III

Ralph E. Clark III

Memorandum

To: Files

Subject: Response to Ralph E. Clark III, Gunnison, Colo. Comment Letter of April 20, 1976, on the Dallas Creek Project Draft Environmental Statement

Responses refer to numbered comments in Mr. Clark's letter without restatement of the comment.

1. 1 Response:

The Dallas Creek Project is not expected to cause any new growth, but only to provide a municipal and industrial water supply in an orderly and efficient manner to growth that is projected without the project. Therefore, sewage treatment resulting from anticipated growth will not be an impact of the project.

2. 2 and 3 Response:

It is the policy of the U.S. Department of the Interior that an environmental statement not present financial analyses or data on project economic justification. This information is covered in other documents which are available for inspection at the Bureau of Reclamation Western Colorado Projects Office, ERDA Compound, Grand Junction, Colo., and the Upper Colorado Regional Office, 125 South State Street, Salt Lake City, Utah.

3. 4 Response:

The estimated rates reflect the arid conditions of the project area. The rate for the cities and towns is slightly lower than the present consumption in Delta, Montrose, and nearby Grand Junction, including commercial and municipal uses, as determined in recent surveys made by the Bureau of Reclamation for the years 1968-71. See response to Comment 1.

4. 5 Response:

See response to Comments 2 and 3.

5. 6 Response:

See response to Comment 1. The basis for the growth trend assumptions is given in Section B-13a of the Final Environmental Statement.

6. 7 Response:

This is definitely a possibility dependent upon the type and magnitude of future growth in the area. Present plans, however, do not provide

water for heavy industrial uses. Irrigation is still an important part of the project and provisions are made to protect this use. Should future growth of the area include heavy industry at the expense of irrigation (a general trend), it is only logical to assume the water requirements would be furnished from an available supply. In this event, unneeded project irriation water would be converted to municipal and industrial water and the users would be required to repay to the Federal Treasury construction costs (plus interest) allotted to that portion of the project water supply. For this to happen a new repayment contract would be necessary between the United States and the Conservancy District, and the approval of the Secretary of the Interior would be required. In addition, all of the requirements of NEPA and other related laws would have to be met.

7. 8. Response:

This is a difficult comment to quantify because of unpredictable variables. The domestic water supply for this population is provided for in the project municipal supply, as is lawn and garden water for strictly urban residents. Much of the population increase, however, is expected to be in rural areas, as pointed out in the projections. The rural residents would depend upon the agricultural irrigation facilities for lawn and garden water in areas where it was available. Present land use patterns and trends in housing development location make it doubtful that all of this conversion will occur on irrigated land.

8. 9. Response:

Senate Bill 35 requires that all land divided into parcels of less than 35 acres must meet all subdivision regulations. These regulations include the filing of a subdivision plan with the Board of County Commissioners for approval, giving evidence that water of sufficient quantity and quality is available; that streets, water distribution system, sewage collection system, storm drainage, and any other utilities required by the County will be constructed, that appropriate land for schools, parks and other future uses be dedicated to the County. The subdivider must also furnish a guarantee in the form of collateral or land that he will perform in accordance with design and time specifications. These stringent measures could not help but retard the encroachment on agriculture land for residential purposes.

9. 10. Response:

All water service to Log Hill Mesa has been deleted from the project.

10. 11. Response:

The Ridgway Pumping Plants have been deleted from the project plan.

11. Summary Paragraph:

The Dallas Divide Reservoir, the Ridgway Pumping System, Dallas Divide Reservoir, and all water service to Log Hill Mesa have been deleted from the project plan.

500.1

DALLAS CREEK

Route 1 Box 66A
Ridgway, Colorado 81432
April 26, 1976

RECEIVED UBR SLCU
OFFICIAL FILE COPY
APR 29 76

Date	Initials	To
4/29	[illegible]	700
		750
		60
Subs. Converp.		
Subs. Ack'd		

by DJ.

$40
$150

000614

Mr. David L. Crandall
Regional Director
Bureau of Reclamation
Room 7416, Federal Building
125 South State Street
P. O. Box 11568
Salt Lake City, Utah 84147

Dear Sir:

As full time residents and taxpayers of Ouray County, we emphatically OPPOSE the Dallas Creek Project as presented in the Draft Environmental Statement.

Your considerations of the impact or the total area serviced by the projects fail to allow for county lines, towns, school districts and basic rights of individuals to own private property. Of course the fish and deer know no such boundries and they have been well protected. The impact which is our foremost concern involves the human residents and the counties, school districts, and towns which have long been established and would be disrupted by the Dallas Creek Project.

The impact to the over-all service area may be small if the Ridgway branch of the railroad is abandoned but to the residents of the Ridgway School District it means a loss of one-third of our revenues. Compensation to this district is not a sure thing to say the least. The increased property values, development anticipated will not necessarily go back into this district. The loss of our railroad will also constitute a historical loss for the community founded as a railroad center. This cannot be measured in dollars. We also question whether the foreshadowing of abandonment has resulted in diminished use. In a time when transportation costs will be fluctuating relative to power resources, our small Ridgway spur may actually prove to be the most economical means of transporting our ores, fertilizer, and livestock..

Ouray County is being sacrificed for the benefit of the Montrose-Delta area. We cannot sit quiet while our beautiful hillsides are scared so that the lower country can be enhancedwith additional growth; industrial, agricultural and municipal. Too much land from our county will be appropriated from private owners. We oppose the Dallas Dam and the Dallas Feeder Canal. We oppose the 6,000 acre wildlife resource area. We oppose the Ridgway Pumping Station. We oppose the fishing easements along Dallas Creek and the Uncompahgre River. We question the economic feasibility and practicality of irrigating Log Hill Mesa with $9-$10 per acre foot water. By the time the project would be completed this cost will very likely double. Even at this estimated cost, the established agricultural marketing trends and limited growing season at this altitude would create an unprofitable use.

000614

We also question the allocation of municipal water. The town of Ridgway has an adequate supply and has rejected all offers to relinquish their sources. The city of Montrose when the propsects of this project were dim, published in the Daily Press some alternatives they were considering. Log Hill Development is still speculative. The only enity which actually needs the project completed is the Tri-County Water Conservency District to justify their own existance. They are an agency which was created before the fact and have contrived devious means to justify their existance. We only have to mention their handling of the option to Kemmerer Coal Company to illustrate thier crafty ways.

We realize the complexity of the water use in Colorado and that if we don't use it we lose it. Considering our personal and economic loss in Ouray County, we feel the sacrifice and burden for us is too great. We reject the Dallas Creek Project. We scream NO!

Sincerely,

The Fisher Ranch

Bryan Fisher
Elaine M. Ingo
Linda Ingo
Clara F. Ingo
Carey Ingo

Memorandum

To: Files

Subject: Response to the Fisher Ranch Letter of April 26, 1976, Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

The impact to the over-all service area may be small if the Ridgway Branch of the railroad is abandoned but to the residents of the Ridgway School District it means a loss of one-third of our revenues. Compensation to this district is not a sure thing to say the least. The increased property values, development anticipated will not necessarily go back into this district. The loss of our railroad will also constitute a historical loss for the community founded as a railroad center. This cannot be measured in dollars.

Response:

The abandonment of the railroad is a separate action, initiated by the Denver and Rio Grande Western Railroad Co., and has been approved by the Interstate Commerce Commission. Removal of the railroad will proceed whether or not the project is constructed.

2. Comment:

We oppose the Dallas Dam and the Dallas Feeder Canal. We oppose the 6,000 acre wildlife resource area. We oppose the Ridgway Pumping Station. We oppose the fishing easements along Dallas Creek and the Uncompahgre River. We question the economic feasibility and practicality or irrigating Log Hill Mesa with $9-$10 per acre-foot water.

Response:

Since publication of the Draft Environmental Statement, Dallas Divide Dam and Reservoir, Dallas Feeder Canal, Ridgway Pumping Plants, fishing easements on the East and West Forks of Dallas Creeks, and all project service to Log Hill Mesa have been deleted from the project plan. The proposed wildlife mitigation area has been reduced from 6,000 to 1,000 acres. The fishing easements on the Uncompahgre River would be acquired on a "willing seller" basis.

3. Comment:

We also question the allocation of municipal water. The town of Ridgway has an adequate supply and has rejected all offers to relinquish their sources. The city of Montrose when the prospects of this project were

dim, published in the Daily Press some alternatives they were considering. Log Hill Development is still speculative. The only entity which actually needs the project completed is the Tri-County Water Conservancy District to justify their own existance.

Response:

Communities in the project area will have the option of purchasing project water if they desire. Project construction would not be undertaken until the Tri-County Water Conservancy District has commitments for at least 80 percent of the project water supply, including irrigation and municipal and industrial water. Alternative water sources of water are available to the City of Montrose, Delta, Olathe, and the Tri-County Water Conservancy District as discussed in Chapter H. At the present time, however, it appears that the Dallas Creek Project is the best alternative to satisfy all needs of the valley.

STATEMENT

to

UNITED STATES DEPARTMENT OF INTERIOR

Re:

DRAFT ENVIRONMENTAL STATEMENT DALLAS CREEK PROJECT--COLORADO

April 17, 1976

by

R. W. JOHNSTON, JR.
Attorney at Law
CASHEN, CHENEY, JOHNSTON & ADAMSON
P. O. Box 387
Montrose, Colorado 81401

CLIENTS REPRESENTED:

LEWIS DON CRAMER
PETE HESS
MRS. RAYMOND LOWERY

I. POSITION PRESENTED

It is the purpose of this statement to make known the support of the Dallas Divide Project and to comment upon the Draft Environmental Statement of the Dallas Creek Project by the United States Department of Interior relative to the following matters:

1. That the clients represented are the only land-owner-residents of the Ridgway Reservoir Site inundation and wish to make known their support of the project.

2. That it is the position of this statement that certain comments relative to fishery and wildlife managment and effects derived by the building of the dam are inaccurate and that the alleged detrimental effect is exaggerated and that the positive effects on the wildlife and fisheries has been poorly stated.

3. That the positions of the Colorado Division of Wildlife are improper and efforts to obtain lands and the right of condemnation contrary to the express desires of the Legislature of the State of Colorado.

II. STATEMENT

It is stated, page E-2 of the Draft Environmental Statement that con-

struction of the Ridgway Reservoir would require the relocation of nine (9) farm families now living in the the reservoir basin forcing them to find new homes and possibly new sources of income. The statement made today is on behalf of the three (3) resident-landowners of the proposed Ridgway Reservoir basin. These residents have a combined total of living in the area in excess of fifty (50) years and all derive a portion of their income from the farmlands which will be inundated by the reservoir basin. The combined acreage owned by these resident-landowners make up approximately one-third (1/3) of the planned dam site area taken and the Cramer property is the location of the dam axis.

Two (2) of the families represented have considerable income sources away from the ranches involved and are not dependent upon the ranching operations for their income source. One (1) location represented further supports the actual outside business operation but moving of that business operation would not be extremely detrimental to the continuation of a light service industrial operation which is carried out upon the lands involved. The remaining landowner also derives income from sources not dealing directly with the lands involved in the taking for the project and therefore we hope that you have a clear picture that the relocation of the only resident-landowners in the area is not a strong consideration in their minds. All three (3) resident-landowners, as has been indicated, are long-term residents of the area and were supportive of the concept of the Dallas Creek Project for the welfare of the community in general long before it was known that the Ridgway Reservoir axis would be moved to include their lands. Their feelings remain the same and they believe that for the good of the community plus the lack of extraordinary damage to them, that the location of the dam in the basin now considered would be reasonable and proper and they do support the construction of the dam upon the planned basin area.

Further, it is desired to be pointed out that the remaining families alleged to be affected by the Statement found on the page previously cited are subject to the whims and wishes of absentee-landowners and effect as to living quarters and housing is very negligible upon most of these people. The conditions created by speculation ownership of lands and speculation retention of lands by non-resident landowners in the ranching community does not lend a

great deal of support and compatibility to the ranching endeavors of the resident-landowners and for that reason alone, relocation of income producing properties would be desirable to the resident-landowners in the area at this time.

These resident-landowners are represented by this statement, again, reiterate their unequivocal support for the dam and reservoir and the planned Ridgway Reservoir basin site.

It is further suggested to the department that the persons represented have had the most experience in gauging the effects upon wildlife and natural habitat and fishery in the area. Their experience far transends any questionable experimental data provided by the Colorado Division of Wildlife and their combined years of daily observations have indicated to them that various inaccuracies exist in Section C of the Draft Statement relative to the detrimental effects on the fisheries, aquatic wildlife, terrestrial wildlife and vegetation. Most of such information obviously being obtained from the Colorado Division of Wildlife.

Some two-fifths (2/5) of the stream habitat to be inundated by the Ridgway Reservoir is currently owned under private ownership by the owners represented. It is their observation that an estimated annual loss of 550 man-days of stream fishing upon this reservoir is highly exaggerated in accord with their experience and observations in the area for the years which they have owned and lived in the area.

We would now wish to attract attention to the small game mammal comment and state that there is agreement that very little effect upon the populations commented upon on page C-24.

Further, the comment relative to the game birds contained on pages C-24 and C-25 are relatively accurate.

However, the comments relative to the furbearing game found on page C-26 are contrary to the observations of these residents. Beaver are not known to utilize riparian habitat along the Uncompahgre River due to the swiftness of the stream and the pollution of the water which currently exists. The beaver in the area utilize manmade ditch structures and are usually destroyed soon after moving into the area because of their disturbance of the irrigation and manmade

structures. Beaver have existed on a sporadic basis in the ditches and canals of the landowners. The experience of these landowners is that the beavers are removed or destroyed immediately and that the same do not utilize riparian habitat along the river itself. The long observation in the area suggests that the statement "in this area which could support several colonies of beaver would be lost" is completely erroneous.

The furbearers such as the raccoon are not known to habitat the area of this ownership and muskrat are likewise known basically only to utilize only the manmade structures in the area are are usually trapped, destroyed and at the present time at least one mile of the river area is completely devoid of any muskrat activity and there has been very minor muskrat activity over the past fifteen (15) years.

Most interesting is the stated dilatory effects upon the mink population which these landowners have never observed. It is suggested that there is no mink population at the Ridgway Reservoir site unless one or two transient animals have been observed in the past.

The question of raptor habitat destruction by the Ridgway Reservoir construction could probably best be stated that the residents represented herein are not aware of nesting areas within the basin for the several raptor species commented upon. It is clearly known that the Northern Bald Eagle, the Golden Eagle, the Red-tailed Hawk does not nest in the area but have been known on a very sporadic and limited basis to visit the area. At this time there is not any Bald Eagle activity and it is doubtful that any winter habitat for the Northern Bald Eagle would be lost at the Ridgway Reservoir site. The most distinct problem relative to the wildlife and fisheries statements found in the Draft Environmental Statement deal with the big-game mammals.

It is suggested that, interestingly enough, there has been a down-play of the actual activities and observable activities of the elk population in the area, although the resident herds which are known to live on the mesas directly adjacent to the reservoir site will probably displace quite easily and are not large in population.

On the other hand, the effects on the deer population are not observably compatible with the statements found at pages C-17 through C-23 and the state-

ments made herein are indicative of long-term disputes between the Colorado Division of Wildlife and the almost total ranching and farming population of this general area.

The most important aspect of the inundated lands at the Ridgway Reservoir site to the deer population is the use of private irrigated lands from which are derived the livelihood of these ranchers. The deer utilize the area for the almost exclusive purpose of early, springtime forage on the irrigated crop lands. The hillsides and non-irrigated lands involved are not useful for springtime forage and very minor deer populations are ever found in those areas. The general thrust of the comments found in the Draft Statement are that there are large deer populations supported by non-irrigated lands which will be inundated. That assumption is patently untrue. The deer populations which are supported upon the inundated lands are supported for brief periods of time upon irrigated farm land and man-made haystacks. It is ludicrous to believe that the mule deer population will be depleted because of the exchange of 1,000 acres of irrigated farm land for 3,000 acres of similar irrigated land which will be replaced by the project. It is, undoubtedly the position of the Game, Fish and Parks Department that additional irrigated lands decrease the deer population. It is the observations of the persons making this statement that the increase in irrigated lands and farm lands in the general area of Log Hill Mesa and the Ridgway Reservoir site increase the deer population. Pressures of subdivision development, highspeed traffic and highdensity population areas do affect the deer populations, however, cultivation and irrigation contrary to the implications in the Draft Environmental Statement increase deer population in any given area and the loss of grazing in the reservoir site will be minimal.

There is statement that fawns will be destroyed because of lack of ability to cross canals. This is difficult to imagine when the persons making this statement observe does and fawns crossing the Uncompahgre River at high water state in the spring with no trouble, the fawns swimming the very swift and turbulent river as compared to their ability to swim or cross rather slow and mild conditions at canal crossings.

It is suggested that the development nor non-development of the Dallas Divide Project will not affect the population density of the Log Hill Mesa area

and the Ridgway dam basin area tremendously. Domestic water availability can be substituted in various ways and the population density and high-speed traffic will be the only effect upon the mule deer populations.

The farmers and ranchers of these high-mountain valleys have long sacrificed income and peace of mind to support the deer populations for the Division of Wildlife in the State of Colorado. The farmers and ranchers making this statement and all farmers and ranchers of this area would most probably agree that increase in irrigated lands available in the high-mountain plateaus and valleys increase the deer population rather than decrease the deer population as alleged by the Environmental Statement Draft.

It is further pointed out that by observation, the persons who have lived day-to-day upon the lands involved in the Ridgway Reservoir site have observed only high concentrations of deer in the basin area during a short period of time of each spring, depending on the amount of snow in the surrounding mountain areas and that the support of the basin area to the deer herds is provided only through the man-made efforts of irrigation and cultivation and not through the free access to the private lands.

Interwoven with this problem is the obvious improper attempt by the Colorado Division of Wildlife to frustrate the express intent of the Colorado State Legislature in denying the Colorado Division of Wildlife the right of eminent domain. Page D-10 indicates a mitigation measure designed to reduce or restore environmental losses relative to the acquisition by the department of 6,000 acrea purchased or condemned, obviously to be placed into the control of the Colorado Division of Wildlife. It is our complete understanding from the Division of Wildlife that this is a local division decision and request to the department. It is further a "super rip-off" and grandeiose scheme which should not be countenanced by the department. It is suggested that recent voluntary acquisitions have been made by the division of huge tracts of land, removing the same from the tax base and agricultural production of the area. Further, the Billy Creek Station, operated by the Game, Fish and Wildlife Division, within twenty (20) miles of the dam site is an indication of the questionable scientific research carried on by the Game, Fish and Wildlife upon the lands so acquired and a clear indication of the unreasonableness of the

demand made herein. The Legislature of the State of Colorado has considered, within the last two (2) years, the right of eminent domain to be granted to the Division of Game, Fish and Wildlife. This has been denied repeatedly by the Colorado Legislature. The requests with which the department has been presented by this division and the administrative arm of the State of Colorado is an effort to frustrate the intent of the Legislature of the State of Colorado by substituting the right of eminent domain of the United States for the purposly withheld lack of right of eminent domain of the division. If the observations of the residents of this area are accurate, the increase of irrigated lands in a rural setting as planned by the Dallas Creek Project will cause at least a continued support of the present herds in the general area if not an increase in the herds in the general area and the acquisition of 6,000 acres of private land is an improper exercise and an effort to frustrate the current statutory provisions of the State of Colorado as deemed necessary and proper by the Legislature of this state.

It is doubtful that any further comment need be made relative to the access rights for fishing purposes as requested by the Division of Wildlife, local Montrose Division, as it is an equal effort to frustrate private ownership by use of the United States Department of Interior right of eminent domain since the division has been specifically forbidden the right of eminent domain by the Legislature of the State of Colorado.

III. SUMMARY

It is suggested to the Department of the Interior that there will be minimal adverse effects on the fish and wildlife of the general area of the Ridgway Reservoir and that there are inaccuracies in the statement relative to the magnitude of the adverse effects. On the other hand, the reservoir itself should be supportive of additional wildlife and fishery uses and the persons on whose behalf this statement is made are those most directly affected by the taking of lands for the reservoir and they would wish to go on record, at this time, as favoring the Dallas Creek Project as an environmentally sound undertaking.

It has been suggested that man often sees his surroundings as things

to be conquered and destroyed and fails to see himself as part of his surroundings. If man is to continue to progress and to be part of his surroundings, he must make the necessary changes in both his surroundings as well as himself and we would submit that the Dallas Creek Project is a proper exercise by man to adapt both himself and the surroundings to compatability so that man may continue to be part of his surroundings. We encourage the speedy approval and completion of the Dallas Creek Project.

Memorandum

To: Files

Subject: Response to R.W. Johnston, Jr. Statement of April 17, 1976, for clients Lewis Don Cramer, Pete Hess, and Mrs. Raymond Lowery, Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

The clients represented are the only land-owner-residents of the Ridgway Reservoir site inundation and wish to make known their support of the project.

It is the position of this statement that certain comments relative to fishery and wildlife management and effects derived by the building of the dam are inaccurate and that the positive effect on the wildlife and fisheries has been poorly stated.

The positions of the Colorado Division of Wildlife are improper and efforts to obtain lands and the right of condemnation contrary to the express desires of the Legislature of the State of Colorado.

Response:

Impacts from project development outlined in the Final Environmental Statement are considerably less than those presented in the Draft Statement because a smaller scale of development is now planned. The impact analysis was made by the Bureau of Reclamation although information developed by State and Federal agencies was used in the fish and wildlife analyses.

Plans to require land for wildlife mitigation and fishery easements have been changed considerably since the Draft Statement was issued. Land planned for the wildlife management area has been reduced from 6,000 to 1,000 acres. Easements for fishermen now would be sought only along a 12-mile reach of the Uncompahgre River and those would be negotiated along a "willing seller" basis.

OURAY COUNTY
PLAINDEALER
AND OURAY HERALD

Joyce Jorgensen, Publisher and Editor 4/20/76 P.O. Box 607, Ouray, Colorado

David Crandall, Regional Director
Bureau of Reclamation, Room 7416, Federal Bldg.
125 South State St., P.O. Box 11568
Salt Lake City, Utah 84147

RE: DALLAS CREEK PROJECT

Dear Mr. Crandall:

I wish to go on record with this letter, and to have this made a part of the record in the above matter, as being in complete agreement with the statement made at the public hearing Saturday, April 17, at Montrose, by the Ouray County Commissioners. I am in total agreement with their criticisms of the present project plan. I see no benefits at all to Ouray County from the Dallas Creek Project, and a great many negative results will come from it, to our county. As the plan presently stands, that is.

I also wish to go on record as objecting to the abrupt closure of the public hearing in Montrose April 17th, without all pre-registered statements having been heard. The Bureau's own list of those pre-registering with requests to make verbal statements during the hearing showed George Balderston as having requested 1:00 p.m. He was there at the specified time, but no one else was. There were others who intended to testify or make statements for the record that day, who, because of inclement weather, had preferred to come directly after the noon hour. There were also a number (thirteen, to be exact) on the Bureau's list of those pre-registering, who were not at the forenoon two-hour session — but who could have made it that afternoon. The Bureau's own press release specified that persons could request a specific time to be heard. Balderston had done so. While I am opposed to the Dallas Project as it presently stands, and while I know Balderston, as president of the Montrose Chamber of Commerce, would have had lengthy testimony favoring the project, I think it extremely unfair if not actually illegal to have neglected any verbal testimony from a pre-registered person. Furthermore, I do question the legality of so summarily cutting off a public hearing. The short two hours brought us right up to the noon hour. Resuming the hearing that afternoon would have caused no inconvenience to anyone not already inconvenienced by the hearing. I had personally phoned J. F. Rinckel, your project manager at Grand Junction, last week, to determine that ALL would be heard, regardless of how long it might have taken to complete the hearing. I understand that you, Mr. Crandall, called the hearing to a close at noon, because "there were not enough people" — this according to Mr. Rinckel who was, the last time I saw him, still waiting indoors at the hearing site, after 1:30 plm. that day, to explain to people why the hearing was over. I believe that even one more person (in this case, Balderston) warranted reopening the hearing that afternoon. But there were more than one, making the effort to get to Montrose in inclement weather, only to be turned away.

In view of the controversiality of the Dallas Project, I consider the two-hour "public hearing" especially ludicrous, and cannot imagine how it could have helped the promotion of the Dallas Project, which is, I presume, what the Bureau had in mind.

Sincerely,

Joyce Jorgensen

Joyce Jorgensen

Memorandum

To: Files

Subject: Response to Joyce Jorgensen Letter of April 20, 1976 Commenting on the Dallas Creek Project Draft Environmental Statement and the April 17, 1976 Public Hearing

1. Comment:

I wish to go on record with this letter, and to have this made a part of the record in the above matter, as being in complete agreement with the statement made at the public hearing Saturday, April 17, at Montrose, by the Ouray County Commissioners.

Response:

Attention is directed to the comments by the Ouray County Commissioners and responses to those comments.

2. Comment:

I also wish to go on record as objecting to the abrupt closure of the public hearing in Montrose April 17th, without all preregistered statements having been heard.

Response:

The Bureau of Reclamation fully expected the hearing to last longer than it did because of the long advance list of those who expressed a desire to speak. Apparently, however, the inclement weather or other reasons forced some to change their plans. The hearing officer called the names on the preregistered list at least three times to be certain that all of those who desired were given the opportunity to speak. Those who did not present oral testimony were given the opportunity to submit written comments for the record until April 30, 1976, and many availed themselves of that opportunity.

DALLAS CREEK

REGIONAL DIRECTOR
Bureau of Reclamation

Room 7416 Federal Building

125 South State Street
Salt Lake City, Utah 84147

P.O. Box 142
Glendora, California 91740
April 26, 1976

000619

RECEIVED USBR SLCU
OFFICIAL FILE COPY
APR 30 '76

Date	Initials	To

Re: The Dallas Project

Dear Sir:

The removal, at great cost, of productive ranches from an agricultural area in existance for over 75 years in the Uncumpaghre River bottom to deliver water to Log Hill, a speculator's dream is a real government boondoggle.

The economic damage to Ouray County is immeasurable. The tax balance will be destroyed for at least 10 years after which time a slow comeback may be measurable.

What has Blue Mesa done for Gunnison County?

The removal of water (some would call it theft) from the Ridgway area to be delivered by questionable organization distribution (Tri-County Water Conservation Dist.) to Montrose, Olathe, and Delta is a scandal in itself, guaranteeing those communities 100% of their water needs and leaving Ridgway with only a guarantee of 75% of water needed.

The future growth projected for the Ridgway area are unbelievable.

The ballooned figures projected for Log Hill are obviously used to justify the confiscation of land and the cost of water delivery, however, anyone knowing the area realizes that there is NOTHING to justify existence in the area for 8 months out of the year, no jobs, poor weather conditions, dangerous highways etc. Someone has really sold the government a pipe dream and because the government needs to keep building dams to keep their employees busy, this was a soft sell. With the backing of Montrose and Delta Counties so that their agriculture and industry can develop at the expense of beautiful Ouray County, the whole project is likened to Banditry of the worst kind. Ouray Co. pays and pays and gets all of the problems and none of the prizes.

We have owned land in the Ridgway area since 1967 and have watched the county go backwards not forward because of the effects of the Dallas Project. This condition will worsen.

Part of the land shown covered by lake in a picture published in the Grand Junction Sentinel will be mud flats much of the year, ugly, dangerous, and a death blow to thousands of our wild life friends who have pastured in that area forever, using river bottom for protection. Opening up fishing rights along the river is a tragic addition to their dilema. There are plenty of areas for fisherman, but unfortunately

000619

our deer, beaver, bear, and smaller wild life cannot read, so will not understand the grand concepts of Fish and Game's great plans for them. We have pastured hundreds of deer on our ranch for years and many have stayed there year around bedding down in the river bottom.

How can you consider acres of mud as an addition to Ouray County. Simple mathmatics shows that the river flow can not support a large lake and deliver so much water to users below. With peak draw down until late August when irrigation slows somewhat, the summer recreation season will have passed before there can possibly be any lake build back. For years we have dealt with this river at high and low stages for pumping water for irrigation and we simply cannot reconcile your projections. I do hope that you are planning your recreation development close to the dam for boating and camping on mud is not much pleasure.

In closing, I hope that your engineers have really studied accurately the fault situation in the area of the Dallas Dam. I would not live or own property below an earth fill dam on that site for any amount of money. Southern Calif. has had some bitter experiences with this sort of situation. (Sorry my tape gave out + I must meet the mail schedule.)

I am recording this letter, so that if at a future date someone needs legal backing because of dam failure, they will know that a warning was given that faults do exist in the area of the dam.

Sincerely,

Florence L. Landon

000619

Memorandum

To: Files

Subject: Response to Florence L. Landon Letter of April 26, 1976, on the Dallas Creek Project Draft Environmental Statement

1. Comment:

The tax balance for Ouray County will be destroyed for at least 10 years.

Response:

Much of the concern over the tax base in Ouray County should be removed because of recent reductions in the project plan which greatly reduces the amount of private land that would be taken for project purposes. Dallas Divide Reservoir with all of its related features has been deleted, and the wildlife management area has been reduced from 6,000 to 1,000 acres.

2. Comment:

The removal of water from the Ridgway area to supply Montrose, Olathe, and Delta is unfair.

Response;

The project would develop only presently unused water supplies which consist mostly of high spring runoff. The project water supplies and operation were determined after detailed studies covering 19 years of streamflow records. Municipal water distributions are based on population projections and requests by the entities involved. Since publication of the Draft Environmental Statement the town of Ridgway has disclaimed any interest in obtaining project water.

3. Comment:

Water service to Log Hill (Mesa) is unjustified.

Response:

All water service, municipal and irrigation has been deleted from the project plan.

4. Comment:

Ridgway Reservoir would be characterized by ugly mud flats for most of the year.

Response:

Water supply studies by the Bureau of Reclamation show that most of the noticeable reservoir drawdown would occur late in the summer and fall. This aspect is discussed in Section A-5a of the final statement. the plan also calls for planting about 80 acres of trees and shrubs around the reservoir to enhance its appearance as presented in Section A-5c.

5. Comment:

I hope the engineers have really studied accurately the fault situation in the area of the Dallas Dam.

Response:

The Dallas Divide Dam ahs been deleted from the project plan. Three faults have been identified in proximity to Ridgway Reservoir. These faults are well upstream from the dam and would not be a hazard to that structure. The faults are discussed in Sections B-3b and B-3e and their locations are shown on Figure B-3.

April 20-1976

Mr. David Crandall,
Regional Director
Bureau of Reclamation
Room 7416, Federal Bldg.
125 South State St.
P.O. Box 11568
Salt Lake City, Utah 84147

Dear Mr. Crandall:

As landowners and taxpayers of Ouray County we wish to express our opposal and opinion of the Dallas Creek project.

We own ground below Ridgway where the dam is to be built and have set here for years not knowing if to rebuild a new home where our old one burned down, because it was to be under water.

at present we own and live 4 miles west of Ridgway where East and West Dallas creeks run together - now they want to take an undetermined width up each creek for easments - which will completely ruin our place here - last year we lost a young ewe from someone butchering it right here in the middle of the day so just think what it would be like to try to raise hay and livestock along a fishing easement, where everyone can leave gates open etc; etc;

also these creeks wont keep fish alive as they almost dry up right here in summer.

We cannot see where a canal to take water out of these streams above here can make any sence at all. Where are all these people going to get water from between the canal and the dam?

Also we are opposed to the abandonment of the railroad in Ouray County. we use the R.R. to ship coal into Ridgway and have used it for a good many years. The taxes lost in abandonment of the R.R. will be a big blow to taxpayers along with all the acres to be taken off the tax rolls to help the wildlife - right now us ranchers feed the wildlife and get no returns, must we pay double for them. after they get done looking out for the wildlife, who is to look out for us (PEOPLE?)

Right now the way we see it our future is at stake here - we stand to loose our Ranch below town, our Ranch here will be worthless and we will be out of business in Ridgway as:

Lowery Coal Co.
Lester Lowery.
Delphane Lowery.
Rt 1 W Box 15
Ridgway, Colo. 81432.

Memorandum

To: Files

Subject: Response to Lester and Delphane Lowery Letter of April 20, 1976 Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

At present we own and live 4 miles west of Ridgway, where East and West Dallas Creeks run together. Now they want to take an undetermined width up each creek for easements, which will completely ruin our place.

Response:

Diversions from East and West Forks of Dallas Creek and the fishing easements on those streams have been deleted from the project plan.

2. Comment:

We are opposed to the abandonment of the railroad in Ouray County. The taxes lost in the abandonment of the railroad will be a big blow to the taxpayers along with all the acres to be taken off the tax rolls to help the wildlife.

Response:

The railroad abandonment is a separate action initiated by the Denver and Rio Grande Western Railroad Co. Abondonment of the railroad has been approved by the Interstate Commerce Commission, and it will take place whether or not the project is constructed.

Since publication of the Draft Environmental Statement, the proposed wildlife management area has been reduced from 6,000 to 1,000 acres so the reduction of the tax base would be substantially less than previously indicated.

STATEMENT FOR THE HEARING ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ISSUED BY THE BUREAU OF RECLAMATION FOR THE DALLAS CREEK DAM PROJECT

By KENT S. NELSON

I. It should be made a matter of record at the outset that this draft statement issued by the Bureau of Reclamation was not made available to the public until a mere two weeks before the scheduled hearing; that the hearing was scheduled on the day before Easter, an inconvenient time for most people; and that the location for the hearing was not in Ouray County where the entire project is to be built, but rather in Montrose County where the benefits of the project, if labs, will be most noticeable.

One must also question the motivation of the Bureau in tying two separate dam projects under the heading of the Dallas Project. The effect is clearly to diffuse objection.

In addition, as is typical with environmental impact statements, the Bureau itself has prepared the statement. This is like Nixon's appointing Ehrlichman, Haldeemann, and Colson to investigate Watergate, and the result is as predictable. The statement is replete with inaccuracy and is wholly incomplete. Why has there been no effort to secure an independent study of the area which would have objectivity?

Since there are two separate projects, my comment will begin with the least desirable, the Dallas Divide Dam Project.

II. DALLAS DIVIDE DAM.

Upon reading the EIS for this project one can only shake his head and ask why such a ludicrous proposal is made. The plan calls for building a dam where there is no water, at a site where there are no adequate materials for construction. To get water from the dam, the intent is to using Ouray County's one pure and adequate water source and canal it through 13 miles of the most beautiful scenery in the state. This terrain has not been examined for feasibility. And once the water gets to the proposed dam, there seems to be nothing better to do with the accumulated water than to go to the exorbitant expense of pumping it some 800 feet to the top of adjacent Log Hill Mesa for the supposed purpose of irrigating land that lies at nearly 8000 feet. The EIS claims that the growing season is "112 days in the higher elevations and 148 days in the valleys." Every gardener and rancher in the County wishes that were so! I say supposed purpose because it is plain that the cost of getting this pure water to the top of Log Hill hardly warrants its use for agriculture. A dollar's worth of alfalfa grown on Log Hill will cost in the end $20 for the water. But there is another purpose, not so thinly disguised, and that is to supply the proposed development of the Log Hill Community, which is short of water.

Let me digress a moment. We are dealing here with complex issues which have ramifications beyond the initial impact as outlined by the Bureau's EIS. I will take a typical example from another state. In this state there was proclaimed by readsign a section of "scenic highway," which was indeed beautiful. However, the County Council in the locale was approached to change the zoning along this road so that developers could build several apartment complexes. A payment was made to facilitate the change, and the zoning alteration was passed. The apartments were put up; people moved in rapidly. Because of the people insi-

sprang up as quickly as possible in plastic buildings. Traffic along the two-lane scenic highway increased. A shopping center was built. Then trees began to go to accommodate the pressure to widen the highway. So much for scenic America. I am not saying that a crime has been committed here, but one must be suspect of the impetus for a project so blatently antithetical to the values of the residents of the area in which this project is to be constructed.

Now, let me turn attention to the data presented in this EIS. According to the developers of the Log Hill Community, there will be 12,000 people on top of the mesa by the year 2000. This projection is pure and blind hope of the developers and is in no way substantiated, and yet it is used as a justification for constructing the Dallas Divide Dam. From what I have learned from close sources, this development is underfinanced, is run by inexperienced persons, and is far behind schedule. It is clear that without the proposed dam the Log Hill development is in dire straits. It seems extraordinary that the public should be asked to bail out investors at an astronomical expense.

Of course the EIS does not justify this project solely in terms of irrigation water supplied to Log Hill. Recreation is cited as another advantage to the project. But are we really to believe that, exclusive of fishing, 530 people per day will use the reservoir between May and September? According to figures at my disposal the population of Ouray County declined between 1950 and 1972 from 1601 to 1569. The Bureau's misleading statistics of 18.1 % growth for Ridgway may be true, but that 18.1% was an increase of only 50 people, while the county's population as a while declined. According to the County Clerk, there are now only 1012 registered voters in Ouray County, and while clearly this is not an indication of population, it is unlikely that there are many more than 1600 people currently residing in the county.

One must be skeptical of statistics. For example, the EIS cites Curecantis visitation at approximately 5000 people per day between May and September. Use your own judgment to assess this figure. It seems to me the figure must have been arrived at with a traffic counter.

And are we to believe that hiking is a significant recreational value at a reservoir? One need only look around to see that infinitely superior hiking is offerred in the mountains.

At any rate, recreation provided at the damsite would certainly be counterbalanced by the destruction of recreational opportunities elsewhere, particularly in lost hunting days on the Mesa and in lost fishing days on Dallas Forks.

How does the town of Ridgway fare? Ridgway has been hostage to the idea of a dam for thirty years. And now it is offered a municipal water source from the Uncompahgre River. To utilize this water, the town would have to build a separate distribution system for sprinkling lawns or it would have to build a treatment plant to remove impurities from drinking water. Neither is remotely feasible to a town with Ridgway's tax base.

Others have or will present arguments as to how much land will be removed from tax rolls because of this proposed project. Others have or will present arguments which describe the scarring of the natural scenery with canals, ditches, pipes, and conduits. Others have or will present arguments as to the total lack of consideration for existing water rights and the effects of the usurpation of water thereon. (It is clear that any diminution of or interference with existing water rights will meet with stiff opposition, in the courts in necessary.) Let me add also that there is no mention in the EIS of rates of evaporation from canals or reservoir, no mention of water loss due to seepage, no analysis of the effect of the proposed dam upon wells, springs, and subsurface water. These matters alone make the EIS unacceptable.

In closing my comments on the Dallas Divide Dam let me offer a personal note. I grew up in Colorado Springs, a town which has grown from 40,000 in 1956 to around 200,000 in 1976. Colorado Springs was once a beautiful place to live, but it has been destroyed. One of the attractions of the Southwestern corner of Colorado is that it is not an area of uncontrolled growth. But it amazes me that people wish to make it so. It amazes me that people wish to destroy precisely the values which make the area worth living in. But I do not believe it is a mandatory condition of human nature. The dam should never be built.

III. THE RIDGWAY DAM

Most people think of the Ridgway Dam when the Dallas Project is mentioned, and I sincerely hope that in the months ahead that will be the only project to think about.

But all is not right with this project either. There are two major sources of difficulty: 1) whether the dam is really necessary at all, and 2) if it is necessary, will its supposed purposes be carried out.

1) Despite many claims that this water is necessary for Montrose, Delta, et al. in the future, one has to be cautious about the cry that there is too little water. We have not forgotten that this project had originally allocated almost half of its water to the Kennecott Coal Company. When 24000 A/F of 52100 acres/feet were earmarked for this company, how can we believe the claim that the dam is so important for municipal and agricultural purposes?

At any rate, population projections for Montrose seem to be blind stabs in the dark. It is well-known that projections made from telephone hookups and the like are always high, and an original figure that is too high skews the entire projection. But again we are asked to accept these figures as fact. My own sources show that between 1960 and 1972 Montrose County's population increased by only 374 people from 18,286 to 18,558. Although Montrose itself may have gained faster, one can assume many of the rural people have moved to the city. But it does not warrant an alarmist attitude toward population which will make Montrose over 33,000 by 2000.

Projections for recreational use at the reservoir are also a damsite too high. Can we really believe that 1700 people per day will visit a lake without fish? Can we believe that this many people will hike and study the environment or boat on ice cold water?

And again this recreation is promoted as a replacement to hunting, a stable industry of the region. The pressures upon the deer population are clearly greater than forecast in the EIS. Not only is the winter range depleted, but the inevitable pressure upon natural species by human activity will result in severe reductions in hunting.

And how bad is the fishing in the Uncompahgre? There have never been efforts to clean up the river, but even so the EIS's statement that there are 50 trout in the area to be inundated by the reservoir is blatently false. Or else in fishing the river last summer I caught 60 % of the total trout population.

2) But perhaps the more dangerous aspect of the proposed dam is that the purposes for the dam will be subverted after it is built. There is good reason to believe this might be the case. It is well known that the quality of water in the Ridgway Dam will be poor. Even in the EIS it is stated that the water quality is so bad that stocking of fish will not be economical. So we have a reservoir with water that is too poor for trout, with water that is too poor for municipal drinking water (without expensive treatment plants), with water that is, because of chemical content, not good for irrigation. But it will

clearly be suitable for industrial use. We have already been through the episode with Kemmerer Coal Company. But it is no wild vision to imagine that the water may still be used for some coal-related or industry-related purpose. If any change in priority for use were made after the dam is built, it would clearly be in that direction. Growth is a process of acceleration and spiral reinforcement. As growth comes, as a town like Montrose expands, land is converted from agriculture into residences, roads, and then to shopping centers, and to industry. Because there are fewer agricultural users, industry lays claim to the available water, and the process accelerates. None of these impacts has been studied sufficently.

In conclusion the EIS is clearly a document biased in favor of the construction of these two dams. That is not surprising. But the statement is so incomplete and so filled with inaccuracy and unsupported data that objection must be raised against the project as a whole and the statement in particular.

Memorandum

To: Files

Subject: Response to Written Testimony of Kent Nelson at the Dallas Creek Project Draft Environmental Statement Public Hearing April 17, 1976, Montrose, Colorado

1. Comment:

It should be made a matter of record at the outset that this draft statement issued by the Bureau of Reclamation was not made available to the public until a mere two weeks before the scheduled hearing; that the hearing was scheduled on the day before Easter, an inconvenient time for most people; and that the location for the hearing was not in Ouray County where the entire project is to be built, but rather in Montrose County where the benefits of the project will be most noticeable.

Response:

The statement was filed with the Council of Environmental Quality March 8, 1976. On March 11, 1976, the statement was made available to the public, and its availability was announced in the Federal Register. Copies of the statement with a press release concerning its availability were sent to at least seven newspapers and one radio station on that date. On the same date copies were sent to local county seat libraries, university and college libraries, and a number of Federal, State, and local entities. Individual copies were mailed immediately upon request. The public hearing was scheduled as early as possible to solicit comments on the draft statement. Notice of the public hearing was placed in the Federal Register of March 17, 1976, with the hearing scheduled for 30 days later, the minimum waiting period allowed by law. The conflict with Easter was an unfortunate coincidence. Montrose was selected as the hearing location as it is near the center of the project area and Tri-County Water Conservancy District.

2. Comment:

One must also question the motivation of the Bureau in trying two separate dam projects under the heading of the Dallas Project.

Response:

No consideration has been given to two separate projects. Ridgway Reservoir has been studied without Dallas Divide Reservoir, but Dallas Divide Reservoir would be dependent on storage in Ridgway Reservoir for replacement of water used by exchange.

3. Comment:

The Bureau itself has prepared the statement. The statement is replete with inaccuracy and is wholly incomplete. Why has there been no effort to secure an independent study of the area which would have objectivity?

Response:

The Council on Environmental Quality has charged each Federal agency with the responsibility of preparing environmental statements on any action by that agency significantly affecting the quality of the human environment. It is the opinion of the Bureau of Reclamation that this statement is complete, unbiased, and factual. Consideration has been given, however, to every criticism presented at the hearing and by letter, and corrections have been made where called for in the final statement. The statement has been prepared with funds appropriated by Congress for that purpose.

4. Comments:

Concerning the Dallas Divide Dam and Project.

Response:

The project features and purposes referred to have been deleted from the project plan.

5. Comments:

The census figures presented for Ouray County are inaccurate.

Response:

Census figures available for 1960 and 1970 obviously do not depict the trends in population that have developed in the Uncompahgre Valley since about 1968. In order to obtain more reliable figures, numbers of utility hookups were used as a basis for recent trends and establishing a basis for making future predictions. Views of civic and community leaders are also reflected in the estimates.

6. Comments:

Projections for recreation use of Ridgway Reservoir are also too high.

Response:

The recreation use projections, which have been revised upward since publication of the draft statement, were developed through cooperative

efforts between the Bureau of Reclamation, the National Park Service, Bureau of Outdoor Recreation, and a private recreation planning consultant. The National Park Service and Bureau of Outdoor Recreation represent the best recreation expertise available.

7. Comments:

Recreation is promoted as a replacement for hunting and the pressures upon the deer population are greater than forecast in the Environmental Impact Statement.

Response:

Recreation as discussed in Section C-6 includes all aspects of recreation including hunting. Impacts on hunting would be less than indicated in the Draft Environmental Statement because of reductions in the scale of development made since that time.

8. Comment:

The statement that there are 50 trout in the area to be inundated by the reservoir is blatantly false.

Response:

This comment refers to a statistical expansion of the results of Colorado Division of Wildlife's limited census studies conducted in the winter of 1974-76. Because there is very little natural trout reproduction in the Uncompahgre River, this figure only represents the stockers that have survived the summer.

9. Comments:

There is reason to believe that after Ridgway Dam is built, the water could be converted to some coal-related or industry-related purpose.

Response:

All uses of project water would be approved by the Secretary of the Interior, after consultation with the State of Colorado. The requirements of NEPA must be met fully before any specific project water use can be instituted, and any changes in water use after the project is constructed would have to meet the same requirements. A major change in water use, such as conversion from irrigation to energy production, would require a new environmental statement, complete with public review and hearings.

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DALLAS CREEK

Twopence Arabians

ROUTE 1, BOX 48A • RIDGWAY, COLORADO 81432

RECEIVED USBR SLCU
OFFICIAL FILE COPY

APR 26 '76

Date	Initials	To
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Subs. Corresp. .....
Date Ans'd .....

April 26, 1976

Mr. David Crandall, Regional Director
Bureau of Reclamation
Room 7416, Federal Building
125 South State Street
P.O. Box 11568
Salt Lake City, Utah 84147

000598

Dear Mr. Crandall:

We are residents, landowners, and taxpayers of Ouray County and we are in opposition to the Draft Environmental Statement of the Dallas Creek Project.

We are in general agreement with the statement made on behalf of the Ouray County Commissioners, and specifically, we are most concerned in the following areas:

1. Tax consequences to residents of Ouray County and Ridgway are not seriously considered in the report.
2. There is no plan to economically assist the town of Ridgway, which is necessary to offset the impact of this project.
3. There is no plan to offset the disruption of existing agricultural use in the area.
4. The putting aside of 6,000 acres for wildlife habitat.

We are in total agreement with the Commissioners' closing statement that the project as presented is:

"...generally destructive of a lifestyle and environment which the residents of the County wish to maintain."

It is our opinion, overall, that the potential damage to environment, lifestyle, and scenic beauty of Ouray County is not offset by potential benefits of this project.

Yours very truly,

Bill Pence

cc: Ouray County Commissioners

000598

BP/sz

Memorandum

To: Files

Subject: Response to Bill Ponce Letter of April 26, 1976 Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

We are in agreement with the statement made on behalf of the Ouray County Commissioners at the public hearing held April 17, on the subject statement.

Response:

Attention is directed to the comments by the Ouray County Commissioners and the responses to those commentsin Section I-3c of this chapter.

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DALLAS CREEK PROJECT

April 29,

To whom it may concern:

000640

After reviewing the D&S on the Dallas Creek Project and attending the hearing concerning such on April 17th in Montrose, I would like to go on the record as opposing the Project. I am in full support of the Ouray County Commissioners and their allegations toward the project.

I would also like you to carefully consider the dissertation of Kent Nelson of Ridgway as I feel it sums up the contradictions of the D&S most clearly.

As a resident and employed taxpayer of Ouray County, I shudder at the thought of this Project becoming a reality.

000640

With the greatest per cent of the benefits going to Montrose County, I feel the project is slighting Ouray County and its residents.

I would hope #1 or #4 of your "Alternatives Considered" would evolve before the Project gets any further underway.

Very truly yours,

Kathleen M. Guadio

Box 432
Ouray, Colorado 81427

Memorandum

To: Files

Subject: Response to Kathleen M. Quadri Letter of April 24, 1976, Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

I am in full support of the Ouray County Commissioners and their allegations toward the project and would also like you to carefully consider the dissertation of Kent Nelson of Ridgway.

Response:

Attention is called to the written testimony of Mr. Warren Comerer and Mr. Kent Nelson as submitted at the April 17, 1976 public hearing. These statements are reproduced and responded to in Sections I-3c and I-3e.

Statement by Ruth N. Siemer on the Dallas Project.

000584 DALLAS CREEK

The following statement is written for inclusion in the record of the official hearings on the Dallas Project held in Montrose, Colorado, April 17, 1976.

In any assessment of a project which will make major changes in land use, costs must be balanced against benefits. It is my opinion that the environmental and personal costs of the Dallas Project will far outweigh the benefits claimed. Further, the costs must be borne by one group while the benefits accrue to another.

One of the major reasons that people come to Ouray County is its great beauty. Loss of the views of green ranches in the valleys with the snow peaks behind them will not be compensated by a reservoir which will be really ugly for years. A look at Lake Powell or Lake Mead should convince anyone of the accuracy of this statement. Mountain rivers carry vast amounts of silt. The shores of Lake Mead show about 15 feet of barren, crumbling silt. Lake Powell is marred by floating driftwood and debris. The vegetation above the water line is sparse, and the shores of these reservoirs, as compared to the banks of the rivers above the impoundments, are unattractive.

There will be enormous damage to the area surrounding the dam site during construction. Erosion will dump precious top soil into the rivers to clog irrigation ditches and change the river below the construction site. Access roads will permanently scar the area. Road relocation will discourage tourism during the construction period, which may last 5 or 6 years.

The removal of over 6000 acres of land from private ownership is not trivial. People can not be compensated for the loss of their homes and the County will lose a considerable tax base.

The influx of construction personnel will mean increased demands for water, electric, sanitary and law enforcement services. The burden of increased taxes will go on long after the increased spending by the workers has terminated.

Many studies have shown that an increase in population results in increased per capita tax spending. These costs are over and above the costs of the dam itself, many of which will also be borne by Ouray County taxpayers. We may find that people can no longer afford to live in their own homes because of increased property taxes.

There will be unavoidable impacts on wildlife and plant life both during and after construction.

There will be benefits, mostly to the area below the dam and to people who like motorboats. There will be costs, mostly to the people of Ouray County. It doesn't seem like an equitable bargain.

Ruth N. Siemer

Ruth N. Siemer
Box 115
Ouray, Colorado 81427

000584

Memorandum

To: Files

Subject: Response to Ruth N. Siemer Letter of April 17, 1976, Concerning the Dallas Creek Project Draft Environmental Statement

1. Comment:

Loss of the views of green ranches in the valleys with the striking peaks behind them will not be compensated by a reservoir which will be really ugly for years.

Response:

Dallas Divide Reservoir has been deleted from the project plan. Most of the drawdown at Ridgway Reservoir would occur late in the summer and the fall so it would not be a problem during the largest part of the tourist season. This is discussed in Section A-5a. The plan also calls for planting about 80 acres of trees and shrubs around the reservoir to enhance its appearance as presented in Section A-5c.

2. Comment:

Erosion will dump precious top soil into the rivers to clog irrigation ditches and change the river below the construction site.

Response:

Contract specifications for construction of Ridgway Dam and the relocation of Highway 550 would provide that every reasonable precaution to control erosion and stream turbidity be employed.

3. Comment:

Access roads will permanently scar the area.

Response:

The only access road outside of the reservoir basin would be a short road from the county road on Log Hill Mesa to the potential riprap source on McKenzie Butte. After quarrying is completed the road would be obliterated and revegetated.

4. Comment:

Road relocation will discourage tourism during the construction period, which may last 5 or 6 years.

Response:

The relocation of Highway 550 is one of the first activities scheduled to occur, and it is expected to be completed within two years. Traffic would continue to use the existing highway during that time. Only occasional interruption of traffic is foreseen and that for only a few moments at a time.

5. Comment:

The removal of over 6,000 acres of land from private ownership would cause people to lose their homes and the County would lose a considerable tax base.

Response:

As discussed in Section A-6, the revised plan provides for removing about 2,845 acres of land from private ownership at Ridgway Reservoir and an estimated eleven families would have to be relocated. The wildlife management area has been reduced to 1,000 acres and would probably be in a nearly unpopulated area.

6. Comment:

The influx of construction personnel will mean increased demands for water, electric, sanitary, and law enforcement services. The burden of increased taxes will go on long after the increased spending by the workers has terminated.

Response:

It is expected that the majority of construction workers would elect to live in Montrose. As stated in the letter from the Montrose City Council, that community would have adequate facilities to accommodate them.

P. O. Box 190
Ouray, CO 81427
April 25, 1976

$150
$110

Mr. David Crandall, Regional Director
Bureau of Reclamation
Room 7416, Federal Bldg.
125 South State Street
P. O. Box 11568
Salt Lake City, Utah 84147

Dear Mr. Crandall:

First, we believe a public statement should be made by the Bureau of Reclamation explaining the reason for the public hearing on the Dallas Creek Project Draft Environmental Statement, which was held in Montrose, being adjourned before all preregistered speakers had been heard.

Second, we believe the Ouray County Commissioners have valid objections to the statement and project as they now stand. We therefore support them in their opposition to the Dallas Creek Project, and urge the Bureau of Reclamation to work with them in hopes of reaching positions situable for both the Bureau of Reclamation and the people of Ouray County.

Sincerely,

Mr. and Mrs. G. V. Weber

cc: Ouray County Commissioners

Memorandum

To: Files

Subject: Response to Mr. and Mrs. G. V. Weber Letter of April 25, 1976, Commenting on the Dallas Creek Project Draft Environmental Statement

1. Comment:

First, we believe a public statement should be made by the Bureau of Reclamation explaining the reason for the public hearing on the Dallas Creek Project Draft Environmental Statement, which was held in Montrose, being adjourned before all preregistered speakers had been heard.

Response:

The Bureau of Reclamation expected the hearing to last longer than it did because of the long advance list of those who expressed a desire to speak. Apparently, however, the inclement weather or other reasons forced some to change their plans. The hearing officer called the names on the preregistered list at least three times to be certain that all were given the opportunity to speak if they desired. Those who did not present oral testimony were given the opportunity to submit written comments for the record until April 30, 1976, and many availed themselves of that opportunity.

2. Comment:

Second, we believe the Ouray County Commissioners have valid objections to the statement and project as they now stand. We therefore support them in their opposition to the Dallas Creek Project, and urge the Bureau of Reclamation to work with them in hopes of reaching positions suitable for both the Bureau of Reclamation and the people of Ouray County.

Response:

Attention is directed to the comments of the Ouray County Commissioners and the responses which are included in this chapter in Section I-3c.

Ridgway, Colo.
April 27, 1976

Mr. David Crandall, Reg. Director
Bureau of Reclamation
Room 7416, Federal Bldg.
125 S State Street
P.O. Box 11568
Salt Lake City, Utah 84147

Dear Sir:

I could not believe the plans you want to push through concerning the Dallas dam, easements, canal and wildlife preserve. You were pretty sneaky to wait until the last minute to let everyone know what was under your hat all the time you were plotting to take away from us some very personal rights.

Personally, I feel the dam is financially unfeasiable because the water will cost too much to use for irrigating and you have never said how much ranchers will have to pay for it.

Have you figured up how much you should pay us for all the feed deer and elk eat off us each year? What would you do if we parked on YOWR front lawn to have a picnic or put a goat on it to graze?

All this is nothing but a communist instigated plan to take away from us our constitutional right to own property and protect it.

Disgustedly,

Fanne Collahd

500.1

DALLAS CREEK

April 26, 1976

RECEIVED USBR SLCU
OFFICIAL FILE COPY
APR 27 '76

Date	Initials	To
		750
		1.30

Subs. Corresp. .....
Date Ans'd .....

000590

Mr. David L. Crandall
Regional Director
Upper Colorado Region
Bureau of Reclamation
U.S. Department of Interior
P.O. Box 11568
Salt Lake City, Utah 84111

Re: Formal protest against feeder canal and easement on East Dallas Creek

Dear Mr. Crandall:

g110
g150
cy6.3

This letter is to enter my protest against the construction of a canal on the East Dallas Creek. The proposed canal is to be constructed through our mountain pasture land.

This pasture land was homesteaded by my father, William R. Kettle, and the Land Patent was signed by Woodrow Wilson. Both of our parents are deceased and my sister, Faye Wolford and I are joint owners of this 400 acres. This land is used for summer pasture for cattle.

In 1962, the U.S. Forest Service constructed a road through our pasture. My father protested having the road because of heavy traffic and danger to his cattle. Shortly after his passing, the Forest Service filed a condemnation suit and built the road. The traffic and campers have been a great inconvenience. This road goes the length of the pasture on the East side causing a barrier and making it difficult for the cattle to use the entire grazing facilities. If the canal is built on the west side it will create another barrier and decrease the effective grazing land further as well as the danger of cattle drowning in the canal. Also, they are trying to force an easement along Dallas Creek which runs directly through our pasture and would also involve our cabin. With a road, a canal, and an easement there would be little value left of the land.

There is not sufficient water to fill the old water priorities now. There will only be about two weeks in the summer for water available for this canal. Also, it is not feasible to keep water in the canal during the winter months at this high altitude.

000590

I am not protesting the construction of the main Ridgway dam on the Uncompahgre River, only the Dallas feeder canal that is to supply water to the Pleasant Valley Reservoir and the easement on East Dallas Creek. I feel the dam will be beneficial to the farming land in and around the area where the Ridgway Dam is to be built.

It is so unfair to the property owner who has owned land for over 60 years, paid taxes, and want the property for their own use, but have so little right to keep it from being destroyed by roads, canals, and people. Therefore, I feel that with the construction of the canal, and the easement, more of our land will be unjustly appropriated without benefit to us.

Sincerely,

Mrs. A. I. Duncan

Mrs. A. I. Duncan
6002 Newcombe Ct.
Arvada, Colorado 80004

50.1
DALLAS CREEK

Ridgway Colorado
April 24, 1976

David Crandall Regional Director,
Bureau of Reclamation,

Dear Sir:

00059

Having read and heard the plans for the Dallas Project, I find many of the plans are unfair to the people and tax payer in Ouray County.

I have lived on the same ranch over fifty years, and I know there is not enough water to take care of the needs of the proposed canal in the East Dallas area. It would also be a detriment to the landowners.

This canal is a waste of time and money. Please reconsider.

Thank you for your time and help.

Remain
Respectfully yours -
Gladys L. Fournier
Gary Fournier.

Date	Initials	To
		250
		250

Subs. Corresp. .....
Date Ans'd .....

Cy
E.J.

E110
E150

00597

20 April 1976

U. S. Bureau of Reclamation
Western Colorado Projects Office
Building 8, ERDA Compound
Grand Junction, Colorado 81501

Gentlemen:

I would like to have the following statement included in the hearing record for the Dallas Creek Project Environmental Impact Study.

The magnificent scenery, unlimited recreational opportunities, and fine climate make Ouray County, Colorado, one of the finest places in the United States in which to live. But Ouray County has water problems. They are not problems involving the quantity of water available, but rather the quality and accessibility of the water that is there. Of the three major streams in the county, the largest, the Uncompahgre River, is so badly polluted, from both natural and man-made sources, that it is unfit for human consumption. The upper part of Cow Creek has excellent water, but it is located in the bottom of a canyon so deep and inaccessible that its utilization could be undertaken only at prohibitive costs. In its lower reaches, Cow Creek too is polluted by return water from irrigated lands composed of soil derived from Mancos shale. This same Mancos shale, together with glacial moraine material, forms the basis for most of the valley floor. Both of these formations are very poor aquifers. Even in those few places where adequate ground water supplies can be obtained, the quality of the water is likely to be poor, and it is often unusable. This wells are not a reliable source of water in much of the county.

The last remaining supply of really good water is found in the third large stream, Dallas Creek. As a source of domestic and municipal water, it is nearly ideal. The quality is excellent, and adequate supplies are located at a relatively high altitude. From this source area, it would be quite easy to transport the water by gravity flow to nearly all those portions of the county which are now inhabited. These same parts of the county are also the areas where growth is presently occuring and where normal development is

most likely to take place in the future. There are several adequate sites for small storage reservoirs between the source of the water and the eventual distribution areas. The water system could easily be developed gradually and expanded where and when necessary. The geographical situation lends itself to the utmost flexibility, and could easily be adjusted to changing demographic patterns. The cost of developing such a system would be quite modest, and the damage to the environment could easily be kept to a minimum.

The authorization of the Dallas Creek project has provided an ideal opportunity for getting such a system started in the right direction. But it appears that the Bureau of Reclamation has decided to use this water in other regions and for other purposes. Instead of being employed for the domestic and municipal supplies for which it is best suited, the high-quality water of Dallas Creek will be transported to a remote and sparsely populated corner of the county known as Log Hill Mesa, there to be used for the irrigation of certain undeveloped lands. This land, due to an extremely short growing season and rather poor soils, must be classed as sub-marginal for agricultural use. The crops that could be grown there would be limited primarily to animal fodder. The collection and distribution systems would be extremely extensive and complex, and would undoubtedly cost far more than any benefits which could possibly be derived from them.

The only domestic and municipal water involved in the Bureau's proposal would be that pumped from the Uncompahgre River to Ridgway and to a presently non-existent community on the top of Log Hill Mesa. This water, as has been mentioned, is unsuitable for these purposes. In order to utilize its share, the town of Ridgway would have to do one of two things. It could build a second parallel distribution system throughout the entire town in order to supply water solely for lawns and gardens. Or it could install a special type of treatment plant, much more elaborate and costly than the usual treatment facilities, in order to change the chemistry of the water sufficiently that it could be used for drinking. Either of these alternatives would have to be constructed at the town's own expense. Considering the marginal utility of either and the limited resources of the community, it is unlikely that either project would ever be undertaken. Thus this water, in all probability, would never be used.

That which is allocated to Log Hill Mesa would require the installation of an extremely

000703

costly pumping system in addition to the special treatment facilities. The energy requirements of such a system would be enormous, and the environmental damage would be the most severe of any phase of the proposed Dallas Creek project. Unless this system is heavily subsidized by the Federal Government, the cost of the water to the potential users (if any) would be prohibitive.

The combination of the two Log Hill Mesa diversion plans would cause the frequent drying up of extensive sections of both the East and West Forks of Dallas Creek, plus several miles of Dallas Creek itself below the confluence. Contrary to the statements made in the Bureau's Environmental Impact Statement, these streams constitute the finest trout fishery in the entire Uncompahgre River basin, and they would be irretrievably destroyed.

The natural pattern of development in Ouray County would be totally disrupted by construction of this project. Removal of the potential water supply would preclude the normal improvement in life style and orderly expansion of the presently populated portions of the county. Flexibility of future development would be severely limited. Instead, the county would find itself irreversibly committed to a forced expansion of that portion of the county which is the least desirable place to live and where natural development would be least likely to take place. It is not at all certain that any development would ever take place here, and the elimination of alternatives could easily lead to a permanent and unnatural depression of the county's economy.

The public has become accustomed to Bureau of Reclamation projects which have a benefit-to-cost ratio of less than one. But it is inexcusable to propose an undertaking where this ratio would actually be less than zero. All plans to divert Dallas Creek or Uncompahgre River water to Log Hill Mesa should be eliminated from the overall plan. They add nothing to the value of the entire Dallas Creek project, and could only have a debilitating effect on the future of Ouray County.

cc: Rep. Frank Evans
Sen. Gary Hart
Sen. Floyd Haskell
Gov. Richard Lamm
Ouray County Plaindealer
Rocky Mountain News

James R. Chadwick, Ph.D., P.E.
Route 1
Ridgway, Colorado 81432

RECEIVED USBR SLCU
OFFICIAL FILE COPY
APR 27 '76

April 23rd, 1976
Ridgway, Colo

Mr. David L. Crandall
Regional Director
Bureau of Reclamation, Dept of Interior
Salt Lake City, Utah

DALLAS CREEK

000591

Dear Mr. Crandal:

This is in regard to the Dallas Project, I do not wish to object to the Ridgway Dam, but I am protesting the construction of the Dallas Divide Canal, and the Pleasant Valley Dam for the following reasons:

1—As an open canal, except for one tunnel, a few pipelines, and siphons, it will be dangerous to wildlife and livestock, interfere with grazing as livestock cannot cross over, and where it picks up small streams it depletes watering conditionsbelow Animals won't be able to drink out of the canal, if they try, probably slip into it and a chance they may get bogged in the soft bottom.

2—Most of the canal will be constructed through a loose black loam type of soil, the banks could cave, also water will seep through it and a good percentage will be lost enroute.

3—I have lived in this area over 50 years, so I am familiar with the water run off, East Dallas gets started on an average of June 7th, Pleasant Valley runs a lot early in May, for about 2 weeks, West Dallas about May 15, but doesn't hold up long either Two to three years out of five there isn't there isn't more than enough to fill appropriations, with not much if any flood water. Even in good years there is just enough water left in Dallas after July 1st to keep fish swimming, on dryer years they stay in pools.

4—Another reason this canal is over-appropriated, trying to run water at 9,000 to 9,500 feet during cold weather of Dec. to May is impossible due to heavy snow fall and freezing temperatures. It will just ice up and flood over the banks. So why not allow this water to run down the Dallas Creek as nature intended and help fill the Ridgway Dam? It could be pumped to Log Hill Mesa as needed there, for much less expense.

5—As of this date the log Hill Mesa does not have any residents, in the development, and I would say the upper part of the mesa is best suited for early spring and late fall grazing. It has a very thin topsoil, underlined with slab sand stone, not at all suitable for farming as it couldn't be cultivated. So why not save the water intended for Log Hill Mesa, run it through the Ridgway Dam, and use it for more valuable crops that can be raised at a much lower elevation than 8,000 feet.

6— For municipal use in Ouray County, the town of Ridgway has a very good early date priority, with a water supply in reserve for a much larger population than it may ever build into. They have rejected all offers of Tri-County water. The town of Ouray is also independent of Tri-County.

Page A-20 of your Environmental Impact Dallas Creek Project Book proposes to scar and desecrate one of the most scenic landscapes in our state, the portion of the San Juan area most photographed, scenes of which have appeared in many magazines, on calendars and postcards, also mural in many public places, if this Dallas Canal is constructed.

We wonder how the Sierra Club would feel about this? Or any other individuals who love Gods wonderful handiwork. I would gladly take anyone who would enjoy mountain scenery to this area to view it, especially during the month of early June.

Sincerely I-229.

Heather Lecrone - Phone 626-5336

(307)

000591
(cover)

Your consideration will be appreciated
Thankyou -

P. S.

Three of my neighbors wished to sign this letter -

E. L.

Charles A. Morgan
Loraine Harnett
Walter Domka Sr.

DALLAS CREEK

000611

Route 1
Ridgway, Colorado 81432
April 27, 1976

RECEIVED WEST SLOPE
CONTROL FILE COPY
APR 29 '76

Regional Director
Bureau of Reclamation
Room 7416, Federal Building
125 South State Street
P.O. Box 11568
Salt Lake City, Utah 84147

Dear Sir:

In regard to the Draft Environmental Statement for the Dallas Project, I would like to oppose the fishing easement of undetermined width from the Ridgway Dam site 12 miles downstream along the Uncompahgre River and acquisition of 6,000 acres of privately owned land for displaced wildlife by the Colorado Division of Wildlife and the U.S. Division of Wildlife.

This would put a heavy tax load on the land owner. Also, I question that there will be enough water to fill this reservoir, especially the Dallas Creek Reservoir. I believe it should be deleted from the project.

I lease 5700 acres on Cow Creek and I do know something about Game Management in this area and I do not believe we need anymore land off of the tax roll that is mismanaged.

I do hope you will consider these suggestions very thoroughly.

Sincerely,

Edgar B. McNew

Edgar B. McNew

000611

Ridgway, Colo.
4-22-76

David Crandall
Regional Director
Bureau of Reclamation
Rm. 7416
Federal Bldg.
125 S. State St.
P.O. Box 11568
Salt Lake, Utah 84147

Dear Sir:

I am writing to protest the Dallas Dam. I cannot understand the feasibility of the Canal out of Willow Swamp. At a cost of $13,400,000.00, this is completely ridiculous. The water in both East and West Dallas is fully appropriated and irrigates 20,000 acres. It is my understanding that the

Water for this land will be taken and diverted to Loghill area and water will be pumped back 12 Miles to replenish this water from the Uncompahgre river. The Uncompahgre cannot supply water for the land that is now being irrigated out of present adjudications. How will it supply water to pump back to this area?

Thank you for your help.

Sincerely

Marie Scott
Ridgway, Colo. 81432

MARIE SCOTT

Ridgway
Colorado 81432

April 29, 1976

Upper Colorado Regional Office
Bureau of Reclamation
Department of Interior
125 South State
Salt Lake City, Utah

Gentlemen:

I have received a copy of the Draft Environmental Statement in connection with the Dallas Creek Project in Ouray County, Colorado. I have lands, both grazing lands and irrigated pasture, which will be crossed by the Dallas Feeder Canal if this component of the project is built.

The Dallas Feeder Canal has its initial head gate out of the East Fork of the Dallas Creek and then is conducted by pipeline, tunnel and open ditch to the West Fork of Dallas Creek where it is flumed under such creek but also has head gates on the two branches of the West Fork. The canal runs then principally in open ditches to the site of the Dallas Divide Reservoir near the head of Pleasant Valley Creek.

In its projected course, the feeder canal crosses much of my lands in Ouray County. Part of the lands crossed is the lands which I call the Vance place which is composed of irrigated meadows. As designed, an open ditch would traverse my irrigated meadows on the Vance place.

I believe that the building of the Dallas Divide component of the Dallas Creek Project would cause great harm not only to me as an individual landowner but to the environment. It would scar the countryside and create a barrier running for miles along the countryside which, incidentally, is a natural big game migratory area. In addition, it would cause great damage to my property and particularly to the irrigated fields which it would cross. It would, of course, take out certain lands from irrigation which have previously been used for this purpose.

From my many years of experience I question whether or not enough water could be obtained over and above senior decrees from the points of diversion on the East and West fork of Dallas Creek to justify such a huge investment as would be needed to build this component. I understand that hydrologic studies indicate that approximately 7,200 acre feet of water annually could be obtained from these two creeks. Personally, I question the accuracy of these figures. Even if they were correct, however, such a small amount of water hardly justifies the enormous expense of the component.

I understand that approximately 7,500 acre feet would be the average yield from the Dallas Divide Reservoir which could actually be used. I also understand that of this amount approximately 4,500 acre feet would be ear-marked to supply domestic needs for the so-called Log Hill Mesa Community. The Log Hill Mesa Community is not in existence and there is no assurance that it will ever be in existence. In my estimation the likihood of this community being built is remote. I also understand that if it were built, the cost of domestic water from the Dallas Divide Reservoir delivered to the community would be more than $140 per acre foot.

It seems to me an improper and unjustified expenditure of public funds to spend the huge amount which would be necessary to build the component involving the Dallas Creek Reservoir based upon the flimsy speculation of a hypothetical community which does not exist. In addition, the small yield of the reservoir does not seem to me to justify the damage that would be done to private property and existing irrigation lands as well as permanently to the natural environment.

I strongly urge that the plan for the Dallas Creek Project be reformulated to omit the Dallas Divide Reservoir and Feeder Canal for the reasons mentioned above.

Yours very truly,

Marie Scott

Marie Scott

Ridgway, Colo.
4-22-76

David Crandall, Reg. Dir.
Bureau of Reclamation
Salt Lake City Utah 84147

Dear Sir - I wish to file a protest on the Canal being planned in connection with the Dallas Dam.

This Canal leads from Willow Swamp to the head of Pleasant Valley Creek where a dam is planned to be built in a rockpile. This dam will never hold water, and the cost to the taxpayers will be $13,400,000.

All the water in both East and West Dallas Creek is fully appropriated - and irrigates about 20,000 acres.

Why take water from this land - and then pump back to replenish?

At least file this protest

Sincerely

Dick Swyhart
Ridgway, Colo 81432

500.1
DALLAS CREEK

Ridgway Colo.
Apl

000596

RECEIVED USBR SLCU
OFFICIAL FILE COPY
APR 28 '78

Date	Initials	To
		100
		130
Subs. Corresp.		
Date Ans'd		

Mr. David Crandall
Salt Lake City, Utah

Dear Sir:-

We writting to you to let you know we are very much opposed to the Dallas Creek canal and Dallas Creek Project.

We lived five years at the head of Dallas Creek on an irrigated pasture for our sheep and cattle and in the last of july our water was turned off from the Dallas Creek Ditch as it was, so low, we finally gave up and sold our sheep and bought a ranch down in Pleasant Valley at Ridgway, We have enough water in ~~a~~ normal years, but the creeks get real low in August -

000596

We put up signs no fishing in the Dallas creek and Pleasant Valley creek, but the public dont pay much attention to these signs and we have trouble in the hunting season also.

It was so stormy when the meeting was held in Montrose and we were calving could not make it there.

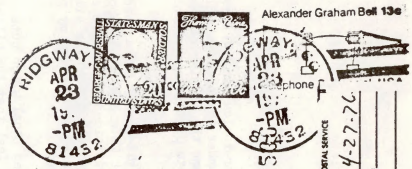
Please help us on this if you can.

~~Re~~ Ann Abbgid

Mr. & Mrs. John Whittingham

P.S. We have lived in Ridgway Co. 35 years.

John A. Whittingham,
Ridgway, Colo. 81432.



David Crandall Regional Director,
Bureau of Reclamation,
Room 7416 Fedral Bldg.,
125 South State St.,
Salt Lake City,
Utah 8147.

RETURN RECEIPT
REQUESTED

CERTIFIED
No. 379658
MAIL

My name is David Wolford. My wife and sister-in-law own 400 acres of pasture land in the East Dallas area which under the proposed plan would be severed on both the Dallas feeder canal and the fishing easement along East Dallas Creek. This land is used to pasture approximately 50 pair of cattle.

About 1962 the Forest Service condemned a right-of-way for a road through this pasture. The road is from 16 to 30 feet in width and is approximately 1 mile in length. Everytime this road is maintained, rocks are cleaned from the ditch and graded across the road and rolled down the hillside covering more pasture and knocking down a fence and blocking my private road.

I will have the same problem with the proposed Canal which cuts across this property in another direction. Also, I feel that the hillside where this Canal is surveyed is so steep that cows and calves will get in the Canal and possibly drown.

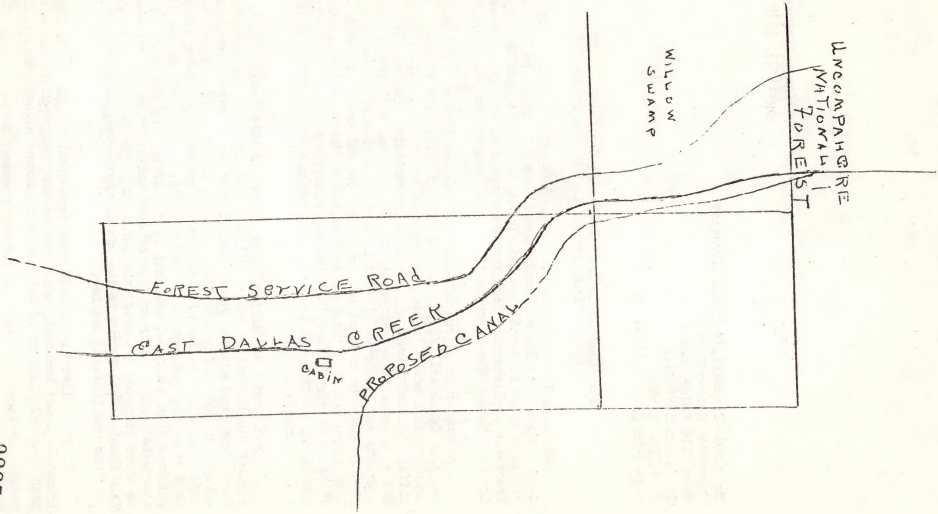
The proposed easement for fishing with the projected increase in sportsmen will keep my cattle from pasturing close to the creek. I now permit fishing, for which I am continually picking up trash left behind by these people who have their picnics along the creek. I also have a small cabin, two rooms, situated close to the creek which has been broken into 3 times in 5 years. The last time all the windows were broken out, the door chopped with an axe, and the inside literally destroyed. I feel if an easement is taken it will always be a problem and will cost me dearly.

This Forest Road, Canal and Easement will reduce the worth of this pasture for cattle to a minimum. Every year I lose a steer or two.

I feel the Canal and Easement will increase this problem by having an increase of people on this property.

No amount of patroling could stop it all.

NON SCALE DRAWING SHOWING PROPOSED DALLAS FEEDER CANAL AND FISHING EASEMENT AS THEY WILL EFFECT PROPERTY OF FAYE WOLFORD AND GLADYS DUNCAN



Ridgway, Colorado
April 23, 1976

Mr. David Crandall, Regional Director
Bureau of Reclamation
Room 7416 Federal Bldg.
125 South State St.
P. O. Box 11568
Salt Lake City, Utah 85147

Re: Construction of Dallas Feeder Canal
Fishing Easement on East Dallas Creek

We would like to enter our Protest as of this date to the proposed Construction of a Feeder Canal approximately 15 miles in length from the head water of the East Dallas Creek to the proposed Dallas Divide Reservoir on Pleasant Valley for the purpose of supplying water to the Log Hill Mesa. The approximate cost of this Project is $13,880,000.00.

My sister and I own 400 acres of pasture land on east Dallas, and this Canal will divide our pasture in half. You realize the serious problems this would inflict on the cows and calves. Also, we have difficulty having enough pasture to accommodate what cattle we have. Our cows water in this creek in the summer, and with the influx of tourists and fishermen allowed in with this easement, the worth of our pasture would be reduced to a mimimum. My father homesteaded this land years ago with the land deed signed by Woodrow Wilson, and I think it is very unfair that the Government can come into your place and completely destroy our property and your means of livelihood to make a few tourists happy.

There is not sufficient water in this Dallas Creek to fill the regular old Priorities on the ditches that irrigate these meadows. There have been several years when ditches have been closed down in early July due to lack of water, and the hay crop cut to preserve the hay. Last night my husband went to the creek to get water for our cows to drink, and was unable after building a dam across the creek to get more than a trickle, and this is not irrigating season. High water starts between the 10th or 15th of June and lasts barely two weeks. So there is about two weeks the Canal might get a little water. This Canal cannot be run in the winter months because of the high altitude and freezing weather.

It looks like it would be more economical to pump water directly from this lower Dam being built on the Uncompahgre River to this Mesa, than to spend Millions of Dollars to construct a Canal that will be dry except for about two weeks in the early summer thaw.

This water from the Dallas Creek will supply water to the main Ridgway Dam anyway. I cannot see the feasibility of tearing up beautiful mountain pasture land right beneath the scenic San Juans to deliver water to Mesa where the south half is really not fit for Agriculture, as there is about 6 inches of soil, and then solid rock.

I am enclosing a testimony that my husband gave at a meeting in Montrose, Colorado April 17, and also a diagram of just how badly this will affect our pasture.

I am not opposing the main Ridgway Dam as I think this will be beneficial to the lower farmers that can raise numerous crops on their land, but please reconsider this portion of your Project.

Sincerely,

Sarah F. Wolford

Mr. & Mrs. David Wolford
Ridgway, Colorado 81432

April 22
1976

Raymond R. Higgins
Route 2, Box 228
Montrose, Colo. 81401

Dear Sir,

000587

We are opposed to the twelve mile right-away requested along the Uncompahgre River as a result of the Ballas Project. We also oppose the six thousand acre game reserve and will join the residents in this valley to fight it the best way possible. Thank you for your consideration on this matter.

Mr & Mrs. Raymond R. Higgins

COPY

Regional Director
Bureau of Reclamation
Room 7416 Federal Building
125 South State Street
P.O. Box 11568
Salt Lake City, Utah 84147

Dear Sir:

Being a landowner that this Dallas Creek Project would affect.

I'm very much in favor of the dam. It would be vary good for all of this valley.

But I'm opposed to the 12 mile of easements mentioned at the hearings and in the EPA report. This would cause undo hardships on people who own this land and on the livestock and farms they involve. We have spent thousands of dollars in fighting and controlling the river to protect what is ours and don't intend to quit now.

As for the 6,000 acres of land that would be acquired for the wildlife I think that it is stupid to take more property off of the tax rolls and make it harder for the landowner to support their countys.

I think with these two factors out off the project it would be very good for the valley and people concerned.

Very truly yours,

Robert B. Jutten
Route 2, Box 247
Montrose, Colorado 81401

Regional Director
Bureau of Reclamation
Room 7416 Federal Building
125 South State Street
P.O. Box 11568
Salt Lake City UT 84147

Dear Sir

Being a landowner that this Dallas Creek project would affect.

I'm very much in favor of the project would be very good for all of the valley.

But I'm against the 2 mile covenants mentioned at the hearing and in the E.I.S. report. This would cause undue hardship on people who own the land and on the landlord + farmer this includes we have spent thousands of dollars on fighting and controlling the weeds to protect what is ours and don't want to get rid of now.

As far the 6000 acres of land that would be against for the wildlife I think it is stupid to take more property off the tax rolls and make it harder for the landowners to support this county.

I think with the two factors cut off the project is would be very good for the valley and people concerned.

Yours Truly

Robert S. Fritz

Route 2, Box 247

Montrose, Colorado 81401

500.1 90

DALLAS CREEK

000615

Mr & Mrs. William W. Jutten wish to go on record as opposing the 12 miles length and undetermined width Easement the Division of Wildlife Department is asking for below the Dallas Dam. We are in the cattle business and we calve our cattle in the riverbottoms. We also winter our Bulls along and near the river. We cannot condone the harrassment of livestock by the public and the Division of Wildlife at any time.

We are also opposed to the Division of Wildlife aquiring and additional 6,000 acres that will be taken from the tax rolls.

The past years we have spent thousands of dollars on rip-rap of the river to keep the channel stablized and clear of debris and we do not intend to let any government agency take it over now.

We are not opposing the Dallas Project as a whole but the continuening Government take over of lands has to stop.

William W Jutten

Louise T Jutten

E.J.

Ridgway Bd 50f
Montrose, Co.
81401

I-249

000615

WM. B. LOMAX, D. O.
PHYSICIAN AND SURGEON
447 NO. THIRD ST.
MONTROSE, COLORADO 81401
PHONE 249-3411

April 23, 1976

Regional Director
Bureau of Reclamation
Room 7416 Federal Building
125 South State Street
P. O. Box 11568
Salt Lake City, UT 84147

Dear Sir:

In reference to the public hearing on Dallas Creek Project Draft Environmental Statement, I spoke at the public hearing on the Environmental Statement, however I would like to have this letter placed on file, as suggested at this hearing. These feelings are my own, however I have talked to many of the ranchers who live downstream from the dam site and they have been the same.

1. I have no objection to the water storage project as planned as this water storage will be very valuable to the community, both rural and municipal, and has been needed for a long time.

2. I definitely disagree on obtaining fishing easements for a total of twelve miles downstream which is from the dam site to the headgate of the Uncompaghre Valley Water Project, for these reasons:

a. This easement along the river would bisect nearly 100% of the ranch property in the twelve miles.

b. These ranches are used for year around livestock operations and it would be nearly impossible to have a big influx of people disturbing these livestock operations.

3. I definitely am against the acquiring of 6000 A. for intensive wildlife resource area, this naturally lowers the tax base for Montrose and Ouray counties since both counties are involved. Most of this private land furnishes winter forage as well as summer forage for wildlife in the area and if the Colorado Fish and Game Department lives up to their obligation there would be little squabble.

4. As mentioned the water for fish propagation below the dam is rather undetermined at this time and I believe the private property in this area should be protected to the utmost.

Very truly yours,

Wm. B. Lomax, D. O.

WBL:jaw

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ATTACHMENTS

Summary of average end-of-month Ridgway Reservoir content for 1952-70 study period

Month	Content (acre feet)	Water depth 1/ (feet)	Water surface (acres)	Fore-shore (acres)	Number of months at Full capacity	Number of months at Inactive capacity	Poor water year (1956-57) 2/ (acre-feet)	Good water year (1965) 3/ (acre-feet)
November	63,200	193	880	150	6	0	27,200	80,000
December	64,000	194	888	142	6	0	28,100	80,000
January	64,600	195	893	137	6	0	29,300	80,000
February	65,200	196	899	131	7	0	31,000	80,000
March	66,300	197	909	121	8	0	32,200	80,000
April	69,000	200	933	97	8	0	38,000	80,000
May	72,800	204	967	63	11	0	49,000	80,000
June	74,500	206	981	49	13	0	45,000	80,000
July	66,800	198	917	113	3	0	33,600	80,000
August	63,600	194	885	145	5	0	27,900	80,000
September	63,900	194	887	143	5	0	26,600	80,000
October	64,500	195	893	137	5	0	26,200	80,000

1/ At dam, nearest foot.
2/ Lowest end-of-month water content.
3/ Highest end-of-month water content.

Attachment 2
Representative Plant Species
of the Dallas Creek Project Area[1]

1. Desert Shrub Zone

Trees:
(Acer negundo)--boxelder
(Populus angustifolia)--narrowleaf cottonwood
(P. wislizeni)--Rio Grande cottonwood
(Salix sp.)--willow
(Tamarix gallica)--tamarix

Shrubs:
(Artemisia tridentata)--big sagebrush
(A. spinescens)--spiny (bud) sagebrush
(Atriplex sp.)--saltbush
(A. canescens)--fourwing saltbush
(A. gardneri)--Gardner saltbush
(A. confertifolia)--spiny saltbush
(Chrysothamnus sp.)--rabbitbrush
(Eurotia lanata)--winterfat
(Sarcobatus vermiculatus)--greasewood

Grasses:
(Agropyron sp.)--wheatgrass
(Bouteloua gracilis)--blue grama grass
(Bromus tectorum)--cheatgrass
(Distichlis stricta)--saltgrass
(Hilaria jamesii)--galleta
(Hordeum jubatum)--foxtail barley
(Oryzopsis hymenoides)--Indian ricegrass
(Sporobolus airoides)--alkali sacaton

Forbs:
(Cardaria draba)--whitetop
(Eriogonum cernuum)--umbrella plant
(Iva axillaris)--perennial poverty weed
(Kochia scoparia)--summer cypress
(Opuntia sp.)--prickly pear
(Salsola kali)--Russian thistle
(Sphaeralcea coccinea)--scarlet globemallow

2. Pinon-Juniper, Sagebrush Zone

Trees:
(Juniperus monosperma)--oneseed juniper
(J. scopulorum)--Rocky Mountain juniper
(J. utahensis)--Utah juniper
(Pinus edulis)--one-needle pinon pine

1/ The Alpine plants zone is not included as it lies outside the project area.

Attachment 2

Shrubs:
(Amelanchier alnifolia)--western serviceberry
(Artemisia arbuscula)--black sage
(A. dracunculus)--tarragon sagebrush
(A. frigidia)--fringed sagebrush
(A. tridentata)--big sagebrush
(Artiplex canescens)--fourwing saltbush
(A. confertifolia)--spiny saltbush
(Cercocarpus montanus)--true mountain mahogany
(Chrysothamnus sp.)--rabbitbrush
(Purshia tridentata)--antelope bitterbrush
(Quercus gambelii)--Gambel's oak
(Rhus trilobata)--skunkbush sumac
(Symphoricarpos sp.)--snowberry

Grasses:
(Agropyron sp.)--wheatgrass
(Bouteloua gracilis)--blue grama grass
(Bromus tectorum)--cheatgrass
(B. carinatus)--mountain brome
(Dactylis glomerata)--orchardgrass
(Deschampsia caespitosa)--tufted hairgrass
(Festuca arizonica)--Arizona fescue
(F. idahoensis)--Idaho fescue
(Hesperochloa kingii)--spike fescue
(Hilaria jamesii)--galleta
(Koeleria cristata)--prairie junegrass
(Oryzopsis hymenoides)--Indian ricegrass
(Poa fendleriana)--muttongrass
(P. nevadensis)--Nevada bluegrass
(Sitanion hystrix)--squirrel tail
(Stipa comata)--needle and thread grass
(Sporobolus sp.)--dropseed

Forbs:
(Achillea lanulosa)--yarrow
(Amsinckia rugosa)--fiddleneck
(Antennaria sp.)--pussytoes
(Arnica cordifolia)--heartleafed arnica
(Astragalus sp.)--vetch
(Balsamorhiza sagittata)--balsamroot
(Bidens sp.)--beggarticks
(Calochortus gunnisonii)--sego lily
(Castilleia linariaefolia)--Wyoming painted cup
(Chenopodium album)--white goosefoot
(Chrysopsis sp.)--aster
(Cirsium sp.)--thistle
(Datura sp.)--thornapple
(Epilobium sp.)--willoweed
(Erigeron sp.)--fleabane
(Eriogonum sp.)--buckwheat

Forbs (cont.)
(Erodium cicutarium)--storks bill
(Gilia sp.)--gilia
(Grindelia sp.)--gumplant
(Gutierrezia sarothrae)--broom snakeweed
(Helianthus sp.)--sunflower
(Hymenoxys richardsonii)--Colorado rubberplant
(Lactuca sp.)--wild lettuce
(Lepidium sp.)--pepper grass
(Leptodactylon pungens)--granite gilia
(Lupinus sp.)--lupine
(Melilotus sp.)--sweetclover
(Mentha sp.)--mint
(Opuntia sp.)--prickly pear
(Oxytropis sp.)--locoweed
(Phlox sp.)--phlox
(Rudbeckia sp.)--coneflower
(Salsola kali)--Russian thistle
(Sisymbrium sp.)--mustard
(Sphaeralcea coccinea)--scarlet globemallow
(Taraxacum sp.)--dandelion
(Yucca sp.)--Spanish bayonet

3. Oakbrush, Ponderosa Pine, Sagebrush Zone

Trees:
(Picea pungens)--blue spruce
(Pinus ponderosa)--ponderosa pine
(Populus tremuloides)--quaking aspen
(Pseudotsuga taxifolia)--Douglas-fir

Shrubs:
(Alnus tenuifolia)--mountain alder
(Amelanchier alnifolia)--western serviceberry
(Artemisia arbuscula)--black sage
(A. tridentata)--big sagebrush
(Betula glandulosa)--scrub birch
(Cercocarpus montanus)--true mountain mahogany
(Cornus stolonifera)--redosier dogwood
(Potentilla fruticosa)--shrubby cinquefoil
(Prunus virginiana)--chokecherry
(Purshia tridentata)--bitterbrush
(Quercus gambelii)--Gambel's oak
(Ribes aureum)--golden currant
(Rosa sp.)--rose
(Symphoricarpos oreophilus)--snowberry

Grasses:
(Bouteloua gracilis)--blue grama grass
(Bromus inermis)--smooth brome
(B. marginatus)--big mountain brome
(B. tectorum)--cheatgrass

Attachment 2

Grasses: (cont.)
(Calamagrostis canadensis)--bluejoint
(Danthonia intermedia)--oatgrass
(Deschampsia caespitosa)--tufted hairgrass
(Festuca arizonica)--Arizona fescue
(F. idahoensis)--Idaho fescue
(Hesperochloa kingii)--spike fescue
(Muhlenbergia montana)--mountain muhly
(Koeleria cristata)--prairie junegrass
(Oryzopsis hymenoides)--Indian ricegrass
(Poa fendleriana)--muttongrass
(P. pratensis)--Kentucky bluegrass
(Sitanion hystrix)--squirrel tail
(Stipa comata)--needle and thread grass
(S. lettermani)--letterman needlegrass

Forbs:
(Achillea lanulosa)--yarrow
(Antennaria sp.)--pussytoes
(Aquilegia caerulea)--Colorado columbine
(Arenaria fendleri)--Fendler's sandwort
(Astragalus sp.)--vetch
(Brickellia grandiflora)--brickellbush
(Campanula rotundifolia)--bluebell
(Castilleia linariaefolia)--Wyoming painted cup
(Chrysopsis villosa)--golden aster
(Erigeron flagellaris)--whiplash daisy
(Fendlera sp.)--fendlerbush
(Gaillardia aristata)--blanket flower
(Gayophytum ramosissimum)--groundsmoke
(Geranium fremontii)--cranesbill
(Gutierrezia sarothrae)--broom snakeweed
(Orthocarpus luteus)--gold tongue
(Oxytropis sp.)--locoweed
(Penstemon sp.)--penstemon
(Peraphyllum ramosissimum)--squaw apple
(Phlox multiflora)--phlox
(Ranunculus sp.)--buttercup
(Senecio fendleri)--Fendler's senecio
(Solidago sp.)--goldenrod

4. Spruce, Fur, Aspen Zone

Trees:
(Abies concolor)--white fir
(A. lasiocarpa)--subalpine fir
(Picea engelmannii)--Engelmann spruce
(P. pungens)--blue spruce
(Pinus contorta)--lodgepole pine
(Populus tremuloides)--quaking aspen

Shrubs:
(Alnus tenuifolia)--mountain alder
(Artemisia cana)--silver sagebrush
(A. tridentata)--big sagebrush
(Chrysothamnus sp.)--rabbitbrush
(Cornus stolonifera)--redosier dogwood
(Juniperus communis)--mountain common juniper
(Potentilla fruticosa)--shrubby cinquefoil
(Purshia tridentata)--bitterbrush
(Rubus strigosus)--red raspberry
(Salix sp.)--willow
(Sambucus melanocarpa)--black elder
(Shepherdia canadensis)--russet buffaloberry
(Symphoricarpos oreophilus)--snowberry
(Vaccinium scoparium)--grouse whortleberry

Grasses:
(Agropyron trachycaulum)--slender wheatgrass
(Agrostis scabra)--bentgrass
(Bromus marginatus)--big mountain brome
(Carex sp.)--sedge
(Elymus glaucus)--blue wildrye
(Festuca ovina)--sheep fescue
(F. thurberi)--Thurber fescue
(Koeleria cristata)--prairie junegrass
(Phleum alpinum)--alpine timothy
(Poa sp.)--bluegrass
(Stipa lettermani)--letterman needlegrass
(Trisetum spicatum)--spiked trisetum

Forbs:
(Achillea lanulosa)--yarrow
(Aconitum columbianum)--monkshood
(Aquilegia caerulea)--Colorado columbine
(A. elegantula)--red columbine
(Arnica cordifolia)--heartleaved arnica
(Chimaphila umbellata)--pipsissewa
(Delphinium barbeyi)--subalpine larkspur
(Eriogonum sp.)--buckwheat
(Galium boreale)--northern bedstraw
(Hackelia floribunda)--stickseed
(Helenium hoopesii)--western sneezeweed
(Heracleum lanatum)--cow parsnip
(Lathyrus leucanthus)--white sweet pea
(Ligusticum porteri)--loveroot
(Lupinus sp.)--lupine
(Moneses uniflora)--woodnymph
(Pedicularis racemosa)--lousewort
(Polygonum aviculare)--wire grass
(Potentilla sp.)--cinquefoil
(Pteridium aquilinum)--braken fern

Attachment 2

Forbs (cont.)	(Pyrola chlorantha)--green pyrola
	(Rudbeckia sp.)--coneflower
	(Senecio serra)--sawtooth butterweed
	(S. triangularis)--triangle leaved ragwort
	(Swertia sp.)--swertia
	(Thermopsis montana)--mountain thermopsis
	(Thalictrum fendleri)--meadow rue
	(Vicia americana)--American vetch
	(Wyethia amplexicaulis)--mule ears

Listing based on:

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   The Smith-Brooks Printing Company

Attachment 3
Representative Wildlife Species List[1/]

Common name[2/]	Scientific name	Habitat type[3/]	Population status and seasonal occurrence
Big game mammals			
Black bear*+	Ursus americanus	4,7,8	Uncommon resident
Elk*+	Cervus canadensis	2,3,7,8	Common resident
Mountain lion*+	Felis concolor	3,5	Uncommon resident
Mule deer*+	Odocoileus hemionus	3,7,8	Common resident
Mountain sheep+	Ovis canadensis	5,8,11	Uncommon resident
Small game mammals			
Desert cottontail rabbit*+	Sylvilagus audubonii	1,2,3,4,7	
Nuttall's cottontail rabbit*+	S. nuttallii	1,2,3,4,7,8	Common resident
Pine (red) squirrel*+	Tamiasciurus hudsonicus	8	Common resident
Snowshoe hare*	Lepus americanus	8	Common resident
Abert's squirrel*	Sciurus aberti	8	Questionable resident
Nongame mammals			
White-tailed antelope squirrel*	Ammospermophilus leucurus	3	Common resident
Golden-mantled ground squirrel*+	Spermophilus lateralis	2,3,7,8	Common resident
Least chipmunk*	Eutamias minimus	3,4,8	Common resident
Colorado chipmunk*+	Eutamias quadrivittatus	3,4,8	Common resident
Gray fox*+	Urocyon cinereoargenteus	3,4	Uncommon resident
Kit fox*	Vulpes macrotis	3,4	Possible resident
Badger*	Taxidea taxus	2,3,4	Common resident
Western-spotted skunk*	Spilogale gracilis	3,5	Common resident
Striped skunk*+	Mephitis mephitis	1,3,4	Common resident
Furbearers			
Beaver*+	Castor canadensis	4,12	Common resident
Muskrat*+	Ondatra zibethicus	1,4	Common resident
Ringtail cat*+	Bassariscus astutus	4,5	Uncommon resident
Ermine*+	Mustela erminea	8	Resident

1/ List excludes species of shrews, bats, mice, woodrats, and voles.

2/ *Found in "Wildlife Management Unit 62," compiled by W.T. McKean and B.D. Baker, Colorado Division of Wildlife, 1972, 83 pages.(18)

+Inventoried by Colorado Division of Wildlife in 1974-75.(10)

The grouping is based on descriptions by the Colorado Division of Wildlife.(18)

3/ Key to habitat types:

1. Crop land, farm land
2. Grass land
3. Brushland
4. Riparian
5. Rocky areas, cliffs
6. Urban, residential
7. Deciduous forest
8. Coniferous forest
9. Open water
10. Marsh, mudflats
11. Alpine
12. Streams

Attachment 3

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Furbearers (cont.)			
Long-tailed weasel*	Mustela frenata	1,2,3,4,7,8	Resident
Mink*	Mustela vison	4,12	Resident
Marten*+	Martes americana	8	Common resident
Varmints			
White-tailed jack-rabbit*+	Lepus townsendii	2,3	Common resident
Black-tailed jack-rabbit*	Lepus californicus	2,3	Resident
Bobcat*+	Lynx rufus	6,9	Common resident
Coyote*+	Canis latrans	All habitats	Common resident
Yellow-bellied mar-mot*+	Marmota flaviventris	5	Common resident
Porcupine*+	Erethizon dorsatum	8	Common resident
White-tailed prairie dog*+	Cynomys leucurus	2,3	Common resident
Gunnison's prairie dog*+	Cynomys gunnisoni	2,3	Common resident
Raccoon*+	Procyon lotor	1,4	Common resident
Red fox*	Vulpes fulva	All habitats	Resident
Rock squirrel*+	Spermophilus variegatus	3,5	Common resident
Thirteen-lived ground squirrel	Spermophilus tridecemlineatus	2,3	Resident
Black-billed magpie	Pica pica		
Common crow	Corvus brachyrhynchos		
Game birds			
Canada goose*	Branta canadensis	1,9,12	Common winter resident, uncommon summer resident
Black brant*	Branta nigricans	9	Possible rare migrant
White-fronted goose*	Anser albifrons	1,9	Possible rare migrant
Snow goose*	Chen hyperborea	1,9	Possible rare migrant
Mallard*+	Anas platyrhynchos	1,9,10,12	Common resident and migrant
Gadwall*+	Anas strepera	1,9,10,12	Common migrant and uncommon resident
Pintail*+	Anas acuta	1,9,10,12	Common migrant and uncommon resident
Green-winged teal*+	Anas carolinensis	1,9,10,12	Common migrant and uncommon resident
Blue-winged teal*+	Anas discors	1,9,10,12	Common summer resident
Cinnamon teal*+	Anas cyanoptera	1,9,10,12	Common summer resident
American widgeon*+	Mareca americana	1,9,10,12	Common migrant and uncommon resident
Shoveler*+	Spatula clypeata	9,10	Migrant
Wood duck*+	Aix sponsa	9	Rare migrant
Redhead*+	Aythya americana	9	Uncommon migrant
Ring-necked duck*+	Aythya collaris	9	Migrant

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Game birds (cont.)			
Canvasback*	Aythya valisineria	9	Uncommon migrant
Greater scaup*	Aythya marila	9	Possible rare migrant
Lesser scaup*+	Aythya affinis	9	Common migrant, occasional resident
Common goldeneye*+	Bucephala clangula	9	Common winter resident
Barrow's goldeneye*	Bucephala islandica	9	Possible rare migrant
Bufflehead*+	Bucephala albeola	9	Occasional winter resident
Ruddy duck*+	Oxyura jamaicensis	9	Common migrant
Hooded merganser*	Lophodytes cucullatus	9	Occasional winter resident
Common merganser*+	Mergus merganser	9	Resident, migrant
Red-breasted merganser*	Mergus serrator	9	Winter resident
Common snipe*+	Capella gallinago	10	Common summer resident, occasional winter
American coot*+	Fulica americana	9	Resident and migrant
Blue grouse*+	Dendragapus obscurus	7,8	Common resident
Sage grouse*+	Centrocercus urophasianus	3	Uncommon resident
Ring-necked pheasant*+	Phasianus colchicus	1,4	Common resident
Chukar*	Alectoris graeca	2,5	Resident
Band-tailed pigeon*+	Columba fasciata	1,3,5	Resident
Mourning dove*+	Zenaidura macroura	1,2,4,7	Common summer resident
Sharp-tailed grouse*	Pedioecetes phasianellus	1,2,3	Uncommon resident
Gambel's quail*+	Lophortyx gambelii	1,3	Common resident
Wild turkey*+	Meleagris gallopavo	3,7,8	Common resident
Raptors			
Turkey vulture*+	Cathartes aura	All habitats	Common summer and rare winter resident
Goshawk*+	Accipiter gentilis	8,9	Common resident
Sharp-shinned hawk*+	Accipiter striatus	3,7,8	Common summer and winter resident
Cooper's hawk*+	Accipiter cooperii	3,7,8	Common summer and possible rare resident
Red-tailed hawk*+	Buteo jamaicensis	1,2,3,4	Common resident
Swainson's hawk*+	Buteo swainsoni	1,7,8	Uncommon migrant and resident
Rough-legged hawk*+	Buteo lagopus	2,3	Uncommon winter resident
Ferruginous hawk*	Buteo regalis	2,3	Possible rare summer resident
Golden eagle*+	Aquila chrysaetos	2,3,7,8	Common resident
Northern bald eagle*+	Haliaeetus leucocephalus alascanus	3,4	Common winter resident
Marsh hawk*+	Circus cyaneus	2,10	Uncommon resident
Osprey*	Pandion haliaetus	4	Possible rare migrant
Prairie falcon*+	Falco mexicanus	6,11	Uncommon resident
Peregrine falcon*+	Falco peregrinus	2,3,4,5	Rare migrant and resident
Pigeon hawk*	Falco columbarius	3,7	Rare winter migrant
Kestrel*+	Falco sparverius	1,2,10	Common summer and uncommon winter resident

Attachment 3

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Raptors (cont.)			
Screech owl*	Otus asio	1,4,7	Possible rare resident
Flammulated owl*	Otus flammeolus	8,9	Possible summer resident
Great horned owl*+	Bubo virginianus	1,2,3,8,9,11	Common resident
Pygmy owl*	Glaucidium gnoma	4,8,9	Uncommon resident
Burrowing owl*+	Speotyto cunicularia	1,2	Uncommon summer and possible winter resident
Long-eared owl*	Asio otus	4,7,8	Uncommon resident
Short-eared owl*	Asio flammeus	1,2,10	Uncommon winter migrant and resident
Saw-whet owl*	Aegolius acadicus	8	Uncommon resident
Nongame birds			
Common loon*	Gavia immer	9	Rare migrant
Horned grebe*	Podiceps auritus	9	Rare migrant
Eared grebe*	Podiceps caspicus	9	Possible uncommon migrant
Western grebe*	Aechmophorus occidentalis	9	Possible rare migrant
Pied-billed grebe*	Podilymbus podiceps	9	Uncommon migrant and possible rare summer resident
Double-crested cormorant*	Phalacrocorax auritus	9	Possible rare migrant
Great blue heron*+	Ardea herodias	4,10	Common summer resident and few in winter
Snowy egret*+	Leucophoyx thula	1,4,10	Uncommon summer resident
Black-crowned night heron*	Nycticorax nycticorax	4,10	Uncommon summer resident
Least bittern*	Ixobrychus exilis	4,10	Possible accidental summer visitor
American bittern*	Botaurus lentiginosus	4,10	Possible rare migrant
White-face ibis*	Plegadis chihi	4,10	Possible rare migrant
Wistling swan*	Olor columbianus	9	Rare migrant
Sandhill crane*+	Grus canadensis	1,4,10	Common migrant
Virginia rail*	Rallus limicola	4,10	Possible uncommon summer resident
Sora*	Porzana carolina	4,10	Possible uncommon summer resident
Semipalmated plover*	Charadrius semipalmatus	4,9	Possible rare migrant
Snowy plover*	Charadrius alexandrinus	4,10	Possible accidental migrant
Killdeer*+	Charadrius vociferus	1,2,4,10	Common summer and uncommon winter resident
Mountain plover*	Eupoda montana	2,3	Possible accidental migrant
Black-bellied plover*	Squatarola squatarola	4,11	Possible rare migrant
Long-billed curlew*	Numenius americanus	1,4,10	Possible rare migrant
Spotted sandpiper*	Actitis macularia	4,10	Common summer resident
Solitary sandpiper*	Tringa solitaria	4,10	Common migrant and occasional summer visitor
Willet*	Catoptrophorus semipalmatus	4,10	Possible rare migrant

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Nongame birds (cont.)			
Greater yellow-legs*	Totanus melanoleucus	4,10	Possible common migrant
Lesser yellow-legs*	Totanus flavipes	4,10	Possible uncommon migrant
Knot*	Calidris canutus	4,10	Possible accidental migrant
Pectoral sandpiper*	Erolia melanotos	4,10	Possible rare migrant
Baird's sandpiper*	Erolia bairdii	4,10	Possible uncommon migrant
Least sandpiper*	Erolia minutilla	4,10	Possible common migrant
Long-billed dowitcher*	Limnodromus scolopaceus	4,10	Possible rare migrant
Semipalmated sandpiper*	Ereunetes pusillus	4,10	Rare migrant
Western sandpiper*	Ereunetes mauri	4,10	Possible uncommon migrant
Marbled godwit	Limosa fedoa	4,10	Possible rare spring migrant
Sanderling	Crocethia alba	4,10	Possible accidental migrant
American avocet*	Recurvirostra americana	4,10	Possible rare migrant
Black-necked stilt*	Himantopus mexicanus	4,10	Possible rare migrant
Wilson's phalarope*	Stenganopus tricolor	4,10	Common migrant and uncommon summer resident
Northern phalarope*	Lobipes lobatus	4,10	Possible rare migrant
Herring gull*	Larus argentatus	9	Possible uncommon migrant
California gull*	Larus californicus	9	Possible rare migrant
Ring-bill gull*	Larus delawarensis	9	Uncommon migrant
Franklin's gull*	Larus pipixcan	9	Possible uncommon migrant
Bonaparte's gull*	Larus philadephia	9	Possible rare migrant
Forster's tern*	Sterna forsteri	9	Possible rare migrant
Common tern*	Sterna hirundo	9	Possible accidental migrant
Least tern*	Sterna albifrons	9	Possible accidental migrant
Black tern*	Chliidonias niger	9	Possible rare migrant
Rock dove*+	Columba livia	1,6	Common resident
Yellow-billed cuckoo*+	Coccyzus americanus	4	Possible uncommon summer resident
Poor-will*	Phalaenoptilus nuttallii	2,3	Common summer resident
Common nighthawk*+	Chordeiles minor	1,2,3,6	Common summer resident
Black swift*	Cypseloides niger		Possible accidental summer migrant
White-throated swift*+	Aeronautes saxatalis	4,6	Common summer resident
Black-chinned hummingbird*	Archilochus alexandri	3,4,7	Common summer resident
Broad-tailed hummingbird*+	Selasphorus platycercus	3,4,7	Common summer resident
Rufous hummingbird*	Selasphorus rufus	2,4	Common summer and fall migrant
Calliope hummingbird*	Stellula calliope	2,4,7,8	Rare summer migrant and possible rare summer resident
Rivoli's hummingbird*	Eugenes fulgens	4	Possible rare summer visitor
Belted kingfisher*+	Megacerle alcyon	4,9	Common resident
Yellow-shafted flicker	Colaptes auratus	4,7	Possible accidental migrant

Attachment 3

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Nongame birds (cont.)			
Red-shafted flicker*+	Colaptes cafer	4,7	Common resident
Lewis' woodpecker*	Asyndesmus lewis	4,7	Common resident
Yellow-bellied sapsucker*+	Sphyrapicus varius	8	Common summer resident
Williamson's sapsucker*	Sphyrapicus thyroideus	9	Common summer resident
Hairy woodpecker*+	Dendrocopos villosus	7,8	Uncommon resident
Downy woodpecker*	Dendrocopos pubescens	4,6,7	Uncommon resident
Northern three-toed woodpecker	Picoides tridactylus	8	Rare resident
Eastern kingbird*	Tyrannus tyrannus	2,7	Uncommon summer resident
Western kingbird*+	Tyrannus verticalis	1,2,4	Common summer resident
Cassin's kingbird*	Tyrannus vociferans	2,3,9	Possible uncommon summer resident
Ash-throated flycatcher*	Myiarchus cinerascens	3,4,7	Common summer resident
Say's phoebe*	Sayornis saya	2,3	Common summer resident
Traill's fly-catcher*	Empidonax traillii	4	Uncommon summer resident
Hammond's fly-catcher*	Empidonax hammondii	8	Uncommon summer resident
Dusky fly-catcher*	Empidonax oberholseri	8,3	Possible uncommon summer resident
Gray fly-catcher*	Empidonax wrightii		Common summer resident
Western fly-catcher*	Empidonax difficilis	4	Common summer resident
Western wood peewee*+	Contopus sordidulus	4,7,8	Common summer resident
Olive-sided flycatcher*	Nuttallornis borealis	7,8	Uncommon summer resident
Vermillion fly-catcher*	Pyrocephalus rubinus	4	Possible accidental migrant
Horned lark*+	Eremophila alpestris	1,2,11	Common resident
Violet-green swallow*+	Tachycineta thalassina	6,8	Common summer resident
Tree swallow*	Iridoprocne bicolor	4,7,9,12	Common summer resident
Bank swallow*	Riparia riparia	4,9,12	Uncommon migrant and summer resident
Rough-winged swallow*+	Stelgidopteryx ruficollis	4	Uncommon migrant and summer resident
Barn swallow*+	Hirundo rustica	1,4,7,9	Common migrant and summer resident
Cliff swallow*+	Petrochelidon pyrrhonota	4,7	Common summer resident
Purple martin*	Progne subis	2,4	Possible accidental summer migrant
Gray jay*	Perisoreus canadensis	8	Common resident
Steller's jay *	Cyanocitta stelleri	8	Common resident
Scrub jay*+	Aphelocoma coerulescens	3	Common resident
Common raven*+	Corvus corax	7,8	Common resident
Pinyon jay*	Gymnorhinus cyanocephalus	3,8	Common resident
Clark's nutcracker*+	Nucifraga columbina	8	Common resident
Black-capped chickadee*+	Parus atricapillus	3,7,8	Common resident
Mountain chickadee*	Parus gambeli	8	Common resident
Plain titmouse*	Parus inornatus	3.8	Common resident
Common bushtit*	Psaltriparus minimus	3,6	Common resident
White-breasted nuthatch*	Sitta carolinensis	7	Uncommon resident

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Nongame birds (cont.)			
Red-breasted nuthatch*	Sitta canadensis	8	Rare resident
Pygmy nuthatch*	Sitta pygmaea	8	Common resident
Brown creeper*	Certhia familiaris	4,8	Uncommon resident
Dipper*+	Cinclus mexicanus	4	Common resident
House wren*+	Troglodytes aedon	3,4,7,8	Common summer resident
Winter wren*	Troglodytes troglodytes		Status unknown
Bewick's wren*	Thryomanes bewickii	1,3	Common summer and rare winter resident
Long-billed marsh wren*	Telmatodytes palustris	10	Uncommon summer resident
Canon wren*	Catherpes mexicanus	5	Uncommon summer and possible rare winter resident
Rock wren*	Salpinctes obsoletus	5	Common summer and possible rare winter resident
Mockingbird*	Mimus polyglottos	3,4	Uncommon resident
Catbird*	Dumetella carolinensis	3,4	Possible rare summer resident
Brown thrasher*	Toxostoma rufum	4,7	Possible accidental migrant
Sage thrasher*	Oreoscoptes montanus	3,4	Common summer resident
Robin*+	Turdus migratorius	4,6,7	Common resident
Hermit thrush*+	Hylocichla guttata	8	Common summer resident
Swainson's thrush	Hylocichla ustulata	4	Possible common migrant and rare summer resident
Veery*	Hylocichla fuscescens	4	Common summer resident
Western bluebird*	Sialia mexicana	3,8	Common migrant uncommon summer resident and possible rare winter resident
Mountain bluebird*+	Sialia currucoides	2,8,11	Common migrant and summer resident and possible winter resident
Townsend's solitaire*	Myadestes townsendi	8	Uncommon resident
Blue-gray gnat-catcher*	Polioptila caerulea	3,7,8	Common summer resident
Golden-crowned kinglet*	Regulus satrapa	8	Possible common summer and uncommon winter resident
Ruby-crowned kinglet*+	Regulus calendula	4,8	Common migrant and summer resident and possible accidental winter resident
Water pipit*	Anthus spinoletta	1,2,10	Common migrant and possible winter resident
Bohemian waxwing*	Bombycilla garrulus	3,8	Common winter migrant
Cedar waxwing*	Bombycilla cedrorum	7,8	Irregular visitor
Northern shrike*	Lanius excubitor	3,4	Common winter resident
Loggerhead shrike*	Lanius ludovicianus	3,4	Uncommon summer and common winter resident
Starling*+	Sturnus vulgaris vulgaris	1,2,6,7	Common resident

Attachment 3

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Nongame birds (cont.)			
Gray vireo*	Vireo vicinior	3,8	Uncommon summer resident
Solitary vireo*+	Vireo solitarius	4,7,8	Common summer resident
Red-eyed vireo*	Vireo olivaceus	4,8	Possible rare summer resident
Warbling vireo*+	Vireo gilvus	4,8	Common summer resident
Tennessee warbler*	Vermivora peregrina	4,7,8	Possible rare migrant
Orange-crowned warbler*+	Vermivora celata	3,4,7	Possible uncommon migrant and summer resident
Nashville warbler*	Vermivora ruficapilla	3,4,7	Possible rare migrant
Virginia's warbler*	Vermivora virginiae	3	Common summer resident
Yellow warbler*+	Dendroica petechia	1,3,4,6	Common summer resident
Myrtle warbler*	Dendroica coronata	8	Uncommon migrant
Audubon's warbler*+	Dendroica auduboni	4,8	Common summer resident and possible rare winter resident
Black-throated gray warbler*	Dendroica nigrescens	3,8	Common summer resident
Townsend's warbler*	Dendroica townsendi	8	Uncommon migrant
Grace's warbler*	Dendroica graciae	8	Rare summer resident
Northern waterthrush*	Seiurus noveboracensis	4,10	Rare migrant
	Seiurus noveboracensis notabilis	4,10	Rare migrant
MacGillivray's warbler*+	Oporornis tolmiei	3	Common migrant and uncommon summer resident
Yellowthroat*	Geothlypis trichas	4,11	Uncommon summer resident
Yellow-breasted chat*	Icteria virens	4,8	Common summer resident
Wilson's warbler*+	Wilsonia pusilla	3	Common migrant and possible summer resident
American redstart*	Setophaga ruticilla	4,7	Possible rare migrant
House sparrow*	Passer domesticus	1,4,6	Common resident
Bobolink*	Dolichonyx oryzivorus	1,2,10	Possible rare summer migrant
Western meadowlark*+	Sturnella neglecta	1,12	Common summer and uncommon winter resident
Yellow-headed blackbird*+	Xanthocephalus xanthocephalus	10	Common summer resident
Red-winged blackbird*+	Agelaius phoeniceus	1,10	Common resident
Orchard oriole*	Icterus spurius	1,4	Possible accidental summer visitor
Bullock's oriole*	Icterus bullockii	4	Common summer resident
Rusty blackbird*	Euphagus carolinus carolinus	1,2,3	Possible rare winter visitor
Brewer's blackbird*+	Euphagus cyanocephalus	1,2	Common resident
Brown-headed cowbird*+	Molothrus ater	1,2,3	Common summer resident
Western tanager*	Piranga ludoviciana	7,8	Common migrant and summer resident
Scarlet tanager*	Piranga olivacea	7,8	Possible accidental summer migrant
Rose-breasted grosbeak*	Pheucticus ludovicianus	1,4,6,7	Possible accidental spring migrant
Black-headed grosbeak*+	Pheucticus melanocephalus	3,4,7	Common summer resident

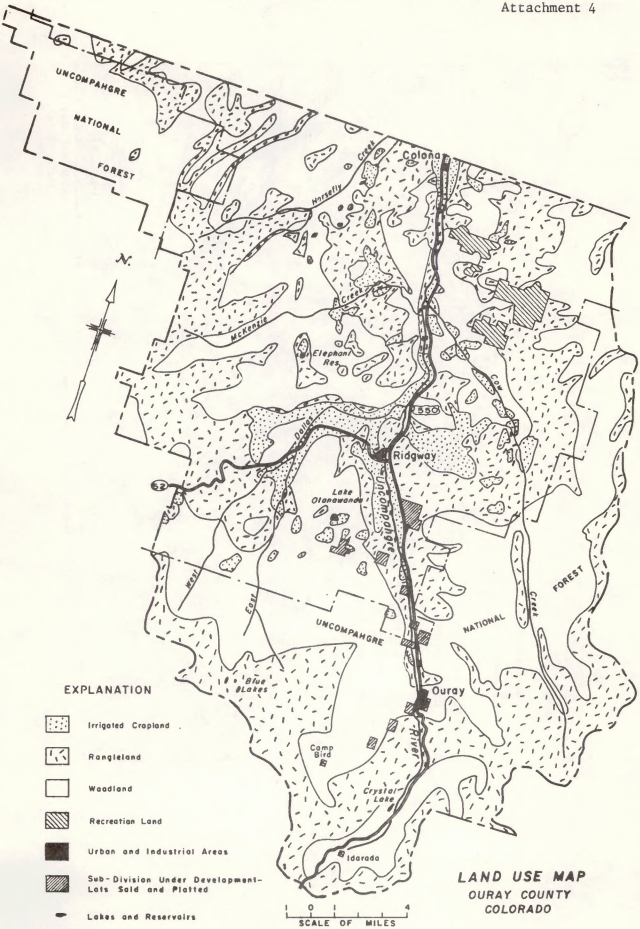
Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Nongame birds (cont.)			
Blue grosbeak*	Guiraca caerulea	1,3,4	Uncommon summer resident
Lazuli bunting*	Passerina amoena	3,4	Uncommon summer resident
Dickcissel*	Spiza americana	1	Possible accidental migrant
Evening grosbeak*	Hesperiphona vespertina	7,8	Irregular resident
Cassin's finch*	Carpodacus cassinii	3,8	Common resident
House finch*	Carpodacus mexicanus	1,3,4,5,6,7	Common summer and uncommon winter resident
Pine grosbeak*+	Pinicola enucleator	8	Uncommon resident
Gray-crowned rosy finch*	Leucosticte tephrocotis	2,3	Common winter migrant
Black rosy finch*	Leucosticte atrata	2	Uncommon winter migrant
Brown-capped rosy finch*+	Leucosticte australis	2,11	Common winter resident
Common redpoll*	Acanthis flammea	4	Possible accidental winter migrant
Pine siskin*	Spinus pinus	7,8	Common resident
American gold-finch*	Spinus tristis	1,4,7	Common summer and possible uncommon winter resident
Lesser goldfinch*	Spinus psaltria psaltria	2,4,8	Possible uncommon summer resident and accidental winter migrant
Red crossbill*	Loxia curvirostra	8	Irregular visitor
White-winged crossbill	Loxia leucoptera	8	Possible accidental winter migrant
Green-tailed towhee*+	Chlorura cholorura	3,4	Common summer resident and possible rare winter resident
Rufous-sided towhee*+	Pipilo erythrophthalmus	3,4	Uncommon resident
Lark bunting*	Calamospiza melanocorys	2,3	Possible uncommon summer resident
Savannah sparrow*+	Passerculus sandwichensis	1,2	Possible uncommon migrant and summer resident
Grasshopper sparrow*	Ammodramus savannarum	1,2	Uncommon summer resident
LeConte's sparrow*	Passerherbulus caudacutus	2,3,10	Possible accidental migrant
Sharp-tailed sparrow*	Ammospiza caudacuta	2,3,10	Possible accidental migrant
Vesper sparrow*+	Pooecetes gramineus	1,2,3,11	Common migrant and summer resident
Lark sparrow*	Chondestes grammacus	2,3,4	Common migrant and summer resident
Black-throated sparrow*	Amphispiza bilineata	3	Common summer resident
Sage sparrow*	Amphispiza belli	3	Common summer resident
White-winged junco*	Junco aiken	3,8	Possible accidental winter resident
Slate-colored junco*	Junco hyemalis	3,8	Possible rare winter resident
Oregon junco*	Junco oreganus	3,6,8	Common winter resident
Gray-headed junco*	Junco caniceps	3,8	Common resident
Tree sparrow*	Spizella arborea	3	Uncommon winter visitor
Chipping sparrow*+	Spizella passerina	1,2,8	Common summer resident

Attachment 3

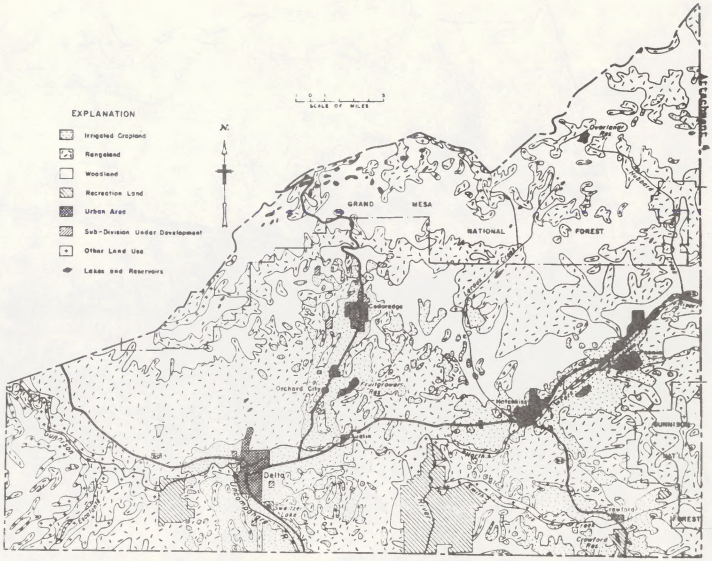
Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Nongame birds (cont.)			
Brewer's sparrow*+	Spizella breweri	2,3	Common summer resident
Harris' sparrow*	Zonotrichia querula	3,8	Possible rare winter resident
White-crowned sparrow*	Zonotrichia leucophrys	4,8	Common resident
White-throated sparrow*	Zonotrichia albicollis	3	Possible accidental migrant
Fox sparrow*	Passerella iliaca	3,8	Rare summer resident
Lincoln's sparrow*	Melospiza lincolnii	4,10	Common migrant and summer resident
Song sparrow*+	Melospiza melodia	4,10	Common resident
Lapland longspur*	Calcarius lapponicus	2	Possible rare winter migrant
Chestnut-collared longspur*	Calcarius ornatus	1,2	Possible accidental winter migrant
Reptiles and amphibians[4/]			
Sagebrush lizard	Sceloporus graciosus	2,3	Common resident
Garter snake+	Thamnophis sp.	All habitats	Common resident
Tiger salamander+	Ambystoma tigrinum	1,4,9,10	Common resident
Leopard frog+	Rana pipiens	4,9,10,12	Common resident
Fish			
Cutthroat trout+	Salmo clarki	High elevations, clear water	Occasional
Rainbow trout+	Salmo gairdneri	Introduced near accessible points	Common
Brown trout+	Salmo trutta	Common interspersed throughout drainage	Common
Brook trout+	Salvelinus fontinalis	Higher elevations, clear water	Common
Flannelmouth sucker+	Catostomus latipinnis	Lower elevations, warmer, turbid water	Common
Western white sucker+	Catostomus commersoni	Lower elevations, warmer, turbid water	Occasional
Colorado sucker	Catostomus discobolus	Lower elevations, warmer, turbid water	Common
Eagle sculpin+	Cottus annae	Interspersed throughout drainage	Common
Longnose dace+	Rhinichthys cataractae	Interspersed throughout drainage	Common

4/ List is incomplete due to limited inventories for these species in the project area.

Common name	Scientific name	Habitat type	Population status and seasonal occurrence
Fish (cont.)			
Chub+	*Gila* sp.	Lower elevations, warmer, turbid water	Occasional
Bullhead	*Ictalurus* sp.	Lower elevations, warmer, turbid water	Rare

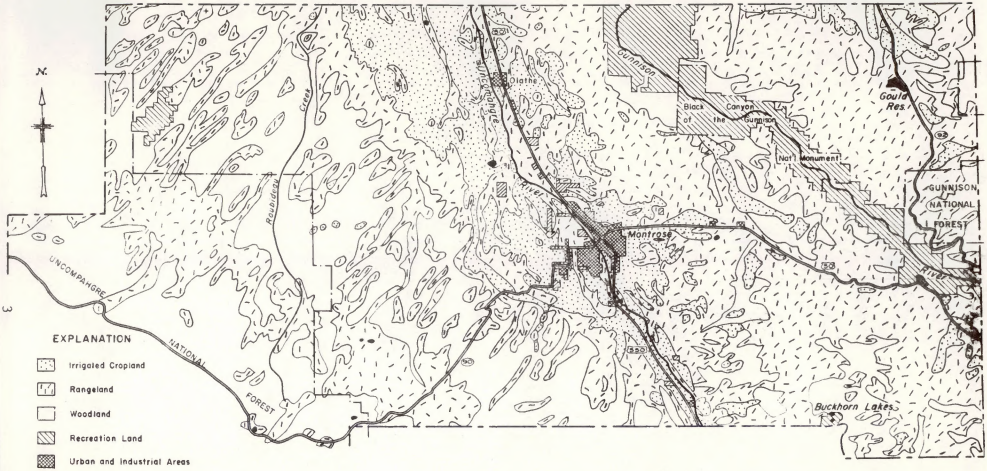


NOTE: Land use adapted from USDA-SCS map. 1973



NOTE: Land use adapted from USDA - SCS map. 1973

LAND USE MAP
DELTA COUNTY
COLORADO



NOTE: Land use adapted from USDA-SCS map, 1973

1 0 5
SCALE OF MILES

LAND USE MAP
MONTROSE COUNTY
COLORADO

Attachment 4

UNIVERSITY OF COLORADO

ARCHAEOLOGICAL RESEARCH CENTER

MESA VERDE NATIONAL PARK

COLORADO 81330

15 February 1973

MEMORANDUM

To: Chief, Midwest Archeological Center, NPS

From: Director, University of Colorado Mesa Verde Archaeological Research Center

Subject: Report of inventory of Indian Ruins located in probable flood area of the proposed Ridgway Dam and Reservoir, and relocation of U.S. Highway 550. NPS Contract No. 2920P20079.

Attached is the report of work accomplished during the latter portion of the 1972 field season, under terms of the contract cited above.

Seven field days were spent by a three-man crew in the area of the Uncompahgre River Valley, near its confluence with Dallas Creek, Ouray County, Colorado. Three individuals then spent three days analyzing the materials collected and in preparing this report.

The construction of the dam will cause flooding upstream along the Uncompahgre River and Dallas Creek to an elevation of 6960 feet. All potentially inundated land was surveyed. The highway 550 relocation was not staked, but a reasonably accurate idea of its route was discernible using the available contour maps. The proposed highway relocation route was checked in its entirity.

A total of eight archaeological sites were recorded in the area proposed to be flooded by construction of the Ridgway Dam, and the proposed relocation of U.S. Highway 550.

The results of the survey are as follows:

The eight sites consist of:

1 - Camp site (tipi ring)

7 - Chipping sites

The sole criterion for distinguishing between a camp site and chipping sites is the presence or absence of the tipi ring. A tipi ring is a group of stones oriented in a circle or oval, presumably with the function of holding down the edges of a tipi cover. Chipping sites have no such rock conformities and were presumably occupied only for short durations. A camp site was occupied for a relatively longer period.

Culturally, the sites are probably Ute, since these peoples have occupied this area for the last several hundred years, and did so historically. The sites are difficult to assign to definite time periods, though some are certainly prehistoric. None of the sites show indications of contact with white settles in the area. All the site have only surface indications, and there are no sites with any evidence of subsurface, or buried, cultural deposits.

The accompanying map indicates the area surveyed: the proposed dam, reservoir, and highway relocation. The location and approximate extent of the sites found is also indicated. Site survey forms, sketch maps, and photographs are attached.

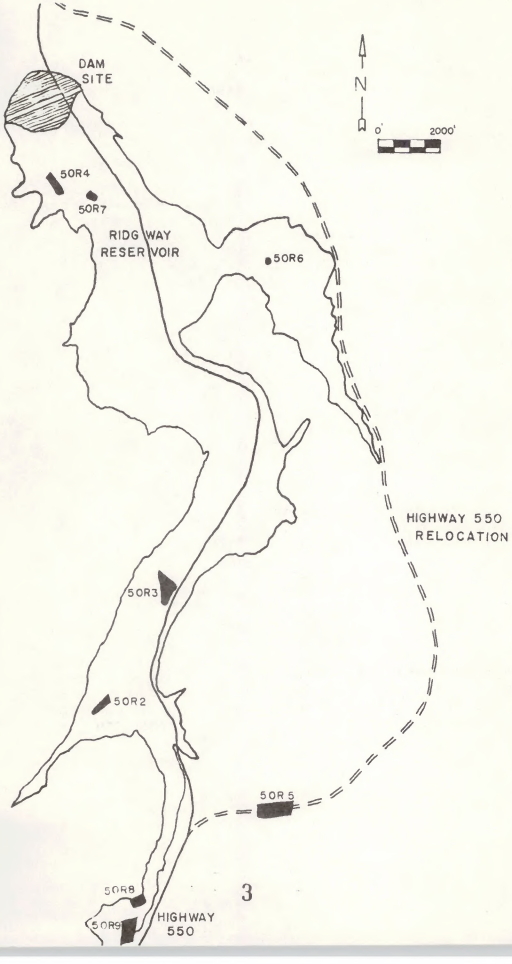
Materials collected are presently housed at the Mesa Verde Research Center, Mesa Verde National Park.

For reference, the sites are located as follows:

T.45N, R.8W
- Section 4 - Site 50R2
- Section 3 - Site 50R5
- Section 9 - Sites 50R8, 50R9

T.46N, R.8W
- Section 21 - Sites 50R4, 50R7
- Section 22 - Site 50R6
- Section 33 - Site 50R3

Due to the nature of the sites located, as noted above, it it not deemed necessary to conduct further archaeological investigations within the area surveyed. No significant archaeological resources will be destroyed as a result of the construction of the Ridgway Dam or the relocation of U.S. Highway 550.


DAM
SITE
N
0'
2000'
5OR4
5OR7
RIDGWAY
RESERVOIR
5OR6
HIGHWAY 550
RELOCATION
5OR3
5OR2
5OR5
5OR8
5OR9
HIGHWAY
550

Material Source Areas, Dallas Creek Project
(Illustrated in Figure A-3)

A. Ridgway Dam

Source Area 1

Material : Silty clay, clayey gravel
Location : Adjacent to dam, within basin
Quantity : 520,000 cubic yards impervious, 1,170,000 cubic yards pervious
Use : Impervious and pervious embankment
Area : 80 acres
Vegetation: Irrigated meadow, sagebrush range land
Impact : Minimal

Source Area 2

Material : Silty to sandy clays, gravelly soils
Location : Between Alkali Creek and Uncompahgre River within reservoir basin
Quantity : 860,000 cubic yards impervious, 6,000,000 cubic yards pervious
Use : Impervious and pervious embankment
Area : 245 acres
Vegetation: Irrigated hay and pasture, scattered pinon-juniper, sagebrush
Impact : Minimal, will be inundated

Source Area 3

Material : Silty clays
Location : Along Alkali Creek in reservoir basin
Quantity : 1,600,000 cubic yards
Use : Impervious embankment
Area : 64 acres
Vegetation: Irrigated meadow hay, scattered sagebrush and pinon-juniper
Impact : Minimal, will be inundated

Source Area 4

Material : Silty to clayey gravel
Location : Between areas 2 and 5, within reservoir basin
Quantity : 5,660,000 cubic yards
Use : Pervious embankment
Area : 175 acres
Vegetation: Irrigated hay meadow
Impact : Minimal

Attachment 6

Source Area 5

Material : Silty clays, gravelly soils
Location : Between Uncompahgre River and proposed high water line within reservoir basin
Quantity : 500,000 cubic yards impervious, 4,350,000 cubic yards pervious
Use : Impervious and pervious embankment
Area : 218 acres
Vegetation: Irrigated meadow, some sagebrush
Impact : Minimal, will be inundated

Source Area 6

Material : Silty clay
Location : East of Source Area 5, above basin
Quantity : 2,800,000 cubic yards impervious
Use : Impervious embankment
Area : 96 acres
Vegetation: Grass-sagebrush, some irrigated land
Impact : Increase erosion potential, aesthetic damage around relocated highway and potential recreation administration area

McKenzie Butte Riprap Source

Material : Igneous rock
Location : Outcrop downstream from dam site (1.5 miles) along Uncompahgre River
Impact : Aesthetic damage, vegetation loss, erosion potential increased

Concrete Aggregate

Material : Sand, gravel
Location : Source Areas 1, 2, 4, and 5, along river
Quantity : Sufficient amount for Ridgway Dam
Impact : Minimal