Executive Summary

The Dolores Water Conservancy District (District) operates the Dolores Project (Project), which consists of the 381,000 acre-foot McPhee Reservoir (McPhee), to provide water to non-Indian and Ute Mountain Ute Tribe water users. The District is located in Dolores and Montezuma counties in southwestern Colorado. The District boundary extends from the Town of Dove Creek south to the Ute Mountain Ute Reservation a distance of 45 miles and from the Utah/Colorado state line on the west to the Town of Dolores on the east, a distance of 28 miles. There are 446 square miles within the District containing approximately 68,000 acres of irrigated lands. The Dolores River, originating northeast of the District area in the San Juan and La Plata Mountains, is the main source of water for the Project and storage in McPhee. The Dolores River has an average annual runoff of about 351,000 acre-feet (as listed in the Definite Plan Report). Tributaries to the Dolores River also collected in McPhee include Lost Canyon Creek, West Dolores River, Beaver Creek, House Creek and Plateau Creek.

Construction started in the spring of 1978, but was suspended under the Carter Administration’s “hit list”. Due to resolution of Indian reserved water rights, the project was removed from the list and construction proceeded in 1979. Although water was available to Cortez & the Montezuma Valley Irrigation Company during the 1986 season and the first full service irrigators started their sprinkler irrigation systems in June 1987, the majority of the Project was not fully on line 1999, when all of the Project facilities were completed.

The Project was one of the last Federal project authorized and constructed as part of the Colorado River Storage Project Act of 1968 to provide irrigation water and utilizes a pressurized pipe, metered system to be one of the most efficient projects of its type. The project assists in satisfying the Colorado Ute Indian Water Rights Settlement Act, provides municipal and industrial water to Cortez, Dove Creek and the surrounding area, provides full service and supplemental irrigation water in the Dolores and Montezuma Valleys and provides a fishery release in the Dolores River. Formed by a decree of the Court in 1961, the District is organized and acts pursuant to the Colorado Revised Statutes, Conservancy District Act.

The District prepared this Water Management and Conservation Plan (Plan) to address present and future water uses. The Plan serves as a source of information about the District including the history of the Dolores Project, contracts and agreements relative to the operation of the Project, and the District’s interaction with cooperating entities including the Ute Mountain Ute Tribe, the U.S. Bureau of Reclamation, the Montezuma Valley Irrigation Company, the Towns of Cortez and Dove Creek, and the many private irrigators who receive Project water, and the fishery and recreation interests. The plan was also prepared to protect the District’s water rights by describing how water is put to beneficial use in the Dolores River Valley and the Montezuma Valley, as well as to identify potential future uses in the local area. Finally, the plan will serve to provide the District with a framework for the future by identifying water management and conservation measures that can be implemented within the District.

Numerous potential water management and conservation measures were identified and evaluated. Some proved to be too costly or not a high priority and were eventually either dropped from further consideration or labeled as low priority. Many measures were selected to be implemented and have been appropriately prioritized according to their importance relative to the operation of the Project and the feasibility of implementing them.

The list on pages iv and v shows the high, medium and low priority measures. The letter designation pertains to the category in which the measures falls under (A – Water Management, B – Infrastructure and C – Conservation). Narrative descriptions are provided for each measure starting in Chapter 7 of this Plan.
Measures can describe water management activities, program development, studies, construction projects, hydroelectric development, etc… to name a few. Measures pertaining to Water Management activities range from: conducting bi-annual Farmer Advisory Committee meeting to inform irrigators Dolores Project status, building on drought tools learned and utilized from 2013, and participate in precipitation augmentation by continuing to fund cloud seeding programs.

Measures pertaining to Infrastructure range from: pursue options for hydropower development based on recommendations from a hydropower study, investigate the potential for regulating reservoirs in the Dove Creek Canal and South Canal for spill management, and utilization of Totten Reservoir. Measures pertaining to Conservation range from: develop and/or participate in a variety of forums for farmers to provide education on soil moisture, provide a plateau form for farmers to exchange ideas and experience and development of an Irrigation Water Management Program to potentially conduct water audits with willing participants.

While the measures have been prioritized for purposes of this Plan, these prioritizations should not be the final implementation schedule. Many factors affect the ability to implement a measure both feasibly and affectively. Due to this, some measures may come to fruition regardless of their priority. These priorities are to be used as a tool to direct District resources to the appropriate measures for implementation.

The Plan should not be considered the last word on the present and future water resource management efforts of the Dolores Water Conservancy District. This report will be reviewed and updated on a regular basis to assure that it responds effectively to the changing needs of the many groups and communities that benefit from the Dolores Project.
<table>
<thead>
<tr>
<th>ID</th>
<th>Priority &amp; Measure</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Priority</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Conduct bi-Annual Farmer Advisory Committee Meetings</td>
<td>Meetings held 2 to 3 times a year to inform irrigators of Project status</td>
</tr>
<tr>
<td>B1</td>
<td>Capital Replacement and Improvement Plan</td>
<td>Development of plan based guidance from the Board and staff input</td>
</tr>
<tr>
<td>A2</td>
<td>Diligence Applications/Filings</td>
<td>Continue diligence activities and filings for existing water rights</td>
</tr>
<tr>
<td>A3</td>
<td>De-Brucing/Tabor</td>
<td>Investigate possibility of de-Brucing and outcomes if achieved</td>
</tr>
<tr>
<td>A4</td>
<td>Energy Dissipating Structure Hydropower Development</td>
<td>Negotiations have begun with the Tribe on a joint facility</td>
</tr>
<tr>
<td>B2</td>
<td>Full Service Farmers Meter Education</td>
<td>Continue teaching Full Service Farmers how to read their own meters</td>
</tr>
<tr>
<td>A5</td>
<td>Replenish Reserve Accounts</td>
<td>Develop a long term plan and strategy to increase income to reserve account</td>
</tr>
<tr>
<td>B3</td>
<td>Utilization of Totten Reservoir</td>
<td>Potential source of water to meet Projects demands and community demands</td>
</tr>
<tr>
<td>A6</td>
<td>Business Partners with Users</td>
<td>Continue as business partners with all users of the Project</td>
</tr>
<tr>
<td>B4</td>
<td>Class B Stock Water</td>
<td>Find a permanent use for Class B stock water</td>
</tr>
<tr>
<td>B5</td>
<td>Hydropower Development</td>
<td>Pursue options for hydropower development based on the recommendations presented in the Hydropower Study</td>
</tr>
<tr>
<td>A7</td>
<td>Participation with the State and Other Governmental Entities</td>
<td>Continued participation with local, state and federal governmental entities; Remain informed of state and national water issues</td>
</tr>
<tr>
<td><strong>Medium Priority</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A8</td>
<td>&quot;A Way Forward&quot; 9 Management Opportunities</td>
<td>Support appropriate management opportunities</td>
</tr>
<tr>
<td>A9</td>
<td>Conservation Pricing</td>
<td>Enforcing a predetermined cap on the full service water supply yearly; implement conservation structure rates to increase water sales income</td>
</tr>
<tr>
<td>A10</td>
<td>Continue Joint Board Meetings with MVIC</td>
<td>Regularly hold joint board meetings</td>
</tr>
<tr>
<td>A11</td>
<td>Control Room Emergency Response for M&amp;I</td>
<td>Develop a water supply emergency action plan</td>
</tr>
<tr>
<td>A12</td>
<td>Drought Planning and Assessment Tool</td>
<td>Build on the drought tools learned and utilized in 2013; potential deliverable of the Optimization Study</td>
</tr>
<tr>
<td>A13</td>
<td>Increase Auxiliary Enterprise Offsets</td>
<td>Investigate enterprise opportunities within the basin</td>
</tr>
<tr>
<td>A14</td>
<td>Promote Dolores Basin Water Quality</td>
<td>Coordinate and participate in monitoring water quality parameters and standards, source water protection planning, 319 Plan on the Dolores, respond to triennial review as necessary</td>
</tr>
<tr>
<td>B6</td>
<td>Focused Crew Training Programs</td>
<td>Identify course, establish crew schedule and budget</td>
</tr>
<tr>
<td>B7</td>
<td>Maintain Website</td>
<td>District maintains the website and updates when appropriate. Continue adding information based on feedback from users and Board</td>
</tr>
<tr>
<td>A15</td>
<td>Maximum Utilization of Existing MVIC Reservoirs</td>
<td>Designated pools in Groundhog and Narraguinnep to be used during a drought situation (determined by specific triggers); Management plan of said reservoirs could be a deliverable of the Optimization Study</td>
</tr>
<tr>
<td>ID</td>
<td>Priority &amp; Measure</td>
<td>Action</td>
</tr>
<tr>
<td>----</td>
<td>-------------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Medium Priority Continued…</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A16</td>
<td>MVIC Water Right Options</td>
<td>Discussions with MVIC are recommended to consider if MVIC water might be available for additional decreed purposes within the Project area; Could be a deliverable of the Optimization Study</td>
</tr>
<tr>
<td>A17</td>
<td>Participate in the Dolores River Dialogue (DRD)</td>
<td>The District has representation on the Legislative Subcommittee, participated in the completion of a Watershed Based Plan (completed 2013), and participation in the Dolores Implementation Team, Lower Dolores Working Group, and Steering Committee</td>
</tr>
<tr>
<td>C1</td>
<td>Exchanging of Ideas Forum</td>
<td>Bring FSA farmers together, Tribe FRE, MVIC also</td>
</tr>
<tr>
<td>A18</td>
<td>Interim and Permanent Utilization M&amp;I Water</td>
<td>Currently the District utilizes the water by providing 318 lawn and garden taps. Augmenting 155 upstream users, meeting municipal needs, temporarily leasing to the Tribe and providing surplus to irrigators</td>
</tr>
<tr>
<td>A19</td>
<td>Leasing Project Water</td>
<td>This could include individual Project allocations leased to other Project uses</td>
</tr>
<tr>
<td>A20</td>
<td>Optimization Study</td>
<td>A Study to review the available water supplies to evaluate whether the water is being used as effectively as possible using the existing facilities. Then determine if there are additional management methods and/or facilities that may improve the effectiveness</td>
</tr>
<tr>
<td>B8</td>
<td>Regulating Reservoirs</td>
<td>Potential within the Dove Creek Canal and South Canal for spill management</td>
</tr>
<tr>
<td>B9</td>
<td>Construct Upper Plateau Storage Reservoir</td>
<td>Continue consideration through water right diligence; pursue as a proposed component of the Plateau Pump Back Project</td>
</tr>
<tr>
<td>A21</td>
<td>Development of Annual Crop Reports</td>
<td>Generated yearly</td>
</tr>
<tr>
<td>A22</td>
<td>DWCD Places a Call on the River</td>
<td>DWCD places a call on the river to curtail upstream junior users</td>
</tr>
<tr>
<td>A23</td>
<td>Education Outreach</td>
<td>Continue education outreach by participating in the DRD, Water 101, local water festivals, etc…</td>
</tr>
<tr>
<td><strong>Low Priority</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A24</td>
<td>CSU Experimental Farm's Investigations</td>
<td>Continue to assist funding CSU experimental farm’s investigations</td>
</tr>
<tr>
<td>A25</td>
<td>Participate in Precipitation Augmentation</td>
<td>Continue funding cloud seeding programs sponsored by SWCD</td>
</tr>
<tr>
<td>B10</td>
<td>Plateau Pump Back Project</td>
<td>Currently being pursued; 2014 Investment Information Memo</td>
</tr>
<tr>
<td>B11</td>
<td>Protection of McElmo's Flume</td>
<td>Support protection of historic agricultural infrastructure and historical water use story</td>
</tr>
<tr>
<td>C2</td>
<td>Sponsor Farmers to Conferences</td>
<td>Sponsor FSA farmers to participate in conferences; Report back to committee</td>
</tr>
<tr>
<td>A26</td>
<td>Water Marketing</td>
<td>Leasing water to 3rd parties; Policy development for requests</td>
</tr>
<tr>
<td>C3</td>
<td>Water Audits</td>
<td>Development of an Irrigation Water Management Program</td>
</tr>
<tr>
<td>A27</td>
<td>Conduct a Study to Determine the Possibility of Utilizing the Rico Alluvium for Up-stream Storage</td>
<td>Potential install water level monitoring equipment in two existing wells</td>
</tr>
<tr>
<td>C4</td>
<td>Soil Moisture Education Forums</td>
<td>Open houses teaching methods of soil moisture testing</td>
</tr>
</tbody>
</table>
Acknowledgments

The Dolores Water Conservancy District Board of Directors thanks all who participated in the 2014 Dolores Water Conservancy District Water Management and Conservation Plan. This report was prepared in cooperation with the U.S. Bureau of Reclamation, the Colorado Division of Water Resources, the Ute Mountain Ute Tribe, the Dolores Water Conservancy District staff, and Full Service Irrigators. Harris Water Engineering would like to especially thank Ken Curtis, Lisa Jordan, Gina Espeland and Vernon Lamb of the District for their cooperation, patience and assistance in preparation of the Plan.

This plan was funded by the U.S. Bureau of Reclamation Water Management and Conservation Program through Cooperative Agreement Number R12AP40041. Ruth Swickard acted as the project officer for the U.S. Bureau of Reclamation.

The plan was prepared by: Harris Water Engineering, Inc.
954 E. 2nd Avenue, Suite 202
Durango, CO 81301
970-259-5322

The Dolores Water Conservancy District welcomes any comments that may improve the utility of this report.

Please forward comments to: Dolores Water Conservancy District
P.O. Box 1150
Cortez, CO 81321
970-565-7562
Dolores Water Conservancy District

WATER MANAGEMENT AND CONSERVATION PLAN

WHEREAS, the Dolores Water Conservancy District ("District") entered into a Grant Agreement between the United States of America, acting through the Department of Interior, Bureau of Reclamation ("Reclamation") pursuant to Public law 111-11 Subtitle F of Title IX, Section 9504, of the Water Management Improvement Act to prepare a Water Management and Conservation ("Plan"); and

WHEREAS, the grant period was from September 5, 2012 through December 31, 2014;

WHEREAS, the Plan was drafted for the purpose of a guiding document to be used by the District to develop best management practices for use by the District for the efficient management of its water resources and to identify practical means of conserving water. The Board of Directors prioritized and selected those management activities that are appropriate for the District and its customers; and

NOW, THEREFORE, be it resolved by the Board of Directors of the District that the Water Management and Conservation Plan is hereby adopted as the final deliverable for the Grant Agreement.

ADOPTED this 8th day of June 2015.

DOLORES WATER CONSERVANCY DISTRICT

By: Bruce Smart, President

ATTEST:
Walt Henes, Secretary
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Abbreviations and Definitions
AD – Authorized Diversions
AF – Acre-Feet
AOP – Annual Operating Plan
BLM – Bureau of Land Management
BOR – United States Bureau of Reclamation
cfs – Cubic Feet per Second
CDPHE – Colorado Department of Public Health and Environment
CDWR – Colorado Division of Water Resources
CPW – Colorado Parks and Wildlife
CRBFC – Colorado River Basin Forecasting Center
C.R.S. – Colorado Revised Statutes
CRSP – Colorado River Storage Project Act
CSU – Colorado State University
CWCB – Colorado Water Conservation Board
DAP – Dolores Archaeological Project
District – Dolores Water Conservancy District
DRD – Dolores River Dialogue
DPR – Definite Plan Report
DWCD – Dolores Water Conservancy District
DWCD UR – Dolores Water Conservancy District Underground Reservoir
EA – Environmental Assessment
EDS – Energy Dissipating Structure
EX Plan – Exchange/Augmentation Plan
FEIS – Federal Environmental Impact Statement
FERC – Federal Energy Regulatory Commission
FONSI – Finding of No Significant Impact
FRE – Ute Mountain Ute Tribe’s Farm and Ranch Enterprise
FSA – Full Service Allocations
HCU – Historic Consumptive Use
ISF – Instream Flow
M&I – Municipal and Industrial
McPhee – McPhee Reservoir
Montelores – Montezuma and Dolores area
MVIC – Montezuma Valley Irrigation Company
MVID – Montezuma Valley Irrigation District
MWC – Montezuma Water Company
NOAA – National Oceanic and Atmospheric Administration
NRCS – National Resource Conservation Services
New Ex Plan – New Upstream Irrigation Exchange Plan
NWS – National Weather Service
OM&R – Operation, Maintenance and Replacement
Project – Dolores Project
SOOs – Statement of Opposition
SJR Ex – Totten Reservoir Downstream Exchange Plan: San Juan River System
SWCD – Southwestern Water Conservation District
Tribe – Ute Mountain Ute Indian Tribe
T/HC – Towaoc Highline Canal
USFS – United States Forest Service
1 DESCRIPTION OF THE DOLORES PROJECT

1.1 DISTRICT LOCATION AND PHYSICAL SETTING
The Dolores Water Conservancy District (District or DWCD) is located in Dolores and Montezuma counties in southwestern Colorado (refer to Figure One at the end of this section). The District boundary extends from Dove Creek south to the Ute Mountain Ute Indian Reservation a distance of 45 miles and from the Utah/Colorado state line on the west to the Town of Dolores on the east, a distance of 28 miles. There are 446 square miles within the District containing approximately 68,000 acres of irrigated land.

McPhee Reservoir (McPhee) is located in the eastern portion of the District, midway between the northern and southern boundaries and sits at the southern edge of the San Juan Mountains at an elevation of approximately 6,924 feet. McPhee has a surface area of 4,470 acres, with a storage capacity of 381,000 acre-feet (AF), and active capacity of 229,000 AF. The Great Cut Dike, 64’ high and 1,900’ long, and McPhee Dam, 270 feet high and 1,370 feet long, stores the waters of the Dolores River to create McPhee.

The Dolores River, originating northeast of the District area in the San Juan and La Plata Mountains, is the main source of water for the Dolores Project (Project) and storage in McPhee. The Dolores River has an average annual runoff of about 351,000 acre-feet (as listed in the Definite Plan Report (DPR)). Tributaries to the Dolores River also collected in McPhee include Lost Canyon Creek, West Dolores River, Beaver Creek, House Creek and Plateau Creek. The Project, including McPhee, was authorized in order to store water for supplemental and full service irrigation and municipal and industrial use, as well as recreation and fish and wildlife enhancement.

The water quality of the streams that drain into McPhee is good, being fed primarily by melting snow and influenced only by limiting rural land development and mining upstream of McPhee.
Figure 1. Location Map

DWCD Dolores Project Map

Anomalies:
- Full Service: 28,800 Acre
- Ute Farm: 17,400 Acre
- MWC: 37,500 Acre
1.2 *Dolores Project History*

On expedition to find a route from New Mexico to California in August of 1776, the Spanish Fathers Dominguez and Escalante camped near what is now McPhee. Found in their journals is a conception of what became the Project over two centuries later:

> [T]here is everything that a good settlement needs for its establishment and maintenance as regards irrigable lands [and] pasturage...if the water supply could be brought to the vast expanse of land to south and west it would sustain a civilization.

1.2.1 *Irrigation of the Montezuma Valley*

The first permanent settlers arrived in the Dolores Valley in about 1877 to ranch and farm, capitalizing on the needs of the miners in Rico, a lucrative market for vegetables, meat and hay, even though the Valley was isolated from the rest of Colorado, and even Durango. Although early ranchers and farmers settled in the Dolores River Valley close to the available water, the Valley’s limited land area constrained the amount and vitality of agriculture in Montezuma and Dolores Counties. Most of the arable land in the area lies outside of the Dolores River Valley in the Montezuma Valley, part of the San Juan River basin.

This condition, and the desire to sell land to settlers, led to projects to divert Dolores River water outside of the River basin and into Montezuma Valley. An ambitious irrigation project was proposed as early as 1878, but low settlement numbers, restricted transportation, and limited financial resources inhibited support for the project. Cortez, established in the neighboring, drier Montezuma Valley in 1886, needed a dependable water supply. In February 1886, the Montezuma Valley Water Supply Company commenced work on a canal to, and a tunnel through, the narrow ridge that separates the Dolores River from Montezuma Valley. The tunnel allowed much needed domestic and irrigation water to reach Cortez and the Montezuma Valley. Completed in November 1889, it was dubbed “one of the greatest irrigation enterprises, not only in the state, but in the West,” by *The Durango Herald*.

As this 5,400-foot tunnel was nearing completion, another diversion, 4,000 feet long by 40 feet deep, the “Great Cut,” was being constructed to serve the same market through a low divide west of the tunnel. The Dolores Number Two Land and Canal Company started constructing a six-mile canal, the Morton Flume and Great Cut, in April 1887, to serve lands west and north of those served by the tunnel. Together the two diversions were purported to have a combined 1,300 cfs capacity. When both companies faced bankruptcy, they consolidated into the Colorado Consolidated Land and Water Company (“CCL&W”) in 1889. By 1890, when diversion dams channeled the flow of water from the Dolores River into the tunnel and Great Cut, over 100 miles of canals had been built throughout the Montezuma Valley to distribute water, and an early Narraguinnep Reservoir of approximately 6,000 AF had been partially constructed. Water reached the Town of Cortez in July of 1890 via a three-mile long Cortez Flume. By 1892, the CCL&W had obtained a surface water rights decree for 1,300 cfs. The CCL&W planned to serve Cortez, predicted to grow to 50,000 people, and to irrigate much of the Montezuma Valley.

Years of financial difficulty led to changing company ownership, looming bankruptcy, and farmers facing water shortages. Efforts to provide the farmers with storage capacity and a reliable water supply spurred the formation of the Montezuma Valley Irrigation District (MVID), which developed an irrigation system under the Irrigation District Law of 1901, allowing it to levy taxes, issue bonds, and purchase, construct, and maintain canals. The first meeting of MVID’s Board of Directors was held on January 7, 1902, but MVID did not buy the water company from the company’s debt holders until April 30, 1907. MVID floated a bond for $795,000 to buy the water
rights and rebuild the irrigation system, including an enlargement of Narraguinnep Reservoir to 9,000 AF and a new, small Groundhog Reservoir (later breached by MVID in 1920). The High Line Canal, also known as the Mesa Verde Lateral, was leased to the U.S. Government to supply water to the Ute Mountain Ute Tribe (Tribe). When MVID later failed, in 1920, the Montezuma Valley Irrigation Company (MVIC) was incorporated to operate the irrigation system.

In 1938, MVIC initiated plans to replace the breached Groundhog Reservoir, with funding from the Works Progress Administration, to construct 21,700 AF of storage. During the 1950’s and 1960’s, MVIC again enlarged Narraguinnep, increasing its capacity to 19,000 AF. Other system improvements included repairing or replacing flumes, canals and delivery turnouts and construction of the 3,000 AF Totten Reservoir in 1965. These improvements still did not provide MVIC’s irrigators with a late season supply.

MVIC’s diversion of water for trans-basin use during the irrigation season left the Dolores River nearly dry immediately downstream of MVIC’s points of diversion once spring runoff subsided. Dolores River flows started dropping in June and, by July, were less than MVIC’s demand. Providing a reliable supply of water for late-season irrigation and year-round municipal and industrial use would require a larger storage reservoir.

1.2.2 Trans-Basin Diversions and Montezuma Valley

In Colorado, the administration of trans-basin diversions is different from that for in-basin diversions. For in-basin diversions, any water diverted from a stream “belongs” to that stream except to the extent that it is lawfully appropriated: a diverter takes water from the river, makes the decreed beneficial use, and returns any excess to the river of origin. Any water diverted, but not consumed by beneficial use, is owed back to the river. These return flows may seep slowly through the ground or run back to the river, but will be available for other appropriators (i.e., one person’s return flow is another’s supply).

Water imported into a different basin, such as MVIC’s trans-basin diversions from the Dolores River to the Montezuma Valley, does not belong to the receiving basin. The importer of water, diverted from the stream of origin in priority pursuant to decree terms, has the right to use and re-use to extinction the imported water, regardless of priorities in the receiving stream, as long as the importer maintains dominion and control over the imported water. Once the importer loses control of the imported water, the excess imported water becomes part of the receiving stream, subject to appropriation in priority in that stream. Although water rights can be obtained for return flows of imported water when available, such appropriations have no right to the continued importation or to the water use practices that initially made that water available.

MVIC and DWCD’s importation of water to the Montezuma Valley is intertwined with the use of MVIC return flows by farmers on McElmo Creek and its tributaries. Farmers along McElmo Creek and its tributaries early on anticipated making use of return flows of imported Dolores River water. The first McElmo water rights filings were made in 1888, within a few years after construction of the tunnel and Great Cut began. Today, some farmers have adjudicated water rights dependent on those return flows, but some do not. Further, some landowners within the MVIC service area hold both shares in MVIC and separate individual water rights.

1.2.3 Formation of the DWCD

Realizing the need for a reliable late growing-season water supply, a volunteer economic development committee, “Cortez Bootstraps,” was formed in the late 1950’s to promote a large reservoir project on the Dolores River. United States Bureau of Reclamation (BOR) had been investigating the Dolores River/McPhee site for a large water storage facility and the Project was authorized by the Colorado River Storage Project Act of 1956 (“CRSP”). When Representative
Wayne Aspinall, Chairman of the House Interior Committee, visited the area he suggested that Cortez Bootstraps form a water conservancy district under Colorado law to be entitled to obtain Federal funding for the Project.

On November 20, 1961, the DWCD was created by decree of the Colorado District Court, Montezuma County, to support, organize, and manage the nascent Project, and to contract with the BOR as a public entity under the Colorado Water Conservancy District Act. With the DWCD’s support and a finding of Project feasibility by the BOR, the Project’s DPR and Final Environmental Impact Statement (FEIS) were completed in 1977. On February 8, 1977, registered voters within the DWCD approved, 3,926 votes in favor to 329 votes opposed, the DWCD’s Project repayment contract with the United States, to be supported by an ad valorem tax (1977 Repayment Contract). The repayment contract governs the terms for repaying the Federal government for reimbursable Project costs, DWCD’s operation, maintenance and replacement (“OM&R”) obligations, and various Project water allotments. Project construction began in the spring of 1978. When President Carter created a reclamation project “hit list,” construction was suspended on all BOR projects in the western United States. In part because of the Project’s role in resolving the Tribe’s reserved water rights claim in the Mancos River, the Project was the first BOR project to be removed from that list and construction proceeded in 1979.

1.2.4 A Cooperative Venture with MVIC

MVIC, incorporated as a mutual ditch company, owns some of the earliest water rights on the Dolores River. The Southwestern Water Conservation District (SWCD) applied for the original water rights for the Project in 1947. Because MVIC’s water rights were senior, the Project could not have been constructed without MVIC’s participation. Complex and lengthy negotiations were held to determine how MVIC would participate in the Project in a way that provided MVIC irrigators with a late-season irrigation supply while MVIC retained control of its irrigation water delivery system and ownership of its senior water rights. Those negotiations culminated in a 1977 contract between DWCD and MVIC under which MVIC retained most of its senior water rights while obtaining an allocation of supplemental irrigation water from the Project (1977 DWCD/MVIC Contract). Non-MVIC irrigators would receive their full water supply from the Project, pursuant to individual petitions (contracts) with DWCD. Certain limitations on MVIC’s use of its Non-Project water rights were required to ensure that the assumptions upon which the Project’s yield was calculated in the DPR would remain valid and to prevent injury from expanded use of water rights senior to those of the Project. Additional issues addressed in the 1977 DWCD/MVIC Contract and in the DWCD/BOR 1977 Repayment Contract included how water would be delivered to MVIC using Project facilities, how much Project water would be delivered to MVIC each year consistent with MVIC’s direct flow rights, how MVIC’s Project repayment and OM&R payment obligations would be determined, and how much of MVIC’s Non-Project Water MVIC could be used for other than irrigation purposes (i.e., 3,000 AF annually for stock and domestic purposes).

1.2.5 Construction of the Dolores Project

McPhee Dam was completed by 1986 and Project water was made available to Cortez and MVIC that year. The first Project full service irrigators received Project water in June 1987, but the majority of the Project was not fully on line until the mid-1990s, with completion of facilities to serve the Tribe’s lands. By 1999, all of the Project facilities that would ultimately be built were completed. Project construction thus covered a span of 20 years, from September 20, 1979, through October 10, 1999. DWCD crews started in 1985 on preliminary District operations. In 1993 the DWCD and BOR initiated the process for transferring responsibility for the OM&R of Project facilities, which was completed by 1998.
The cost of the Project, including interest during construction, totaled $752.4 million. Reimbursable costs of the Project, totaling $426.5 million, are paid by a combination of CRSP power revenues, Project water users yearly assessments over 50 years, and taxes from landowners within the DWCD. Non-reimbursable costs of the Project, which do not have to be repaid by the local community, include archeological mitigation, fish and wildlife mitigation, recreation, salinity features, and facility relocations.

The Project was one of the last Federal projects constructed as part of the CSRP. The Project is unique in that it incorporates two purposes that have not historically been part of a BOR project. First, it assisted in satisfying the Tribe’s reserved water rights claims. Second, it provided for a McPhee fishery release, the second largest use of Project water stored in McPhee.

1.2.6 DWCD Activities since Project Construction

The Project supplies supplemental water to firm up MVIC’s late season supply. With this new late season supply, MVIC’s irrigation patterns have shifted from early spring, when water is first available, towards the late growing season when water is more beneficial to crop consumptive needs. These changes have improved MVIC’s access to a full water supply, a goal MVIC and its predecessors pursued for over 100 years. All Project users benefit from McPhee carry-over storage, thus allowing the conservation of water during years of plenty for use during the inevitable dry years. Carry-over storage is critical to sustain a viable agricultural economy and guarantee a reliable community domestic supply.

To assist in settling the Tribe’s reserved water rights claims, BOR designed a pressurized full service irrigation delivery system for maximum efficiency. Within the northern Montezuma and Dolores Counties’ full service area, this requires mechanical pumps to lift and pressurize the irrigation water. The Great Cut pumping plant lifts the water into the earth lined Dove Creek Canal at rates of up to 350 cfs. The water then travels, via gravity, down the canal, controlled by check structures, to local pumping plants that deliver the water through over 100 miles of piped laterals under pressure to the Project’s farmers. This technology provides efficient deliveries, with delivery losses limited to about 5%, versus 25% or more for systems without piped, pressurized delivery. Additionally, Project farmers have maximum flexibility in how and when to take their Project water, which allows greater on-farm efficiencies than under historic irrigation practices. These design decisions allowed the use of pivot and side roll irrigation on the 100% pressurized Project system. These improvements involve significant technical complexity, including fiber communications, computerized control systems, and high voltage electrical power systems. This infrastructure design requires staffing DWCD with highly trained technicians and craftsmen to carry out round-the-clock irrigation season water deliveries.

The Project helped to achieve one of the earliest Indian reserved water rights settlements, which helped to preserve the status quo for non-Indian water users on the Mancos River in eastern Montezuma County. The reserved rights settlement provided, for the first time, a safe domestic water supply to Towaoc, the Tribe’s principal town, late in the 20th century. Delivery of a safe drinking water supply substantially improved life on the Tribe’s Reservation and eliminated the need for the hauling of water for over 1,000 people.

The Project provided funding for the largest single archaeological investigation and cultural resource recovery program completed in the United States. The Dolores Archaeological Project (DAP) uncovered voluminous new resources for the study of the Anasazi, resulting in hundreds of published professional papers. Further, the Bureau of Land Management (BLM) Anasazi Heritage Center, which stores artifacts from DAP, allows continued research, public education, and support
for the local tourist economy. Many of the original DAP archaeologists still reside in Montezuma and Dolores counties.

From the inception of the provision of Project irrigation water from McPhee, DWCD created a “water bank” to exempt full service irrigators from payment for that portion of their allotted water that goes unused in a year in order to make it available for purchase by other full service irrigators. To accomplish this, DWCD bills full service irrigators for Project irrigation water in incremental steps during the water year, beginning in April. The DWCD establishes a full service irrigation cap on water use for the year at or above the contractual allocation except in a shortage. Those irrigators who need to use more than the cap, may purchase extra water later in the irrigation season, if water is available in the water bank. Currently, about 75% of charges are set as a base due in 5 monthly installments whether or not used, while delivery charges are measured and charged by quantity.

As early as 1987, DWCD realized that the allocations of M&I water from the Project for Cortez and Dove Creek were far greater than either municipality would probably ever use. Both municipalities eventually petitioned DWCD for re-allocation of their allocations. In 1995, DWCD’s electorate approved re-allocation of 4,220 AF of M&I water for use by DWCD, including a District-wide tax assessment to cover the repayment cost of that water. DWCD later prevailed in a lawsuit by three DWCD voters, Kindred et al. v. DWCD, Montezuma County District Court Case No. 96CV5, alleging that DWCD’s M&I water re-allocation and subsequent election were improper. The re-allocation provided DWCD an additional supply of M&I water to lease to support future growth and development.

Congress’ original construction authorization for the Project did not appropriate funds for flood control because that function did not affect the design of the facility. After construction was completed, BOR allocated $2,665,000 of the construction costs to flood control based, not upon cost for construction, but upon an anticipation of benefits to be received. In February 1988, BOR transmitted a preliminary flood control diagram to the Army Corps of Engineers (“Corps”). The Corps’ revised flood control diagram, issued in July 1991, differed significantly from BOR’s original diagram and would have severely restricted the operation of McPhee Dam and interfered with other Project purposes. In December 1991, BOR formally notified the Corps of its concerns with the Corps’ revisions. A 1992 interagency field reevaluation to resolve the diagram controversy determined that the original flood control benefits of the Project were insignificant and, therefore, flood control could be eliminated as a Project purpose. With the realization that the anticipated benefits were not available, BOR determined to drop flood control as a Project purpose. In 1996, the Department of the Interior’s Congressional budget justification identified the need to remove flood control as a Project purpose, noting that flood control costs would be reallocated to the remaining Project water supply purposes: irrigation, M&I, and fish and wildlife. Boating and fishing at McPhee, with its large body of flat water for recreation, has become a valued resource for the local community. Significant Reservoir improvements were made for boat ramps and camping, with the operation of recreation facilities turned over to the U.S. Forest Service. Today, the Reservoir fishery, managed by Colorado Parks and Wildlife (CPW), provides summer recreation for visitors from near and far.

Resource development has played a large role in the West, including in southwest Colorado, starting with the development of the Rico mining district that led to opening the area to extensive European settlement. Various extractive industries came, grew, and shrank. Industries remaining today include timber, oil and gas, uranium mining, and carbon dioxide drilling. The DWCD provides industrial water in support of some of these activities.
The growth of the Montelores area depends on agriculture as a long-term, stable economic base. The Project doubled the amount of irrigated acreage within the DWCD’s service area, including approximately 7,600 full-service acres in Dolores County, 19,600 full-service acres and up to 26,300 supplemental-irrigation acres in Montezuma County, and 7,700 full-service acres at the Tribe’s Farm and Ranch Enterprise. This new and improved irrigated acreage has brought enhanced economic stability and vitality to the Montelores area. Irrigated agriculture yields at least three times more production than traditional dry land farming. Based on National Resource Conservation Services (NRCS) commodity prices, the Project’s full service area, representing only 40% of the Project’s irrigated area, brings in over $14 million in direct revenues to the local economy.

In 1996 the BOR completed an Environmental Assessment (EA) and Finding of No Significant Impact (“FONSI”), to modify the operation of McPhee downstream fish and wildlife (F&W) releases and acquire additional water for the downstream release. That decision (1) changed Project operations from an indexed “fish flow” release to a “managed Fishery Pool” release; (2) allowed BOR to acquire from DWCD an additional 3,900 AF of water for F&W purposes; (3) changed the Fishery Pool water year to April 1 to March 31; (4) provided that the water released during managed spills would not count against the Fishery Pool (i.e., the “fish clock”); and (5) directed that the Fishery Pool share shortages with other Project water users during declared water shortage years. The EA also established a goal for DWCD “to acquire, lease, or otherwise obtain an additional 3,300 AF of water” for the Fishery Pool, referred to as “Increment II” water, and set aside $371,000 in a trust account for that purpose, none of which has been used to date.

Through Grant Agreement Number 6-FG-40-18960, BOR acquired the 3,900 AF of additional Project Water from DWCD to mitigate a discrepancy in the DPR and FEIS hydrologic assumptions (referred to as “Mistake Water”) and supplement the average annual 25,400 AF reserved to the U.S. in the DWCD Repayment Contract for release downstream of McPhee Dam for F&W purposes. To compensate DWCD for the Mistake Water and for completion of certain Project work items, BOR agreed to pay DWCD $7,104,000, including $3,890,000 for the additional 3,900 AF. Recognizing that the sale of that water to BOR for F&W releases would cause greater shortages to full service irrigators during an extended drought, DWCD decided to use the $3,890,000 to establish a long term reserve fund for use for all major maintenance and replacement items, and invest in pump plants and pipelines to irrigate additional acres to spread the Project O&M cost over more acres. As part of implementing that directive, DWCD undertook a feasibility study for a program called Water for Everyone Tomorrow Package (WETPACK) in anticipation of DWCD’s purchase of 1,500 MVIC Class “B” shares to allocate water to about 3,000 acres, then classified as irrigable or to be classified as irrigable, pursuant to BOR standards and to sell 3,300 AF to the downstream fishery. The aim of WETPACK was to better manage available water supplies and Project facilities to provide additional water for Project purposes, including the downstream fishery. Owners of property either then within DWCD or to be included within DWCD could file petitions for an allotment of District irrigation water. This included some of the original Project full service water involved in a lawsuit that had been filed against DWCD in 1987, Hollen, et al. v. DWCD, in which 27 landowners sought to void their petitions (i.e., contracts) for Project irrigation water. Under the 1990 settlement of that case, those landowners were permitted to have their Project irrigation water petitions rescinded.

As a benefit to both MVIC and DWCD, DWCD purchased 6,000 AF of water from MVIC as Class “B” MVIC shares under the Purchase Agreement dated August 27, 2002. Under that Purchase Agreement, DWCD also purchased Totten Reservoir and its water rights, which DWCD has utilized for the last two years to provide water to various McElmo Creek irrigators. DWCD’s “B” share water is available to irrigate 3,000 acres of land originally designated to be irrigated by MVIC.
but for which MVIC never provided irrigation water. This new irrigation water, alternatively referred to as WETPACK or Class “B” water, was to be priced at an up-front cost of $250.00/allotted acre and payment of the same annual costs as those paid by District full service irrigators, including an account charge, a DWCD construction charge, and a proportionate share of DWCD’s OM&R costs. In allotting available water, the Board gave priority to “Affordable Blocks” of land which could be economically served by pressurized water. Those areas included: (1) land which could be served by the Sandstone, Ruin Canyon, and Fairview Pump Stations; and (2) land near the Dove Creek Canal. Fifty-four individuals, owning 13,186 acres, petitioned for water, including some of the successors of the *Hollen* lawsuit plaintiffs. A DWCD Engineering team evaluated the lands to determine how each parcel could best be served, with capacity and feasibility criteria the primary considerations. To make this water available, the DWCD also negotiated a contract with BOR to transport the non-Project water purchased from MVIC through Project facilities (pump plants and canals). In 2002, the DWCD Board allotted that irrigation water to eligible landowners.

Pursuant to its “WETPACK” initiative, DWCD now provides about 3,000 AF of irrigation water to a total of about 1,500 acres formerly served by Project irrigation water and new lands in the Sandstone and Pleasant View East areas. Because of the major costs to extend DWCD facilities to irrigate additional WETPACK acres, DWCD eliminated other portions of the original WETPACK project and repaid its loan to the Colorado Water Conservation Board (CWCB) associated with those proposed additional facilities.

In 2008, DWCD completed its Dove Creek Lawn and Garden Irrigation System. 200 contracts were originally sold and by 2013, 177 lawn and garden irrigators in Dove Creek had metered taps installed. This program provides Project water for lawn and garden irrigation. Those irrigators pay an annual fee to lease water on a per-gallon basis and for standalone O&M of the System. DWCD took out a loan from CWCB to establish the System, which has been repaid. DWCD also purchased thirteen taps for re-sale to Dove Creek residents, some of which have been resold.

The DWCD has installed and upgraded electronic equipment to allow for remote monitoring and operation of Project facilities. An original SCADA system came partially on line in 1991 for Reach 1 of the Dove Creek Canal. Further sections of Dove Creek Canal came on line through 1993 until completely automated. The Towaoc Highline Canal followed from 1993 to 1995. Those early systems included two mainframe computers and all copper wiring. The computers have been replaced several times and are now off-the-shelf desktop models with Microsoft operating systems and a Rockwell software package. The copper wiring was been replaced in phases between 2004 and 2007. Terminal hardware has migrated during these years from Remote Terminal Units to Programmable Logic Controllers in conjunction with the new fiber lines and software upgrades. Finally an early multi-mode fiber cable to McPhee Dam was replaced in 2013 to current single mode fiber standard hardware to control the power plant and dam gates.

DWCD reached agreement with BOR and the CWCB to provide an annual set amount, 700 AF, of Project Water, to replace water injected by BOR’s Paradox Valley Unit to control salinity loads in the Dolores River. The original augmentation Plan for the salinity works had allowed a variable amount of augmentation water annually (i.e., 71 to 924 AF) depending on the filling of McPhee.

In settlement of a lawsuit brought by MVIC against DWCD and BOR in 2009, DWCD, BOR, and MVIC, together with the Tribe, agreed to a procedure for calculating MVIC’s annual allocation of Project water. Exhibit “A” to the Stipulated Settlement, a calculation sheet, provides a clean-cut process for determining the amount of Project Water MVIC is entitled to annually.


1.2.7 Summary of DWCD and Dolores Project Milestones

Reclamation projects are massive undertakings and the DWCD has initiated a number of other activities in service of the Districts statutory responsibilities. The following timeline summarizes those many efforts and accomplishments.

1942 BOR drills 10 exploratory holes at future site of McPhee Dam; First Feasibility Study
1943 Geological Report of the McPhee Dam Site
1954 Dolores Project, Colorado, Status Report
1956 CRSP directs BOR to prioritize completion of the planning reports for the Project
1961 DWCD formed by order of the District Court
1963 SWCD decreed water rights for McPhee and other Project facilities, with a 1963 priority and 1940 appropriation date
1968 Project authorized by the CRSP, P.L. 90-537
1973 Feasibility Geological Report, McPhee Dam and Reservoir Site
1974 Geologic Feasibility report - Great Cut Dike and Pumping Plant Sites
1975 Wild and Scenic Rivers Act amended to authorize accelerated study of the Dolores River for designation
  CWCB decreed 1975 priority for a 78 cfs instream flow (ISF) from McPhee Dam to the confluence with the San Miguel River
1976 BOR completes preconstruction design drilling program for the proposed sites at McPhee and Great Cut Dike
  U.S. departments of the Interior and Agriculture conclude that 105-mile segment of the River downstream of McPhee Dam site is “eligible” for designation as a Wild and Scenic River, with McPhee considered “in place”
  Petitions for allotments of Project Irrigation Water executed
1977 FEIS and DPR for the Project issued
  U.S. Fish and Wildlife Service issues Biological Opinion for the Project with a “jeopardy” finding for the Colorado squawfish as an endangered species in the Colorado River and adopting a “reasonable and prudent alternative” requiring regulation of flows by the Dolores Project or other reservoirs in the upper Colorado River basin and determining that “there was not sufficient data to show that the Dolores River was essential for recovery” and “records did not identify the Dolores River as important habitat” for the species considered, such that Project depletions contributing to the “jeopardy” finding could be mitigated by releases from other reservoirs
  U.S. Army Corps of Engineers Section 404 Permit issued
  DWCD/BOR Repayment Contract executed and approved by voters
  DWCD/MVIC Contract executed and approved by voters
  Project groundbreaking ceremony (September 24)
1978 First Project dirt moved; interest during construction costs begin accruing
  Regional agreement executed between the BOR & U.S. Fish & Wildlife Service
  Agreement executed between the BOR and U.S. Forest Service for operation of recreational facilities at McPhee
Contract awarded to University of Colorado for the Dolores Archaeological Project (DAP) 

1980 Construction Contract awarded for McPhee and Great Cut Dike 
Construction begins on McPhee 

1981 Bradfield Bridge completed 
Supplemental DPR for two power plants issued 

1982 BOR completes Preliminary Findings Report for Campbell Forebay-Plateau Creek Afterbay pumped storage project concluding it is best alternative to proposed pumpback hydro projects involving McPhee 

1983 McPhee Dam complete 

Federal Energy Regulatory Commission (FERC) issues 36-month preliminary permit to Colorado Water Resources and Power Development Authority (Authority) for study of Dolores Pumped Storage Project; Project Review completed for Authority by R.W. Beck & Associates 

1984 McPhee begins filling, with release of 150 cfs downstream 
Dolores River below McPhee stocked with rainbow, cutthroat, and brown trout 

DWCD Board establishes that landowners shall bear financial responsibility for extending delivery infrastructure from Project turnouts to subdivided lands (Resolution 84-01) 

SWCD applies to FERC for a Preliminary Permit for Dolores Pumped-Storage Project 

1985 Cooperative Agreement between BOR and DWCD under which BOR agrees to provide funding for DWCD to complete certain interim Project OM&R tasks pending transfer process. 

Agreement between BOR, DWCD and Montezuma Water Company for the Carriage of Water through Project Facilities, Contract No. 6-07-40R0240 

1986 McPhee Dam, Great Cut Dike, and Dolores Tunnel complete 

MVIC receives irrigation water and Cortez receives M&I water through Project facilities 

BOR and U.S. Forest Service execute agreement for administration of Forest resources, recreation facilities, lands, waters, and reclamation works in the McPhee area 

DWCD applies for conditional water rights for Plateau Creek Pumped Storage Project, incorporating change of Ruin Canyon and Cahone reservoirs water rights (decreed in Case No. 86CW19 in 1989) 

1977 Repayment Contract amended so as to be consistent with Reclamation Reform Act and revised excess land criteria. 

District Court modifies DWCD formation decree in Case No. 3451 to reduce number of directors, property owners residing in the District appointed at-large, from eight to seven 

1987 McPhee fills for first time 

BOR Notice of Development Block No. 1, MVIC, making average annual supply of 13,700 AF of Project water available for supplemental irrigation of up to 26,300 acres within MVIC beginning April 1, 1988, with 50 equal annual repayment installments of $63,200, to total $3,160,000, due beginning in 1994 following a five year development period 

BOR Notice of Development Block No. 2 for all water users within City of Cortez and rural areas within the District to which M&I water has been allocated
First irrigation deliveries to Project Full Service Area, Fairview Block

District Court, Water Division 7, Case No. 3451, approves, *nunc pro tunc* to 1977, Repayment Contract with BOR, 1977 Contract with MVIC, representative petition for irrigation water with individuals and entities, and City of Cortez and Town of Dove Creek contracts for M&I water

*Hollen v. DWCD, et al.* Case No. 87CV192, District Court, Montezuma County, was filed by 27 landowners who had executed petitions for Project irrigation water, but wanted to force DWCD to void the petitions. The plaintiffs also contested the validity of (1) the DWCD/BOR Repayment Contract; (2) Project design modifications; and (3) the Water Conservancy District Act and its application to the judicial appointment of the District Board of Directors; and (4) the constitutionality of DWCD procedures in approving Project irrigation water petitions in 1987 and prior thereto. Defendants, in addition to DWCD, included then current DWCD Board members and former Board members in their official and individual capacities and, pursuant to a court order in the case, all other Project irrigation water petitioners as indispensable parties.

1988 BOR Development Block Notice No. 3 for M&I water for Dove Creek and Dolores Rural Area

Ute Mountain Ute Tribe receives M&I water at Towaoc

Downstream release set at 78 cfs per “wet” year determination; drought begins in late summer

Memorandum of Understanding Between DWCD and the City of Cortez for Cortez to indemnify DWCD if Cortez defaults under its contract with the CWCB requiring DWCD to make payments thereunder

1989 Drought continues, but downstream release remains at 78 cfs

United States and MVIC enter into Contract No. 9-07-40-R0730 to allow the production of power from MVIC-owned water passing through the Towaoc Power Plant

Ute Mountain Ute Tribe Repayment Contract with BOR, executed April 21, Contract No. 9-07-40-R0720

BOR, DWCD, MVIC, and Ute Mountain Ute Tribe execute Contract for Adjustment of Water Rights and for the Rehabilitation and OM&R of facilities to reduce salinity inflow to Colorado River, Contract No. 9-07-40-R0730

1990 BOR Notice of Development Block No. 4, Fairview and Cahone Full Service Area, making up to 27,644 AF of full service irrigation water available for up to 7,894 acres within Fairview system and 6,068 acres within Cahone system beginning May 1, 1991, with 50 equal annual repayment installments of $36,654, to total $1,832,700, due beginning in 1997 following a five year development period

Drought continues causing “dry” year determination in early spring and BOR seeks to require greater release, but late-spring storms push determination to “average” and 50 cfs released

Multi-year (i.e., until 1995) DWCD negotiations with BOR and other stakeholders commence concerning downstream fish and wildlife releases and avoiding 20 cfs release

DWCD applies for water rights for McPhee and T/HC power plants decreed in 1993 in Case No. 90CW777

Settlement reached in *Hollen v. DWCD*: case is dismissed with prejudice with Plaintiffs allowed to file petitions for the reallocation of their Project water to the DWCD provided
the landowners still paid *ad valorem* taxes on the property to which the irrigation water had been allocated

1991  BOR Amendment No. 1 to Block Notices No. 2 and No. 3 to allow for M&I water deliveries and repayment to begin for the Dolores Rural Area in 1991

1992  BOR Notice of Development Block No. 6, South Canal Full Service Area, making up to 21,321 AF of full service irrigation water available for up to 10,768 acres within Pleasant View, Ruin Canyon, and Hovenweep systems beginning May 1, 1993, with 50 equal annual repayment installments of $28,270, to total $1,413,500, due beginning in 1999 following a five year development period

Significant changes to Project: U.S. Army Corps of Engineers and BOR determine that flood control benefit for Project is not significant and eliminate it as a Project purpose; certain Project structures deleted, including Dove Creek Drains, Monument Creek Reservoir, Dawson Draw Reservoir, Cross-Canyon and Monument Creek pumping plants, Cortez-Towaoc Pipeline (constructed by State of Colorado); Towaoc Canal and MVIC’s Highline Canal combined; Towaoc Power Plant forebay added; Dolores Canal to be lined with concrete

Operation and Maintenance Agreement for the Towaoc Canal Substation executed by DWCD, BOR, Western Area Power Administration (WAPA), and Empire Electric Association

MVIC Board offers to sell 3,900 AF of water to BOR for fish and wildlife purposes for $6.2 million; MVIC shareholders deny Board’s request to authorize the sale

Upstream Water Users Agreements Among DWCD, owners of upstream irrigation water rights and MVIC for acquisition of water in Groundhog Reservoir for release to seek to keep MVIC call off the River

1993  BOR Notice of Development Block No. 7, Dove Creek Full Service Area, making up to 6,317 AF of full service irrigation water available for up to 3,191 acres within Cross Canyon and Monument Creek systems beginning May 1, 1994, with 50 equal annual repayment installments of $8,376, to total $418,800, due beginning in 2000 following a five year development period

Ute Farm & Ranch Enterprise receives irrigation water

McPhee and Towaoc Power plants produce electricity

Installation of first automated control system (i.e., SCADA) for Project facilities, at Dove Creek Canal, completed

Creation of DWCD Water Activity Enterprise (Resolution No. 93-02; Dec. 14)

*Recovery Implementation Program Recovery Action Plan* completed (amended in 2000) for the Colorado pikeminnow and humpback chub requiring, in addition to releases from the Aspinall Unit, items to address non-native fish escapement from McPhee Reservoir and biological surveys, both of which are now considered complete

1994  First agreements executed with landowners to provide for the extension of Project irrigation facilities to Sandstone for returned FSA irrigation water from 177 lawsuit

DWCD adopts policy that upon subdivision of a tract of land, a separate turn out shall be required for each parcel and that cost shall be allocated consistent with Resolution 84-01.

1995  DWCD applies for upstream exchange and augmentation plan to provide for domestic use, lawn and garden irrigation, and pond evaporation upstream of McPhee (decreed in 1999 in Case 95CW104). Landowners begin contracting for M&I water for this purpose
DWCD adopts policy that if a division of land results in any parcel containing less than 10 acres of irrigable land, said parcel shall not be eligible for project agricultural water

Contract for Integrated Projects for Electric Service to the Project executed by DWCD, BOR, and WAPA

Contract between the BOR and DWCD for the OM&R of power generation facilities

DWCD electorate votes to approve re-allocation of Cortez and Dove Creek Project M&I water and assumption of repayment obligation by all DWCD taxpayers

Contract between Town of Dove Creek and DWCD relieves Dove Creek’s taxpayers from obligation to pay for 320 AF of Project M&I water and grants Dove Creek a limited right of first refusal to re-petition and re-contract for the 320 AF.

BOR Grant No. 6-FG-40-18960 for acquisition of water for fish and wildlife purposes and completion of certain Project work items by DWCD

Amendment to DWCD/BOR Repayment Contract to increase the average amount of Project water reserved for downstream fish and wildlife to 29,300 AF

Amendatory Agreement between BOR and DWCD for Extension of the Current Term and Funding of the Cooperative Agreement No. 5-07-40-L19990 to Allow Completion of Specific Dolores Project Construction Deficiency Work, including Correcting Deficiency in the T/HC; Inspecting McPhee gates and liner; replacing the McPhee Dam and bypass line; repaying the joint bonds for the Cathode Protection System; and replacing the Cahone Pumping Plant discharge heads on the variable frequency units

Contract between BOR and DWCD for OM&R of power generation facilities (i.e., McPhee and Towaoc Canal power plants), Contract No. 95-07-40-P0240

1996 Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) completed changing, among other things, McPhee “fishery flow” requirements to managed “Fishery Pool” releases

BOR transfers O&M for DWCD headquarters to DWCD

DWCD applies for upstream exchange and augmentation use to preserve status quo for pre-Project upstream irrigators pursuant to agreements with certain upstream ditch rights owners (decreed in 2000 in Case No. 96CW49)

Initial planning on what would become WETPACK initiated (Reconnaissance completed in 1998)

1997 BOR Amendment No. 2 to Block Notice No. 2 to reflect redistribution of 3,900 AF of M&I water from Cortez to DWCD and amend repayment obligations to reflect total of 7,100 AF M&I (i.e., 2,300 AF remaining allocated to Cortez and 4,800 AF to DWCD) and construction costs incurred through September 30, 1996

BOR Amendment No. 2 to Block Notice No. 3 to reflect redistribution of 320 AF of M&I water from Dove Creek to DWCD and amend repayment obligations to reflect total of 600 AF M&I (i.e., 280 AF remaining allocated to Dove Creek and 320 AF to DWCD) and construction costs incurred through September 30, 1996

Dove Creek Block (final Project lands) receives first water

1998 OM&R for many Project Facilities transferred to DWCD, including McPhee Dam, Great Cut Dike, Outlet Works and Pumping Plant, Fairview and Cahone pumping plants and laterals, Pleasant View and Ruin Canyon pumping plants and laterals, Hovenweep Lateral, Dove Creek Pumping Plant and Laterals, Dove Creek and South Canals, Great Cut
Operation and Maintenance Headquarters and Equipment Yard, Programmable Master Supervisory Control (PMSC) system, and Moveable Equipment

Harris Water Engineering completes WETPACK Reconnaissance Study, a broad assessment of all known water sources and potential uses in the District, except Ute Mountain Ute Tribe needs

Modification of Grant No. 6-FG-40-18960 to add $790,000 for future repair of McPhee Dam outlet works guard gate seats

DWCD considers providing water service to San Juan County, Utah, an effort ultimately abandoned

Report titled “Management Options for DWCD; Evaluation and Recommendations,” by Joe Hall and Don Glaser; Hall, Pitts & Associates, Consulting Engineers, Loveland, Colorado

Memorandum of Understanding executed for the Establishment of a Dolores River Instream Flow Partnership (DRIP)

1999 DWCD applies for downstream exchange plan to provide water from McPhee or Totten for authorized uses in the San Juan River System (decreed in 2008 in Case No. 99CW69)

DWCD ratifies establishment of DWCD’s Water Activity Enterprise, originally formed in 1993

2000 Final Project Cost Estimate, BOR/DWCD Operating Agreement executed

OM&R Responsibility final transfer to DWCD completed

DWCD applies for Plateau Creek Reservoir water right for recreation, domestic, municipal, industrial and piscatorial which may be used to provide additional yield for downstream fishery purposes (decreed in 2002 in Case 00CW97)

DWCD Water Activity Enterprise obtains first WETPACK CWCB loan ($5+ million for 30 years at 3.5% interest) to purchase Class “B” shares and construct the Sandstone West irrigation facilities based on Harris Water Engineering WETPACK Feasibility Study

“Dolores River Instream Flow” study prepared by Hydrosphere Resource Consultants for Environmental Defense Fund and Trout Unlimited. This unethical and unprincipled report is based on inaccurate information and false assumptions to misrepresent availability of Dolores Project water supply for downstream fishery

Cooperative Agreement re DWCD office building

2001 BOR Amendment No. 3 to Block Notice No. 2 to reflect Final Cost Allocation for Project by decreasing obligations for total of 7,100 AF of M&I water

Cooperative Agreement executed between DWCD and BOR for installation and construction work on BOR’s Simon Draw Wetlands Area

Contract executed 10/19/01 between BOR and DWCD for carriage of non-Project water through Project facilities (i.e., essentially MVIC “B” Share water)

ESA Biological Opinion issued for contract

Contract between BOR and DWCD for carriage of water through Project facilities, Contract No. 02-WC-40-7060

2002 DWCD purchases MVIC “Class B” shares and Totten Reservoir

First DWCD Water Management Plan completed by Harris Water Engineering
2003 MVIC and DWCD question the amount of water required to be released from McPhee to satisfy downstream water rights senior to those of the Project, determining that 3,900 AF originally estimated in the DPR and allocated by BOR is excessive.

DWCD applies for new sources and uses for Totten Reservoir (Cases 03CW112 and 04CW46, pending)

Installation of Dove Creek fiber optic cable completed

251.7 acres of Leased-Water Lands converted to WETPACK Water

WETPACK Sandstone extension construction begins to make water available to 440 acres beginning in 2004

WETPACK Feasibility Report for Pleasant View East and Yellow Jacket East Irrigation Facilities to serve 2,200 Acres with Project water by Harris Water Engineering

2004 WETPACK Pleasant View East construction begins to make water available to 462 acres beginning in 2006

2005 DWCD Water Activity Enterprise obtains second CWCB loan ($2+ million at 2.5% interest) to construct additional irrigation facilities described in Harris Water Engineering updated WETPACK Feasibility Study

License Agreement between DWCD and Empire Electric Association permitting DWCD to place certain lines, attachments, and apparatus on Empire facilities

Revision 1 to Exhibit “A” to Contract 93-SLC-0092 DWCD, WAPA, and BOR to revise the billing period for “Other Property Use” power lowers DWCD’s costs

2006 Agreement between DWCD and Town of Rico provides for DWCD to forbear from exercising a call on Rico’s water supply and to seek to prevent an MVIC call on Rico’s supply. In exchange, Rico is to have land within the Town and the land on which its water treatment plant and its water supply intake structure are located included within the District and to purchase M&I water from DWCD to replace depletions from the Rico water system

2007 Replacement of copper wiring with fiber optic cable for remote operation of Project facilities, begun in 2004, completed

2008 Dove Creek Lawn and Garden Irrigation System on-line; DWCD purchases 13 taps in the system for later re-sale to residents

2009 MVIC sues DWCD and BOR in Federal District Court over, among other issues, DWCD’s interpretation of the contract methodology to determine MVIC’s annual allocation of Project water

Programmatic Biological Opinion and Final Environmental Impact Statement: Aspinall Unit Operations establishes release amounts from Aspinall Unit to satisfy Reasonable and Prudent Alternative addressing “jeopardy” finding for Dolores Project for endangered native fish in the Colorado River and recommends that BOR continue to support regional conservation efforts for three native fish present in Dolores River, continue to work with Biology Committee to determine releases from McPhee, continue to take an active role in Dolores River Dialogue, and submit an annual report to USFWS on those recommendations and flow management in the Dolores River

DWCD invests in in-house Geographic Information System (GIS), a tool to assist DWCD operations and planning by creating and displaying geographic information for the District

2011 INCA Engineers (now TetraTech) applies to FERC for a preliminary permit to study “Cortez Pumped Storage Project” on Plateau Creek based on identification of project in
studies c. 1978-1983; DWCD applies for same preliminary permit asserting municipal preference

DWCD ceases negotiations with CWCB on an agreement to establish a mechanism to prevent water released from McPhee over 78 cfs for fish and wildlife purposes from being diverted by other parties

MVIC shareholders reject proposal from MVIC Board to lease water to CWCB for downstream fish and wildlife purposes

2012  **MVIC v. DWCD** dismissed pursuant to Stipulated Settlement Agreement that provides a procedure for determining MVIC’s annual allocation of Project water

DWCD submits Notice of Intent under EPA General Discharge Permit to apply herbicide to portion of T/HC on UMU Reservation and receives automatic coverage under Colorado Permit Number COG8600000 for herbicide application at remainder of Project facilities

Harris Water Engineering completes Reconnaissance Study to Evaluate Potential Water Needs and Supplies for DWCD and Tribe

FERC issues preliminary permit to DWCD for Plateau Creek Pumped Storage Project; DWCD issues RFP for entities to join development group to study project

2013  DWCD executes agreement with TetraTech to complete feasibility study and “Investment Information Memorandum” for Plateau Creek Pumped Storage Project

DWCD and Ute Mountain Ute Tribe begin negotiations for cooperative venture to construct Energy Dissipating Structure (EDS) on T/HC as identified in Reconnaissance Study

DWCD Board unanimously approves making interim reallocation of 3,900 AF of Project water, initially estimated by BOR to be needed for downstream senior rights, permanent: 1,274 AF for estimated downstream water rights demand, 700 AF for Paradox Salinity Unit augmentation, and, based on the initial proportion of Project allocations, 985 AF for full service lands, 524 AF for downstream fish and wildlife, and 417 AF for Ute Mountain Ute Tribe irrigation (Resolution No. 13-01)

DWCD completes replacement of fiber optic cable to McPhee Dam for remote operation of power plant and dam outlet works and spillway

### 1.3  **DWCD Enabling Legislation, Contractual Obligations & Organizational Structure**

Many contracts, water rights decrees, statutes, and other documents govern Project operations. This section provides a summary of key provisions of those documents. For discussion of water rights decrees, please see section 3. The documents are included in the CD attached hereto as Appendix A. Note that provisions in some documents have been amended or superseded by subsequent documents (e.g., the flood control benefit of the Project in the DPR and original Repayment Contract was deleted by subsequent documents). Because the summaries below are for background purposes only and are incomplete, the original documents should be reviewed when questions regarding the basis for DWCD operations or the rights and duties of the District or other related parties arise.

#### 1.3.1  **Enabling Legislation and DWCD Organization**

Colorado River Storage Project Act of April 11, 1956 (Public Law 84-485) and the Colorado River Basin Project Act of September 30, 1968 (Public Law 90-537). The Project is a Federal Reclamation project authorized as part of the Colorado River Storage Project Act and the Colorado River Basin Project Act. The Colorado River Storage Project Act authorized the Secretary of the
Interior to construct, operate and maintain a variety of dams, power plants, reservoirs and related works, including Glen Canyon, Navajo, Flaming Gorge and the Aspinall Project. The purposes of those projects included regulating the flow of the Colorado River; storing water for beneficial consumptive use; making it possible for the States of the Upper Colorado River Basin to utilize the apportionments made to and among them; providing for the reclamation of arid and semiarid land; controlling floods; and generating hydroelectric power. The Colorado River Storage Project Act also directed the Secretary of the Interior to prioritize completion of planning reports for the Project, among others.

The Colorado River Basin Project Act authorized the Secretary of the Interior to provide a program for the further comprehensive development of the water resources of the Colorado River Basin and for the provision of additional and adequate water supplies, including for the Dolores, Animas-La Plata, Dallas Divide and other projects. These projects are to regulate the flow of the Colorado River; control floods; improve navigation; provide for the storage and delivery of Colorado River water for the reclamation of lands, including supplemental water supplies for M&I and other beneficial purposes; to improve water quality; provide for basic public outdoor recreation facilities; improve conditions for fish and wildlife, and generate and sell electrical power as an incident of the foregoing purposes. The Interior Secretary was directed to develop, after consultation with affected States and appropriate Federal agencies, a regional water plan to serve as the framework under which projects in the Colorado River Basin were to be coordinated and constructed so that an adequate supply of water would be made available for such projects.

Colorado’s Water Conservancy District Act, C.R.S. § 37-45-101 et seq., and Civil Action No. 3451 – Decree for the formation of the District In the District Court, County of Montezuma, State of Colorado (November 20, 1961). The General Assembly established statutory authority for water conservancy districts to encourage and assist in the construction of water projects. The DWCD was created by petition and a decree of the Colorado District Court, Montezuma County, in Case 3451 on November 20, 1961, to support, organize and manage the Project. It was validated and recreated by the General Assembly in 1983. C.R.S. § 37-45-153. The DWCD is a political subdivision of Colorado and is considered a quasi-governmental corporation. The DWCD operates under the Colorado Sunshine Law, C.R.S. §§ 24-6-101, et seq, concerning open records and open meetings.

The Water Conservancy District Act delineates a district’s purpose, policy and Board responsibilities, which include generally (1) providing for the conservation of water resources within a district to insure the greatest beneficial use of water within the district and (2) encouraging and assisting in the construction of water projects to benefit the residents of the district and the State, including industry, municipalities, and irrigation. Water conservancy districts are governed by a Board of Directors. The number of DWCD directors was fixed by the District Court, in its DWCD establishment order. The Board has powers enumerated in sections 118 and 134 of the Water Conservancy District Act, including among other things to make and enforce all reasonable rules and regulations for the management, control, delivery, use and distribution of water; enter into contracts and agreements; borrow and incur debt and issue bonds; acquire, dispose of and encumber real and personal property; appoint, hire and retain agents, employees, engineers and attorneys; fix fees, rates, tolls, penalties or charges for services; furnish services and facilities; adopt and amend bylaws, rules and regulations, and levy taxes and collect revenue. Director terms and offices are described in the District’s Bylaws.

The DWCD’s formation decree specifically directs DWCD to acquire and appropriate waters of the Dolores River, its tributaries and other sources of supply. It specified that the District would be governed by seven directors residing in each of seven subdivisions. In 1976, at the request of
the DWCD, the Court modified the formation decree to provide for eight at-large directors residing with the District and owning property therein. In 1986, the DWCD successfully requested that the Court reduce the number of directors to seven because DWCD determined it would be more cost effective and seven directors would better be able to represent the District as a whole.

1.3.2 Primary Contracts, Project Planning Documents, and Supporting Documents Affecting District and Project Operations

Dolores Project Definite Plan Report, April 1977 with Appendices A-Design & Estimates OM&R; B-Water Supply; C-Project Lands, Drainage; D-Agricultural Economy, Social Assessment; E-Financial and Economic Analysis, Plan Formulation. The DPR summarizes the extensive BOR work conducted up to April 1977 in support of the development of the Project, through documenting existing conditions, studying impacts, estimating post-construction effects and informing local parties. The DPR determined the Project’s Benefit/Cost ratio needed to meet Federal criteria for Project approval. The DPR supported the Project’s FEIS, determined likely future conditions, and provided a basis for the many contracts that followed. In November 1981, a supplement to the DPR supported the addition of power plants to the Project. A final 1988 DPR supplement recognized the combined T/HC salinity improvements and deleted or modified other Project facilities.

Final Environmental Impact Statement (FEIS), May 9, 1977. In conjunction with the DPR, with public participation, BOR produced the Project’s FEIS, after several drafts, to allow Project construction to move forward. The FEIS looked at the Project’s many social and physical impacts and recognized the following: (1) agricultural production and incomes would increase resulting in growth to the local economy; (2) Project construction would make a short, but important boost to the area economy; (3) forty-one families would need to be relocated; (4) annual flows in the Dolores River would be reduced while flows in the San Juan Basin would increase, with a combined net decrease of an estimated 80,900 AF annually; (5) over 15 miles of what was considered “limited” to “poor” fish habitat would be flooded; (6) new trout fisheries would be available in the reservoir and for 11 miles below McPhee Dam; (7) approximately 45 miles of warm water fishery would be provided in the Dolores River; (8) inundation of wildlife habitat would be mitigated by the acquisition of land and other measures; and (9) while white water boating opportunities would decrease, additional recreational opportunities below the Dam and at Project reservoirs would be provided. A 1989 Final Supplement to the Final Environmental Impact Statement covered the Project’s power plants, the T/HC Project, salinity feature and modifications to Project facilities.

Contract Number 7-07-40-W0470, Between U.S. Bureau of Reclamation and the Dolores Water Conservancy District, September 23, 1977, Providing for Project Repayment (“Repayment Contract”), Amended February 25, 1986 in conformance with the Reclamation Reform Act of 1982 (P.L. 97-293). A repayment contract had to be in place before BOR could start investing funds in Project construction. It was signed by the DWCD after DWCD voters approved the ad valorem tax for repayment of Project costs in an election on February 8, 1977. The contract (1) contains the repayment responsibilities of all Project participants for their portion of the Project; (2) provides definitions, including those for Project and Non-Project Water; (3) describes the facilities contemplated for the Project, including some later modified or deleted; (4) establishes BOR’s relationship with a single governmental contractor, DWCD, obliging DWCD with all administrative responsibility for Project financial functions, such as billing and water accounting, and with Project OM&R responsibilities; (6) provides CRSP power for Project pumping; (7) provides water supply shortage rules, establishing municipal supply as having priority over other Project water uses; (8) defines MVIC’s variable Project Water supply based on its annual Non-Project supply; (9) defines the Tribe’s Project allocation; (10) defines the amounts of water reserved for downstream release for fish and wildlife; and (11) establishes public use of McPhee and
precludes the carryover of allocations by use across water years. The numbers used in the contract come from estimates in the 1977 DPR. Provisions concerning flood control are no longer relevant because it was subsequently deleted as a Project purpose.

- **General Definitions (Article 1, pg. 2-5):**
  - “Project Water” is defined as all water made available from, through, or by means of project facilities exclusive of privately owned water.
  - “Project Irrigation Water” is Project water made available for use in the production of agricultural crops and livestock, and for irrigation of small tracts of irrigable land.
  - Project irrigation water delivered to MVIC in late season to supplement MVIC’s non-Project supply was expected to average about 13,700 AF annually, depending on amount of MVIC’s Non-Project Water.
  - “Project Municipal and Industrial Water” is Project water furnished to municipalities, to industrial establishments, and for commercial recreation uses.
  - “Non-Project Water” is defined as water historically diverted by MVIC, including by virtue of 707.7 cfs of absolute and 592.3 cfs of conditional existing pre-Project Main Canal surface irrigation water rights, estimated to average 130,600 AF annually.

- **Project Facilities (Article 2, pg. 5-10):**
  - Works provided for Project purposes by BOR and transferred to DWCD for OM&R, not including land and facilities used exclusively for fish, wildlife and recreation (see Contract Article 4.0, Facilities, for facility details). Project facilities include:
    - McPhee Dam, Reservoir and Great Cut Dike
    - Dove Creek Canal & Laterals
    - South Canal & Laterals
    - Dolores Tunnel
    - Dolores Canal
    - Towaoc Highline Canal
    - Pumping Plants
    - Municipal and Industrial Pipeline
    - Project Drainage Works (not built),
    - Operating Headquarters, Shops, Warehouses and Other Buildings
    - Power Plants (operated under Contract #95-07-40-P0240).

- **Points of Delivery, Measurement, and Use of Project Water (Article 3, pg. 10-11):**
  - All Project water delivered to DWCD is to be accurately measured to encourage its economical and beneficial use.
  - The measuring equipment is to be provided and installed by BOR, with its OM&R by DWCD.
  - DWCD is to provide bi-weekly reports to BOR during each irrigation season, to indicate compliance with this contract

- **Obligation and Terms of Repayment (Article 6, pg. 13-18):**
  - DWCD agreed to the Contract repayment obligations with revenues available to it from irrigation, M&I water users, ad valorem taxes, account charges, and miscellaneous sources.
  - The total irrigation water user obligation of $6,825,000 is to be apportioned to the irrigation “Blocks” to be paid in 50 equal annual installments.
  - Annual account charges are to equal
    - $10 times the number of separate ownership accounts receiving supplemental Project water, and
    - $50 times the number of separate ownership accounts receiving Project full service water.
- DWCD is to collect the annual payment BOR is to derive from ad valorem taxes under the applicable Colorado statute.
- DWCD is to pay all Project costs allocated to Project M&I water based on furnishing 7,700 AF of such water.
  - Although the estimated cost allocated to M&I purposes was originally $12,409,000, $6,721,000 is to be deferred under provisions of the Federal Water Supply Act of 1958.
- DWCD is not obligated for repayment of construction costs assigned to the Tribe’s irrigable lands, which are deferred under provisions of the Leavitt Act, nor is DWCD obligated for repayment of construction costs allocated to the Tribe’s 1,000 AF of annual M&I water.

- Use and Allotment of Project Water (Article 9, pg. 21-25):
  - DWCD has the permanent right to the annual yield from McPhee and the right to use and dispose of Project water, as made available, subject to the rights of the U.S. to use or release of Project water for flood control (later deleted), fish and wildlife and recreational purposes pursuant to Project operating standards.
  - Excess Project water may be retained in Project reservoirs but no holdover rights are granted to any party.
  - MVIC supplemental irrigation water is to be used only on land classified as irrigable under BOR standards.
  - The U.S. reserves certain capacities in McPhee for fish and wildlife (later modified), recreation, and flood control (later deleted).
  - The Tribe is granted an annual use of 22,900 AF (DPR average annual, 23,300 without shortage) for full service irrigation water for 7,500 acres of irrigable lands on the Tribe’s Reservation and 1,000 AF for M&I purposes on the reservation.
  - Any Project irrigation water converted to M&I use requires modification of DWCD’s repayment obligation

- Cost of Operation and Maintenance of Project Facilities (Article 13, pg. 30-32):
  - DWCD is to pay its proportionate cost of OM&R, as is the Tribe.
  - DWCD is to be credited for the cost of OM&R properly chargeable under standard Reclamation laws and procedures to flood control (later deleted), fish and wildlife, recreation and commercial power.

- Electric Power and Energy for Project Pumping (Article 14, pg. 32):
  - DWCD is to be offered electric power and energy from the CRSP for Project pumping costs.

- Distribution and Beneficial Use of Project Water (Article 22, pg. 35-36):
  - DWCD is responsible for the control, carriage, handling, distribution and use of all Project water.
  - “Beneficial Use” is the basis, the measure and the limit of the right to the use of Project water.
  - During periods of water shortage, M&I water users have the first priority to the Project water physically available.

- Water Shortages, Waste, Seepage and Return Flows (Article 23, pg. 36-37):
  - No liability is to accrue against the U.S. for any damage, direct or indirect, arising out of any shortage in Project Water.
  - The U.S. claims all of the waste, seepage, and return flow water derived from Project Water.

- Excess Lands and Acreage Limitation (Article 25-30, pg. 37-45):
  - Acreage limitations modified by 1986 Amendments discussed below.
  - No excess landowner can receive Project water until the excess land is sold under contract, or the landowner delineates the non-excess land to be irrigated.
Appraisal for sale for excess land shall not include the existing or prospective possibility of securing water from the Project.

Public Use of Reservoirs (Article 33, pg. 46):
- The U.S. reserves the right to:
  - plan, construct, operate and maintain public recreation, fish and wildlife facilities at or adjacent to Project reservoir areas;
  - permit boating, fishing, hunting, picnicking, camping and other public recreation or correlative uses of the reservoir areas; and
  - Transfer the recreation use, administration, and further development thereof to other Federal, State or local governmental agencies to promote their development and operation.
- Public use of the reservoir areas is to be consistent with the primary purposes of the Project and shall not impair DWCD’s rights.

Agreement between BOR, DWCD and Montezuma Water Company for the Carriage of Water through Project Facilities, Contract No. 6-07-40R0240. This 40-year contract (through 2025), allows MVIC, beginning in 1985, the first right to have 11.0 cfs of MWC water rights carried through Project facilities (Dolores Tunnel, 30” Dolores Canal and downstream connection at the terminal station of the Canal), when there is capacity above Project requirements. MWC is to pay $656/AF for use of these facilities on an approximate facility share of O&M costs.

Amendments to the Repayment Contract (February 25, 1986). Conformance with the Reclamation Reform Act of 1982 (Public Law 97-293). This amendment modified the 1977 Repayment Contract to make it consistent with the 1982 Reclamation Reform Act set excess land criteria at 1,320 acres for Project irrigators.

Contract Between the Dolores Water Conservancy District and the Montezuma Valley Irrigation Company for Adjustment of Water Rights and Sale of the Use of [Project] Irrigation Water (September 23, 1977) (“1977 DWCD/MVIC Contract”). This contract, which works in conjunction with the 1977 Repayment Contract, is also based on information and assumptions in the DPR. It details MVIC’s Non-Project water rights and defines how MVIC is to receive its Project water; defines limitations on MVIC’s use of its Non-Project water rights, including Main Canal irrigation rights, 87.3 cfs conditional Main Canal rights, and rights for Groundhog, Narraguinnep and Totten reservoirs. To preserve the status quo and prevent injury to the Project, the contract requires MVIC to transfer its excess water rights (i.e., beyond what it is entitled to under its water rights and the Project) to the DWCD, with the DWCD to provide an amount of Project water annually based on MVIC’s annual need and a defined water allocation formula related to the classified irrigable acres within MVIC’s system. MVIC’s annual repayment to the DWCD is generally fixed, based on an average estimate of need. Other contract terms cover such issues as Colorado water law, Reclamation law, administrative details, and Project operations.

- Preamble:
  - MVIC’s Dolores River Water Rights are set forth in the Preamble. See § 3.2.3 below.
- General Definitions (Article 1, pg. 3):
  - “Project Water” is water made available to MVIC under the contracts’ terms, is limited to irrigation use in the production of agricultural crops and livestock, and for irrigation of small tracts of irrigable land.
  - “Non-Project Water” is water historically diverted by MVIC by virtue of its pre-Project irrigation water rights as stated in the prefatory language to which Project benefits and repayment capability are not assigned. MVIC is to receive non-Project water pursuant to the terms of this contract.
“Irrigation Season” is the period of time from April 1 to October 15 of each year.

Adjustment of Water Rights (Article 2, pg. 3-6):
- The MVIC Main Canal 1 & 2 (Irrigation and domestic), described in the Recitals, are for 1,400 cfs of the natural flow of the Dolores River at USGS Gauging Station No. 9-1665 near Dolores, Colorado, together with the releases from Groundhog Reservoir less storage releases.
- MVIC’s use of its Recital water rights listed for domestic purposes (filling cisterns, stock watering ponds and all other beneficial uses except irrigation within the limits of its water rights), is not to exceed 3,000 AF during the calendar year.
- MVIC’s use is not to exceed 150,400 AF annually of irrigation water within the limits of its water rights during any one irrigation season.
- MVIC will limit diversion of its direct flow rights to a maximum of 72,000 AF during the months of April, May and June annually; however, only the amount actually diverted is to be applied towards the annual MVIC diversion limit of 150,400 AF.
- MVIC may fill its present storage facilities, if needed, during the months of April, May and June. This water is over and above the direct flow irrigation deliveries to MVIC lands from its own water rights during the months of April, May and June. MVIC, however, still may not exceed an annual diversion of 150,400 AF of irrigation water by direct flow and water released from MVIC’s storage facilities.
- MVIC is to transfer to DWCD its right to all water in excess of the water provided for above (i.e., “Non-Project Water”) by appropriate conveyance.
- DWCD agrees to sell to MVIC the amount of Project water necessary to fulfill MVIC’s irrigation requirement of the 26,300 acres of irrigable land within the DWCD boundaries, an average ranging from 13,700 AF up to 60,000 AF, depending upon Dolores River flow.
- MVIC Project water is subject to shortages in the same proportion as shortages incurred by other irrigation water users.
- MVIC is to apply to the District Court, Water Division No. 7, for a change in point of diversion of its water rights.
- DWCD and MVIC, after completion of Project facilities, are to advise the Colorado State Engineer of all actions taken and furnish him operating criteria to be followed in satisfying MVIC’s rights.

Points of Delivery, Measurement, and Use of Project Water (Article 3, pg. 6-7):
- DWCD is to supply, install, and OM&R all appropriate measuring devices to accurately measure the water and encourage its economical and beneficial use.
- No Project water may be delivered to any excess or non-irrigable lands.

Terms of Payment (Article 4, pg. 7-8):
- DWCD is to deliver MVIC’s Project Water pursuant to operating criteria promulgated by BOR. Such criteria may be modified under conditions satisfactory to DWCD and MVIC.
- MVIC’s repayment obligations are separated into two parts:
  1. $3,160,000 to be paid in annual payments of $63,200 for a period of 50 years
  2. An account charge of $10 times the number of separate ownership accounts receiving supplemental Project water, with a minimum of $5,000 annually.
- MVIC’s repayment obligation is based on that part of DWCD’s obligation to the U.S. to be paid by irrigation water users, is to be paid to DWCD.
- Any Project Water purchased hereunder remaining in storage at the end of the irrigation season is to become Project Water available for the next irrigation season. MVIC is not entitled to holdover storage in Project reservoirs.

Payment of OM&R Costs (Article 6, pg. 9-10):
• MVIC is to pay DWCD its proportionate share of the OM&R expenses necessary to provide Project Water to MVIC including: McPhee Dam and Reservoir, Great Cut Outlet Works, the Dolores Tunnel, the Dolores Canal and other project facilities in which MVIC project water is stored or carried.
• MVIC’s payment obligation will not exceed the amount it would have normally incurred for O&M of pre-Project facilities.

- Operation and Maintenance of Company Facilities (Article 11, pg. 12):
  • MVIC is to operate and maintain, without cost to DWCD or the BOR, all of its canals and other facilities necessary to utilize its Project and Non-Project water

- Beneficial Use of Water (Article 12, pg. 12):
  • The basis, the measure, and the limit of the right of MVIC to use Project Water rests in the beneficial application thereof. MVIC is to put such water to beneficial irrigation use in accordance with law.

  • No liability is to accrue against DWCD or BOR for any damage, direct or indirect, arising out of a shortage on account of drought or other causes.
  • MVIC Project deliveries are to share in equal percentage such shortages as may occur.
  • Municipal users are to have first priority to the available Project water supply.

- Allotment of Project Water (Article 15, pg. 13-14):
  • MVIC Project water may vary annually and is estimated to be an average annual supply of 13,700 AF.

- Water Conservancy Act of Colorado (Article 22, pg. 16):
  • This Contract is subject to the Water Conservancy Act, DWCD Rules and Regulations and any repayment contracts between DWCD and BOR.

Cooperative Agreement between BOR and DWCD (June 4, 1985). In exchange for BOR providing funds, DWCD is to assist BOR in developing work schedules for OM&R and performing the OM&R in the master and quarterly work schedules and procuring the equipment and supplies to perform the OM&R. DWCD is to obtain liability insurance to cover DWCD’s OM&R work.

Contract Number 9-07-40-R0730, between BOR, DWCD, MVIC, and the Ute Mountain Ute Tribe (April 21, 1989), Providing for the Adjustment of Water Rights and for the Rehabilitation, Operation, Maintenance and Replacement of Facilities to Reduce Salinity Inflow to the Colorado River (“T/HC Contract”). This contract recognizes BOR’s change of the DPR to deliver Tribal irrigation water through the T/HC, combining Towaoc deliveries with those of the historic MVIC Highline and Rocky Ford canals to provide economies of scale for efficient deliveries and salinity benefits. Salinity legislation funded some of the improvements. The contract established T/HC OM&R governance. It provided for storage of some of MVIC’s direct flow water in McPhee (stored water known as “Call Water”) to help MVIC receive its water rights in full. It defined the excess water rights initially mentioned in the 1977 MVIC/DWCD contract, primarily conditional rights, to be transferred from MVIC to the DWCD as of 1989. It abandoned the use of Totten Reservoir for irrigation water, providing MVIC with the equivalent quantity of storage in McPhee.

- General Definitions (Article 1, pg. 3-4):
  • “District Salinity Project Facilities and T/HC include the T/HC originating from the outfall of the Towaoc Power Plant to the terminus of said canal on the Tribe’s Reservation.
  • “MVIC Salinity Works” include
    • T/HC farm turnout structures;
    • Rocky Ford Pipe Lateral;
    • Lone Pine and Upper Hermana Lateral sections; and
    • Totten Reservoir.
Soil and Water Conservation and Salinity Control (Article 9, pg. 23):
- DWCD, MVIC and BOR agree to adopt proper soil and water conservation and salinity control practices to maximize reductions in the return flow salinity, to permit the economic use of water and to sustain optimum crop yields.

Water Rights Exchange and Credits (Article 10, pg. 24-26):
- Pursuant to the 1977 DWCD-MVIC contract, the following MVIC water rights were defined as excess water rights, as of 1989, which MVIC is to transfer to DWCD:
  - Rights for Main Canals 1 & 2, 505.0 cfs of the original 592.3 cfs, conditional,
  - Bear Creek Reservoir, Beaver Reservoir and Ditch, and Dawson Reservoir (See § 3.1.2, below)
  - MVIC is to grant DWCD 2,300 AF of storage in Groundhog Reservoir and release water from Groundhog as needed by DWCD to maintain the pre-Project status quo on the upper Dolores River
- In exchange, BOR and DWCD are to allow MVIC to store up to 2,300 AF of non-Project water in McPhee.
  - The amount is to be determined as the daily difference between MVIC’s 795 cfs diversion right and its actual diversion through Project facilities.
  - This Non-Project Water is subject to the diversion limitations of the 1977 DWCD-MVIC Contract.
  - The 2,300 AF stored water will be the first water spilled during wet years or will be released to prevent a reservoir spill.
  - The 2,300 AF stored water will be released to MVIC prior to the release of MVIC Project Water deliveries, as river flows decrease during the summer and fall months.
  - There will be no carryover from year to year and on October 15th, any stored water under this contract will become Project water.
- MVIC is to retain the remaining 87.3 cfs of the original, conditional 592.3 cfs Main Canal rights and to seek to make these rights absolute
- The Main Canal 1 & 2 water right of 592.3 cfs is to be prioritized and administered as follows:
  - 87.3 cfs will have priority 17a;
  - 380.4 cfs of DWCD’s 505.0 cfs will have priority 17b, and
  - 124.6 cfs of DWCD’s 505.0 cfs will have priority 17c.

Contract Number 9-07-40-R0720. Between the United States of America Bureau of Reclamation and the Ute Mountain Ute Tribe, April 21, 1989, Providing for Project Repayment. This contract (1) aligns the Project’s commitments to the Tribe with those in other Project Contracts, primarily the 1989 T/HC Contract, and those to the Tribe in the reserved water rights settlement among the federal government, the Tribe and others, and (2) defines the Tribe’s repayment obligation to the federal government for Project water.
- “Indian Facilities” are Project Facilities constructed by BOR to benefit only the Tribe.
- “Joint Facilities” are Project Facilities benefiting both the Tribe and DWCD, including
  - McPhee Dam, Reservoir and Great Cut Dike;
  - Dolores Tunnel;
  - Dolores Canal and
  - Towaoc-Highline Canal.

Agreement by DWCD, MVIC, and Landowners in the Upper Dolores River Drainage for Water Operations on the Upper Dolores River in conjunction with the decree in Case No. 96CW49.
District Court, Water Division 7. These agreements between the DWCD, MVIC and owners of water rights upstream of McPhee preserve the upstream historical irrigation practices that existed before McPhee’s construction. MVIC’s Groundhog Reservoir provides the necessary exchange/augmentation water, with MVIC receiving an equivalent supply of water from McPhee. The Colorado Division of Water Resources (CDWR) administers these upstream operations.

- MVIC owns an absolute storage right in Groundhog Reservoir senior to the McPhee water rights in the amount of 21,709 AF
- DWCD contracted with Tipton & Kalmbach Engineering to conduct a comprehensive study of the Historic Consumptive Use (“HCU”) of junior water rights in the Upper Dolores River (“T&K Study”).
- DWCD has available non-potable domestic, municipal and industrial water for lease from McPhee.
- To maintain the pre-Project status quo on the Upper Dolores River, DWCD will operate an exchange plan between the DWCD’s Groundhog Storage and McPhee to reduce the likelihood of an MVIC call of its Priority 17 (actually 16) Main Canal water rights.
- The appropriative right of exchange provides MVIC with water exchanged from Groundhog Reservoir with water from McPhee on a one-to-one basis. In exchange MVIC will not call its Priority Number 17a water right and will not call its Priority Number 17 water right to the extent that DWCD can physically and legally provide MVIC with the water to which it is entitled from McPhee pursuant to a District-MVIC Contract.
- DWCD will conduct its water management plans to satisfy BOR.
- As long as an upstream property owner uses owner’s land as it was used for the T&K Study HCU calculation, DWCD will accept Owner’s HCU as the HCU for Owner’s land in any change of water right application or plan of augmentation filed by Owner.
- DWCD is responsible for notifying MVIC of releases to be made from Groundhog Reservoir pursuant to this Agreement.
- When the Dolores River falls below 300 cfs, at the Dolores gauging station, at the conclusion of spring runoff, then DWCD will order releases
- During years in which DWCD’s Groundhog Storage is less than 2,300 AF, the irrigation season is to be shortened. The shortage shall not be prorated among Owners.
- DWCD is not entitled to carryover storage in Groundhog Reservoir. The second priority in Groundhog Reservoir is DWCD’s Groundhog Storage or a portion thereof equal to the amount of water up to 2,300 AF legally and physically available to MVIC from McPhee.
- To come under this Exchange Plan, owners’ land must be included in the DWCD.
- DWCD agreed not to sell any M&I Water upstream of the Dolores Gauging Station for less than the actual cost of that water to DWCD.

Agreement by BOR and DWCD for “Acquisition of Water for Fish and Wildlife purposes and completion of Certain Dolores Project Work Items by Dolores Water Conservancy District” (1995; Grant No. 6-FG-40-18960).

- Reclamation is to pay DWCD $7,104,000 as follows:
  - Reclamation to transfer $200,000 of FY1996 construction funds to DWCD allocated for downstream fish and wildlife water acquisition
  - Reclamation to transfer $2,069,000 of FY1997 construction funds to DWCD, of which $1,108,821 is allocated for downstream fish and wildlife water acquisition.
  - Reclamation will transfer $4,835,000 of FY1998 construction funds to DWCD of which $2,591,179 is allocated for downstream fish and wildlife water acquisition.
- DWCD agrees to the following obligations
Increasing Fishery Pool from an average annual 25,400 AF to 29,300 AF, without amending any other Repayment Contract language
- Repairing pumping plant cooling system
- Placing additional riprap at Dove Creek Canal siphon outlets
- Installing fence extensions at McPhee Dam spillway
- Adjusting electrical systems at pumping plants
- Paving roadway across Great Cut Dike and repairing and graveling County Road “X” damaged by construction activities
- Replacing existing hydro tanks at Fairview and Cahone with larger size tanks
- Repairing erosion damage caused by wave actions along Dove Creek Canal
- Re-seeding Dove Creek Canal rights-of-way in areas where initial seeding ineffective
- Constructing, improving and graveling surface access roads to turnouts and sectionalizing valves in the Dove Creek service area
- Installing fencing along Dove Creek Canal rights-of-way
- Installing subsurface drainage facilities to protect the irrigable lands in the Dove Creek service area.

Operation and Maintenance Facility Transfer Agreement for District Headquarters building between BOR and DWCD (May 31, 1996). This agreement transferred to DWCD the right to control, occupy, operate, and maintain the District Headquarters building and associated grounds.

- Term is for such time as required by Repayment Contract or as otherwise agreed to by the parties.
- Title to property to remain with BOR until otherwise provided by Congress.
- BOR waives payment of rent by DWCD provided DWCD cares for, operates, and maintains the building and property in such manner that it remains in good and efficient condition, normal wear and tear excepted.
- By September 1 each year, DWCD must provide to BOR an itemized budget of estimated O&M service for the following three years, which is subject to approval by BOR.
- BOR retained right to occupy office rooms 120 and 121 and storage rooms 114 and 117.
- DWCD granted right to sublease unoccupied space in the building subject to approval of any rental agreement by BOR
  - Any revenue beyond actual cost of sublease tenant O&M belonging to BOR.
  - DWCD must submit accounting of sublease revenues and expenses to BOR each year by September 1.

Environmental Assessment (1996) (“EA”) and Finding of No Significant Impact (“FONSI”), Proposal to Modify the Operation of McPhee Reservoir and Acquire Additional Water for Release Downstream to the Dolores River for Fish and Wildlife Purposes, Dolores Project, Colorado. In 1996 the BOR completed these and related documents to change from an indexed “fish flow” release to a “managed pool” release. The purpose of the “flow to pool” EA was “to establish the size of, and management parameters for, the fish and wildlife pool” (i.e., the “Fishery Pool”). Specifically, the Proposed Action evaluated in the EA was to “modify the release criteria of McPhee and to acquire additional water to increase the volume of project water reserved by the United States for downstream fish and wildlife purposes” and the FONSI and ROD adopted the following actions:

1. Acquired the additional 3,900 AF of water for fish and wildlife purposes;
2. Changed the water year for Fishery Pool purposes to April 1 to March 31;
3. Directed that the water released during managed spills not count against the Fishery Pool (i.e., the “fish clock”), and
4. Directed that the Project Fishery Pool share shortages with other Project water users during declared water shortage years.
The EA also established a goal “to acquire, lease, or otherwise obtain an additional 3,300 AF of water” for the fish and wildlife pool, referred to as “Increment II” and set aside $371,000 in a trust account for that purpose. No additional deposits have been made in this account and no water has been acquired using these funds. Separately, the Paradox Valley Salinity Control Project augmentation water releases, described below, also effectively added 700 AF to the fish and wildlife pool. Through Grant Agreement Number 6-FG-40-18960, BOR acquired 3,900 AF additional Project Water from DWCD to mitigate the discrepancy of the DPR and FES hydrologic assumptions (referred to as “mistake water”) and supplement the amount previously reserved to the U.S. for release downstream of McPhee Dam for fish and wildlife purposes.

Contract Number 99-WC-40-R-6100, Operating Agreement between BOR and DWCD (April 25, 2000) (“Operating Agreement”). This contract, required under the Repayment Contract, aligns the 1996 Fishery Pool EA decision with the terms of other contracts and establishes DWCD/BOR cooperation on the annual operating plan (“AOP”) for McPhee. BOR and the DWCD jointly develop an AOP to optimize the use of available McPhee water supplies while assuring the structural and operational integrity of McPhee Dam and appurtenant structures. The AOP is drafted to account for climatic conditions, forecasts, and managed spill releases, if any. The DWCD directs the day-to-day operations of McPhee and accounts for the water actually released from McPhee Dam. Project irrigation water and the fishery pool release are reduced by equal percentages in the event of a water shortage. The Operating Agreement recognizes that the managed fishery pool may be increased by other water, either Project or non-Project, that may be leased, purchased or otherwise acquired by BOR or others and agreed upon as an addition to the managed fishery pool. Water rights acquired in the future for downstream fish and wildlife purposes and downstream senior water rights experience water shortages in accordance with Colorado Law. The DWCD and BOR agreed to continue exploring the permanent acquisition of 3,300 AF of additional water for downstream fish and wildlife purposes (i.e., Increment II).

Reservoir Operations (Article 2, pg. 3-4):
- The BOR and DWCD are to jointly develop an AOP
  - To optimize the use of available water supplies while assuring the structural and operational integrity of McPhee Dam and appurtenant structures.
  - DWCD will direct the day-to-day operations of McPhee following the criteria set forth.
- Initially developed in November of each water year, the AOP:
  - Addresses the storage and release operations of McPhee based on information from official snowmelt and river forecasts provided by the National Weather Service (NWS) and BOR (Official Forecasts), water user demands and available storage;
  - Is updated as necessary to reflect changing conditions in both forecasted and actual water demands and inflow; and
  - Defines the criteria for managing inflow water exceeding user demands and available storage (the Managed Spill).
- DWCD will provide an accounting of the water actually released from McPhee Dam, during each water year, to water users.
- After appropriate consultation, BOR will establish criteria and a schedule for the downstream release of the fishery pool.
- BOR will determine the potential timing of Managed Spills, based on Official Forecasts, and issue notices to the public of the timing of such spills.
The AOP will define the process or criteria for the equitable administration of shortages to various Project uses:
- M&I will receive a full supply despite shortages of Project water.
- All Project irrigation water and the 29,300 AF fish and wildlife release will be reduced by equal percentages in case of shortages of Project Water.
- The up to 3,900 AF of downstream senior water rights, and any appropriative surface water rights acquired in the future for downstream fish and wildlife purposes will experience shortages in accordance with Colorado Law.

Downstream Fishery Pool Releases (Article 3, pg. 4-5):
- The following amounts of water are available annually as a managed pool to be released from McPhee into the Dolores River for fish and wildlife purposes:
  - Up to 3,900 AF of Non-Project Water to satisfy downstream senior water rights. The fishery pool will be reduced accordingly if any of these rights lose their entitlements.
  - 25,400 AF of active capacity in McPhee, identified in the Contract Number 7-07-40-W0470, subject to any shortages.
  - 3,900 AF of Project Water acquired by BOR pursuant to the Grant Agreement Number 6-FG-40-18960, subject to any shortages.
  - Any other water, either Project or Non-Project that may be leased, purchased or otherwise acquired by BOR or others and agreed upon as an addition to the Fishery Pool.
- BOR, at the option of the Ute Mountain Ute Tribe, agreed to lease up to 3,300 AF of Project Water from the Tribe for release downstream in up to five years.
- DWCD and BOR agreed to continue to explore the permanent acquisition of 3,300 AF of additional water for downstream F&W purposes.

**Dolores Project, Colorado, Final Cost Allocation, Dated August 2000.** This document provides a summary of the Project facilities and operation, Project changes since the DPR, overall Project costs, and the funding mechanism for BOR projects. Project construction costs, interest accruing during construction, and annual OM&R costs are estimated and allocated to the various Project purposes. Those costs are then separated into reimbursable and non-reimbursable costs based on various statutory standards. The reimbursable costs are then allocated to Project beneficiaries for repayment under terms that vary according to statutory standards (e.g., irrigation construction costs are repayable over 50 years without interest accruing during the repayment period).

- **Project changes from the DPR:**
  - Elimination of flood control as a Project benefit.
    - In 1992, the U.S. Army Corps of Engineers and the BOR reevaluated the flood control benefit of the Project. The benefit was not found to be significant and was eliminated as a Project purpose in 1996.
  - Deletion of the following Project facilities:
    - Dove Creek Drains;
    - Monument Creek Reservoir and associated facilities;
    - Dawson Draw Reservoir and associated facilities;
    - Cross Canyon Pumping Plant and Monument Creek Pumping Plant, and associated switchyards and transmission lines (Dove Creek Pumping Plant constructed instead); and
    - Cortez-Towaoc pipeline (constructed by the State of Colorado).
  - Changes to the original DPR plan:
    - Towaoc Canal was combined with MVIC’s Highline Canal;
    - Towaoc Power Plant forebay was added; and
    - Dolores Canal lined with concrete, rather than earth.
Allocation of Project costs based on a “revised” Separable Costs Remaining Benefits (SCRB) method:

- Each project purpose was assigned its separable costs plus a proportionate share of remaining joint costs.
- Allocation of joint costs was proportional to remaining justifiable expenditures.
- Justifiable expenditures limited to lesser of (1) the benefits or (2) the costs of the most likely Federal single-purpose alternative means of generating comparable benefits.
- Cost calculations reflected values as of October 15, 1998, the date Project was declared essentially complete and in service.
- The “revised” portion of the method referred to establishment of a modified procedure to account for add-on power plants.
- SCRB also modified by BOR Commissioner because economic circumstances changed since Project authorization such that Project costs to be allocated increased above the total justifiable expenditure.
- Interest rate used for Project construction costs was 3.25%, the Project formulation rate for fiscal year 1968 when Project authorized for construction.
- Project OM&R costs were calculated using an interest rate of 6.875% based on Project “on-line” date.
- Repayment interest rate for reimbursable costs was 6.063%, based on 1978 BOR value.

Final Cost Allocations are summarized in the below table.

### Table 1. Final Cost Allocations for the Project

<table>
<thead>
<tr>
<th>Reimbursable Costs</th>
<th>Construction Costs</th>
<th>Interest During Construction at 3.25%</th>
<th>Annual Operation, Maintenance, and Replacement Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation</td>
<td>$366,600,139</td>
<td>$1,858,356</td>
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<td>M&amp;I Water</td>
<td>$11,862,607</td>
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<td>Salinity</td>
<td>$13,954,229</td>
<td>$2,280,812</td>
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<td>MVIC OM&amp;R*</td>
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<td>$30,085</td>
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<tr>
<td>Power</td>
<td>$23,428,431</td>
<td>$2,772,828</td>
<td>$364,984</td>
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<tr>
<td>Subtotal</td>
<td>$415,845,407</td>
<td>$10,784,762</td>
<td>$2,303,575</td>
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<table>
<thead>
<tr>
<th>Non-reimbursable Costs</th>
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</thead>
<tbody>
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<td>Irrigation</td>
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<td>$223,954</td>
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<td>Recreation (Sec. 8)</td>
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<td>F&amp;WL (Sec. 8)</td>
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<td>Res. Fishery</td>
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<td>Highway Improvement</td>
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<tr>
<td>Cultural Resources</td>
<td>$22,415,400</td>
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### Repayment

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<th>Subtotal</th>
<th>$148,876,731</th>
<th>$176,948,429</th>
<th>$539,740</th>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$564,722,138</strong></td>
<td><strong>$187,733,191</strong></td>
<td><strong>$2,843,315</strong></td>
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</tbody>
</table>

*Montezuma Valley Irrigation Company operation and maintenance costs.
**Total annual OM&R costs includes salinity monitoring costs of $21,700 that will only last for a period of 10 years.

- **Reimbursable costs generally repayable by either DWCD or Tribe in proportion to allocation.**
- **Portions of some reimbursable obligations are to be paid by the Upper or Lower Colorado Basin Funds (e.g., salinity control), the Colorado River Development Fund, or by hydropower generation revenues.**
- **Some otherwise reimbursable costs are deferred (e.g., Tribe OM&R for irrigation water under the Leavitt Act; M&I repayment obligation deferred 10 years interest free under Water Supply Act).**

- **Irrigation:**
  - Construction repayment costs total $367 million, including $199 million for non-Indian irrigators within DWCD and $167 million for the Tribe.
  - Payable over 50 years with no interest charged.
  - OM&R costs estimated to total $1.9 million annually, including $1.4 million for non-Indian irrigators within DWCD and $0.5 million for the Tribe, but will vary over life of Project.
- **Anticipates possibility that urbanization will increase demand for M&I water:**
  - Irrigation water converted for M&I use will cost $150 per AF per year.
  - Irrigation repayment obligations reduced proportionate to the amount of water converted to M&I.
- **M&I**
  - DWCD to repay non-Indian construction and interest during construction totaling $20 million.
  - Tribe to repay total of $2.5 million.
  - OM&R costs of $9,366 allocated to DWCD and $1,216 allocated to Tribe.

- **Hydropower facilities**
  - Construction costs of $23,428,431 and annual OM&R of $364,984 to be repaid by power production revenues with interest of 6.063%.
  - Interest during construction of $2.6 million to be paid within a 50-year repayment period.
- **Salinity Control:**
  - Construction costs of $2,910,200 are non-reimbursable, but $0.6 million is reimbursable.
- **Reservoir fishery, stream fishery, cultural resources, and replacement roads:**
  - Non-reimbursable under Section 5 of the CRSP.
  - Reservoir fishery OM&R costs reimbursed annually to DWCD.
- **Recreation facilities and fish and wildlife enhancement:**
  - Non-reimbursable under Section 8 of the CRSP.

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**Contract Number 02-WC-40-7060. Between the U.S. Bureau of Reclamation and the Dolores Water Conservancy District (October 19, 2001) Providing for the Carriage of Water through Project Facilities. This “Warren Act” contract provides for DWCD payment to BOR for the use of Project facilities, the Great Cut pumping plant and the Dove Creek Canal, to deliver water pursuant to the non-Project MVIC Class “B” water shares purchased by the DWCD.**
Explanatory Recitals:

- DWCD is to acquire 6,000-8,000 AF of Non-Project Water from MVIC.
- DWCD desires to deliver this water in the same manner as Project Water through the Dove Creek and South Canal Systems, including the pumping plants and laterals ("System").
- BOR determined that there is at least 8,000 AF of capacity available in the System in excess of Project requirements and it is compatible with Project purposes for DWCD to deliver up to 8,000 AF of Non-Project Water through the System.

Carriage, Diversion and Delivery (Article 1, pg. 2-3):

- Starting in 2003, DWCD may convey the Non-Project Water through the System on a capacity-available basis.
- Project Water deliveries have priority, in the event of a decrease in conveyance capacity.
- The users of the Non-Project Water are to bear a proportionate share of all conveyance and evaporation losses.
- Any change in the amount of Non-Project Water DWCD wishes to convey must first be approved by BOR and shall not preclude BOR from utilizing the additional System capacity or contracting for any of the available capacity, after notification to DWCD of its intent.
- BOR reserves the right to deny the conveyance of any Non-Project Water from sources other than MVIC senior water rights.

Repayment of Construction Cost Component (Article 2, pg. 3-4):

- The cost for the conveyance of the Non-Project Water will be determined by the actual distance conveyed and the Project facilities used.
- The payment will be applied pursuant to Section 5 of the CRSP.

OM&R Charges (Article 4, pg. 4):

- DWCD is to collect OM&R charges from users of the Non-Project Water so as not to increase the OM&R costs to Project Water users or BOR.

Measurement and Responsibility for Distribution (Article 7, pg. 5-6):

- DWCD is responsible for any measurement devices necessary to account for the inflow of Non-Project Water and will notify BOR 30 days prior to any earth disturbing activities or construction needed to divert the Non-Project Water.

Quality of Water (Article 9, pg. 7):

- DWCD is responsible for any remedial actions required to meet the highest quality level reasonably attainable, as determined by BOR.

Reclamation Reform Act Compliance (Article 11, pg. 7):

- All land to be irrigated with the Non-Project Water is to be classified as irrigable according to BOR land class standards.

Purchase Agreement between DWCD and MVIC for DWCD purchase of Class “B” MVIC shares and Totten Reservoir and its water rights (December 2002). This Agreement provides the terms under which MVIC created 1,500 shares of a second class of non-voting MVIC stock (Class “B” Stock), and sold the 1,500 shares to DWCD for $2,281,000.00 (Purchase Price). The Purchase Price included the MVIC conveyance to DWCD of Totten Reservoir and its water rights.

- MVIC was required to amend its articles of incorporation and bylaws to allow the issuance of the Class “B” Stock, with DWCD having the reasonable right to review and approve any needed amendments.
- Class “B” stock water was to become available in 2003, subject to availability and shortages as defined therein. “Available” or “Availability” means that there is no water shortage but due to circumstances beyond the control of MVIC, MVIC is physically unable to deliver such water. If water is unavailable, MVIC has no duty to deliver water to Class “B” shareholders.
The duty of water for Class “B” Stock is four (4) AF/share, as measured at the point of release from McPhee, subject to shortage.

Class “B” Stock water is to be used for agricultural purposes in Montezuma and Dolores Counties within DWCD’s boundaries, but not on lands served by MVIC Class “A” shares.

DWCD may use any Class “B” Stock water unused at the end of an irrigation season, if DWCD has available storage owned or leased by DWCD, but not in McPhee.

MVIC is to convey to DWCD by Quit Claim Deed, MVIC’s water rights for Totten Reservoir. MVIC granted DWCD the right to use MVIC facilities to transport water, directly or by exchange to Totten Reservoir and assigned DWCD all of MVIC’s rights under the 1977 MVIC/District Contract, and other documents to use Project facilities to transport water to Totten Reservoir.

MVIC is to grant DWCD the right to transport water, directly or by exchange, through existing MVIC facilities, necessary to effectuate the Agreement and properly deliver the Class “B” Stock water to DWCD, pursuant to an agreement substantially similar to that in the attached Exhibit “B”. DWCD’s carriage rights may not impair MVIC’s ability to transport water rights to MVIC Class “A” shareholders.

DWCD is to pay for (1) any enlargement of MVIC facilities needed to carry the DWCD water; (2) the design and construction, including the acquisition of any additional right-of-way, for any MVIC facilities’ enlargement needed to carry the DWCD water; and (3) all extra costs incurred by MVIC to carry such DWCD water.

MVIC is to convey to the DWCD (i) by Quit Claim deed, the property underlying Totten Dam and Reservoir up to and including the Reservoir high water line (Land Under Totten), not presently owned by any third party; the dam; the Totten outlet works; the Reservoir inlet; the Reservoir embankments and appurtenant Reservoir fixtures, subject to any existing easements or rights; (ii) by Bill of Sale, any MVIC tools and equipment used exclusively to operate Totten Reservoir; and (iii) by general warranty deed, the land south of Totten Reservoir and north of the south MVIC property boundary, described in the attached Exhibit “C”.

MVIC reserved a non-exclusive access easement to MVIC’s currently owned real property on the north side of Totten, not to interfere with DWCD’s use of the demised property.

DWCD is responsible for any insurance for the use of Totten Reservoir and real property taxes, if any, thereto related.

MVIC granted DWCD (i) the right to purchase additional property or easements upon the existing high water line of Totten Reservoir in accordance with terms to be negotiated between the parties and a first right of refusal for the acquisition of such real property; and (ii) a first right of refusal to purchase any remaining MVIC property surrounding Totten Reservoir or above the Inflow Design Easement (“Above IDE Property), shown in the attached Exhibit “C”.

The IDE consists of 2.4 feet in elevation above the crest of the spillway, with no permanent structures to be built within the IDE.

MVIC granted DWCD the right to increase the storage capacity of Groundhog Reservoir, with DWCD entitled to utilize any water stored in Groundhog Reservoir as a result of DWCD’s storage enhancement, less any evaporation and seepage losses, in addition to those currently experienced by the Reservoir.

DWCD’s right to release the new water stored in Groundhog because of DWCD’s storage enhancement accrues each year only after Groundhog Reservoir fills to its high water line as of 2002.

MVIC granted DWCD a Right of First Refusal to purchase any MVIC water that may become available.
In a Stipulated Settlement Agreement, the parties, which also included the Tribe, agreed to a procedure for determining MVIC’s annual allocation of Project water.

- MVIC has no set Project annual water allocation.
- MVIC’s actual annual Project water allocation, from April 1 to October 15 of each water year, is to be calculated according to a “Water Calculation Sheet” attached to the Stipulation as Exhibit A, which represents the terms of the following contracts governing MVIC’s annual Project allocation, which include the 1977 DWCD/MVIC Contract, 1977 DWCD Repayment Contract, and 1989 T/HC Contract.
- MVIC’s Project allocation may be revised each water year based on water availability under MVIC’s non-Project water rights as determined by a reconciliation process in the Stipulation, on August 1, September 1 and October 1 of each water year.
- DWCD and MVIC are to confer or meet regarding MVIC’s Project water accounting on or about April 1, June 1 and July 1 each year.
- The first calculation of MVIC’s annual Project allocation will be made by DWCD by July 1 of each water year.

1.4 DISTRICT STAFF
In order to fulfill these contractual obligations and OM&R responsibilities, the District employs 25 permanent employees. These include 1 general manager and 2 administrative staff working at the main District office in Cortez. The field staff are based at Great Cut and include 1 O&M Superintendent, 3 Mechanics (1 lead), 3 Electricians (1 lead), 1 Fleet Mechanic, 1 Weed Supervisor, 1 Welder, 2 Field Technicians & 2 Equipment Operators. Also based at the field office are the Chief of Engineering & Construction, 1 Control Room Supervisor with 4 Operators and 2 Engineering Technicians. The OM&R staff prepares the facilities for the irrigation season in March through April, then operates the delivery system through the irrigation season, April 1 to October 31, and handles any emergency repairs. Weeds remain a constant spring challenge for all crews. The system is winterized in the fall followed by winter maintenance until the following spring. The control room operators run 24 hour 7 days a week from approximately April 1 to October 31 with most of the irrigation season trouble shooting and repairs handled by the supervisor and electricians. They likewise maintain their control facilities in the winter and the occasional training on new software and hardware. The Engineering staff supports a variety of water accounting and similar data needs along with field crew support and replacement project planning.

1.5 LANDS AND CROPS
The District lands lie within a topographic transition zone between the San Juan Mountains to the northeast and the Colorado Plateau to the southwest. The northern portion of the area is characterized by gently rolling hills, which gradually rise to the rim of the Dolores River Valley. Towards the south, the hills give way to tablelands and flat areas broken by deep narrow canyons and high mesas. In the southern reaches, the most prominent features are Sleeping Ute Mountain, which rises to an elevation of about 10,000 feet and Mesa Verde, which rises to about 8,400 feet.

There are two predominant soil types in the District. The Dove Creek, northern Montezuma Valley and the western Towaoc area have red eolian soils, while southern Montezuma Valley and the eastern Towaoc area have gray soils. The lands consisting of eolian soils are highly suitable for irrigated agriculture. They are relatively stable, have good moisture-retaining qualities and are low
in salinity. The gray soils are not so suitable for irrigated agriculture. They have less moisture-retaining qualities and are highly saline and susceptible to erosion. The deficiency of the gray soils is partially overcome by a longer growing season due to the lower elevations.

A portion of the lands in the Dove Creek and Towaoc areas, had drainage deficiencies. In the Dove Creek area, these deficiencies resulted from unfavorable topographic positioning in the bottom of natural drainages or in the lower reaches of long slopes. In these areas, water could be transmitted to lower lands along the upper surface of impermeable beds of sandstone and shale. These deficiencies proved to be economically correctable. In the Towaoc area, the deficiencies resulted from too rapid or too slow hydraulic conductivity rates, depending on the texture of the soil. Subsurface drainage systems are being provided to the Towaoc lands to control the water table at or below the root zone.

With the slight modification of these lands, the irrigated acreage in the Project area is approximately 68,000 acres (including Tribal and non-Tribal full service and supplemental service lands) and the irrigation benefit of the Project can be measured by the increased production of the agricultural base. As Project facilities were finished and brought on line, the acreage and associated agricultural value grew, as is illustrated by Table Two - Crop Census Summary found at the end of this section. (For purposes of this report, information is only available for non-Tribal, full service irrigated crop acreage.)

Non-Tribal, full service irrigated crops include hay, small grains, beans, pasture and other. For the period of 1999 to 2013, starting when the Project users were fully on line, the average crop distribution is 82% of the crop is hay, 7% small grain, 7% beans and 4% pasture and other. The Crop distribution of non-Indian full service acres follows in Table Three - Crop Distribution (found at the end of this section).
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>HAY</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
<td>9,604</td>
<td>12,771</td>
<td>14,034</td>
<td>13,733</td>
<td>16,324</td>
<td>16,622</td>
<td>18,324</td>
<td>19,417</td>
<td>20,190</td>
<td>22,007</td>
</tr>
<tr>
<td>Percent of Total</td>
<td>69%</td>
<td>70%</td>
<td>71%</td>
<td>68%</td>
<td>77%</td>
<td>76%</td>
<td>77%</td>
<td>81%</td>
<td>84%</td>
<td>87%</td>
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<td>$4,223,807</td>
<td>$4,747,417</td>
<td>$5,767,002</td>
<td>$5,748,421</td>
<td>$7,355,423</td>
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<tr>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Total Acres</td>
<td>1,321</td>
<td>2,678</td>
<td>2,985</td>
<td>2,763</td>
<td>1,427</td>
<td>2,326</td>
<td>3,011</td>
<td>2,384</td>
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<td>1,262</td>
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<tr>
<td>Percent of Total</td>
<td>9%</td>
<td>15%</td>
<td>15%</td>
<td>14%</td>
<td>7%</td>
<td>11%</td>
<td>13%</td>
<td>10%</td>
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<td>5%</td>
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<tr>
<td>Total Value</td>
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<td>$461,423</td>
<td>$552,497</td>
<td>$506,071</td>
<td>$196,898</td>
<td>$600,174</td>
<td>$543,998</td>
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<td>$201,548</td>
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<tr>
<td>BEANS</td>
<td></td>
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<td>Total Acres</td>
<td>2,921</td>
<td>2,693</td>
<td>2,706</td>
<td>3,448</td>
<td>2,804</td>
<td>2,561</td>
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<td>1,410</td>
<td>1,323</td>
<td>530</td>
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<tr>
<td>Percent of Total</td>
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<td>15%</td>
<td>14%</td>
<td>17%</td>
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<td>12%</td>
<td>7%</td>
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<td>5%</td>
<td>2%</td>
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<tr>
<td>Total Value</td>
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<td>$554,885</td>
<td>$718,204</td>
<td>$853,521</td>
<td>$869,454</td>
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<td>$367,859</td>
<td>$321,164</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
<td>94</td>
<td>74</td>
<td>90</td>
<td>391</td>
<td>575</td>
<td>284</td>
<td>897</td>
<td>647</td>
<td>1,144</td>
<td>1,624</td>
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<td>Percent of Total</td>
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<td>0.50%</td>
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<td>3%</td>
<td>1%</td>
<td>4%</td>
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<td>6%</td>
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<tr>
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<td>$6,300</td>
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<td>$349,288</td>
<td>$39,900</td>
<td>$940,150</td>
<td>$959,638</td>
<td>$389,211</td>
<td>$539,850</td>
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</table>

Total Acres: 13,940 18,216 19,815 20,335 21,130 21,793 23,876 23,858 24,061 25,423
Total Value: $3,775,965 $4,554,936 $5,023,471 $5,648,104 $6,063,057 $6,973,629 $7,600,428 $9,118,993 $8,808,942 $7,238,244
Table 2. Crop Census Summary Continued…

<table>
<thead>
<tr>
<th>Crop</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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</thead>
<tbody>
<tr>
<td><strong>HAY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
<td>22,633</td>
<td>22,730</td>
<td>19,598</td>
<td>19,948</td>
<td>18,357</td>
<td>20,133</td>
<td>21,964</td>
<td>21,409</td>
<td>21,359</td>
<td>20,749</td>
</tr>
<tr>
<td>Percent of Total</td>
<td>90%</td>
<td>92%</td>
<td>87%</td>
<td>81%</td>
<td>73%</td>
<td>79%</td>
<td>85%</td>
<td>82%</td>
<td>82%</td>
<td>79%</td>
</tr>
<tr>
<td>Total Value</td>
<td>$7,917,480</td>
<td>$8,593,715</td>
<td>$3,403,357</td>
<td>$5,547,266</td>
<td>$6,529,809</td>
<td>$7,842,977</td>
<td>$9,416,350</td>
<td>$10,572,391</td>
<td>$10,552,651</td>
<td>$8,258,777</td>
</tr>
<tr>
<td><strong>SMALL GRAIN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
<td>1,254</td>
<td>1,200</td>
<td>1,392</td>
<td>1,627</td>
<td>1,868</td>
<td>978</td>
<td>1,070</td>
<td>2,664</td>
<td>2,135</td>
<td>2,425</td>
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<tr>
<td>Percent of Total</td>
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<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>7%</td>
<td>4%</td>
<td>4%</td>
<td>10%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>Total Value</td>
<td>$577,412</td>
<td>$868,238</td>
<td>$538,286</td>
<td>$738,252</td>
<td>$787,241</td>
<td>$332,840</td>
<td>$637,690</td>
<td>$1,362,967</td>
<td>$844,492</td>
<td>$816,782</td>
</tr>
<tr>
<td><strong>BEANS</strong></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
<td>345</td>
<td>475</td>
<td>1,130</td>
<td>2,670</td>
<td>4,387</td>
<td>3,880</td>
<td>1,868</td>
<td>1,004</td>
<td>1,004</td>
<td>1,683</td>
</tr>
<tr>
<td>Percent of Total</td>
<td>1%</td>
<td>2%</td>
<td>5%</td>
<td>11%</td>
<td>17%</td>
<td>15%</td>
<td>7%</td>
<td>4%</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Total Value</td>
<td>$65,243</td>
<td>$118,108</td>
<td>$251,715</td>
<td>$670,969</td>
<td>$1,953,167</td>
<td>$1,137,897</td>
<td>$683,130</td>
<td>$704,976</td>
<td>$704,976</td>
<td>$839,651</td>
</tr>
<tr>
<td><strong>PASTURE &amp; OTHER</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
<td>884</td>
<td>390</td>
<td>345</td>
<td>426</td>
<td>599</td>
<td>626</td>
<td>847</td>
<td>911</td>
<td>1,440</td>
<td>1,363</td>
</tr>
<tr>
<td>Percent of Total</td>
<td>4%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Total Value</td>
<td>$169,303</td>
<td>$136,513</td>
<td>$191,611</td>
<td>$219,953</td>
<td>$673,338</td>
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<td>$955,563</td>
<td>$1,212,061</td>
<td>$1,629,983</td>
<td>$1,790,601</td>
</tr>
</tbody>
</table>

Total Acres | 25,116 | 24,795 | 22,465 | 24,700 | 25,211 | 25,617 | 25,749 | 25,989 | 25,938 | 26,219 |
Total Value | $8,729,438 | $9,716,574 | $4,384,969 | $7,176,440 | $9,943,555 | $10,273,142 | $11,692,734 | $13,852,395 | $13,732,102 | $11,705,811 |
Table 2. Crop Census Summary Continued…

<table>
<thead>
<tr>
<th>Crop</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Average (1999-2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
<td>20,797</td>
<td>20,213</td>
<td>20,294</td>
<td>17,866</td>
<td>20,670</td>
</tr>
<tr>
<td>Percent of Total</td>
<td>79%</td>
<td>75%</td>
<td>75%</td>
<td>81%</td>
<td>82%</td>
</tr>
<tr>
<td>Total Value</td>
<td>$8,994,764</td>
<td>$14,794,144</td>
<td>$14,898,157</td>
<td>$4,226,782</td>
<td>$8,524,980</td>
</tr>
<tr>
<td>SMALL GRAINS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
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<td>3,306</td>
<td>1,370</td>
<td>1,442</td>
<td>1,729</td>
</tr>
<tr>
<td>Percent of Total</td>
<td>7%</td>
<td>12%</td>
<td>5%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Total Value</td>
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<td>$1,516,700</td>
<td>$366,732</td>
<td>$367,365</td>
<td>$700,587</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total Acres</td>
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<td>1,462</td>
<td>2,335</td>
<td>1,536</td>
<td>1,779</td>
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<tr>
<td>Percent of Total</td>
<td>9%</td>
<td>5%</td>
<td>9%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Total Value</td>
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<td>$1,552,580</td>
<td>$2,979,294</td>
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<td>$893,187</td>
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<td>1,023</td>
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<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
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<td>$3,384,032</td>
<td>$1,023,455</td>
<td>$743,994</td>
<td>$1,035,372</td>
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Total Acres 26,326 26,973 26,996 21,967 25,299
Total Value $12,492,459 $21,247,455 $19,267,638 $5,858,932 $11,154,126
Table 3. Crop Distribution

<table>
<thead>
<tr>
<th>Year</th>
<th>Hay</th>
<th>Small Grain</th>
<th>Beans</th>
<th>Pasture/Other</th>
<th>Total Acres</th>
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<td>12,771</td>
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<td>2,693</td>
<td>74</td>
<td>18,216</td>
</tr>
<tr>
<td>1992</td>
<td>14,034</td>
<td>2,985</td>
<td>2,706</td>
<td>90</td>
<td>19,815</td>
</tr>
<tr>
<td>1993</td>
<td>13,733</td>
<td>2,763</td>
<td>3,448</td>
<td>391</td>
<td>20,335</td>
</tr>
<tr>
<td>1994</td>
<td>16,324</td>
<td>1,427</td>
<td>2,804</td>
<td>575</td>
<td>21,130</td>
</tr>
<tr>
<td>1995</td>
<td>16,622</td>
<td>2,326</td>
<td>2,561</td>
<td>284</td>
<td>21,793</td>
</tr>
<tr>
<td>1996</td>
<td>18,324</td>
<td>3,011</td>
<td>1,644</td>
<td>897</td>
<td>23,876</td>
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<td>1997</td>
<td>19,417</td>
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<td>1,410</td>
<td>647</td>
<td>23,858</td>
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<td>1998</td>
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<td>1,144</td>
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<td>1999</td>
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<td>2000</td>
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<td>345</td>
<td>884</td>
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<td>24,795</td>
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<td>345</td>
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<td>25,211</td>
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<tr>
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<td>1,779</td>
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2 UPPER DOLORES RIVER BASIN GEOGRAPHY AND HYDROLOGY

2.1 GEOGRAPHY
The Dolores River Basin watershed encompasses approximately 4,620 square miles in southwestern Colorado and southeastern Utah. Its headwaters in the San Juan Mountains include peaks exceeding 14,000 feet in elevation, while the elevation at McPhee Dam is 6,900 feet and at the River’s confluence with the Colorado River in Utah is 4,400 feet. The Lower Dolores River generally flows from south to north in a deep canyon, interrupted only where the River crosses the Gypsum and Paradox Valleys. The River courses through a range of plant communities, from alpine grasslands to montane forest areas to semiarid shrub lands.

The area draining into McPhee is approximately 800 square miles. It includes almost no urban development, including only the towns of Rico and Dolores, with populations of about 200 and 936, respectively. The San Miguel River, which joins the Dolores River at an elevation of about 4,910 feet, is the only significant tributary to the Dolores River downstream of McPhee Dam. By the confluence the watershed area of the River has grown to approximately 2,145 square miles, yet water yield increases only slightly below McPhee because most of the Lower Dolores River tributaries have only intermittent or ephemeral flow.

The Dolores River Basin above McPhee is largely forested and produces most of its runoff from snowmelt. The Lower Dolores River basin is largely semi-arid, characterized by low precipitation and humidity, abundant sunshine, a fairly large daily temperature range, and moderate westerly winds. As a result of topographic changes, the local climate exhibits large variations within short distances, with increases in precipitation and decreases in temperature generally found from southwest to northeast. Average annual precipitation in the area from above McPhee to the San Miguel varies from roughly 30 inches in the high mountains down to 10 inches with an average of 16 inches in Cortez.

Most of the lands within the Dolores River watershed are owned by Bureau of Land Management or the U.S. Forest Service, meaning that most of the land use has been low intensity development, such as for timber harvesting or grazing. Rico was a historically important mining district and private ranches are present along the Upper Dolores River corridor and its major tributaries. Private lands within the Lower Dolores River corridor are limited to sites where settlers in Slick Rock, Disappointment Valley, and Paradox Valley could gain access to the River. Development in the River and tributary corridors is limited to ranching and small commercial developments because the valleys are all quite narrow.

2.2 HYDROLOGY
Flows in the Dolores River, both naturally and as regulated by McPhee Dam, vary considerably within and between years. The yield at McPhee has varied from 80,000 AF over 600,000 AF annually over the past 50 years. Peak flows result from spring snowmelt in the headwaters of the San Juan Mountains, usually occurring in May and averaging 2,000 cfs, but reaching 5,000 cfs in some years at the Town of Dolores (See Figure 2, 1897 through 2013 for past hydrology). The volume of spring runoff is similarly variable, ranging from about 60,000 to over 500,000 AF per year in the past 50 years. Even with McPhee capturing and regulating spring flows, McPhee spring spills were still highly variable. High intensity thunderstorms cause localized peak flows intermittently during July, August, September and October.
Figure 2. Monthly Streamflow of the Dolores River at the Town of Dolores (1897-2013)
The hydrology of the Dolores River is strongly influenced by the geography, development, and land use in the adjoining Montezuma Valley. In the 1880s, early European settlers excavated a “Great Cut” and a 5,400 foot-long tunnel to divert the flows of the Dolores River to the Montezuma Valley, where there was abundant land for settlement and agriculture, relative to the thin strip of bottom land in the Dolores Valley. (See early History of the Montelores Area, § 1.2, above) Those structures reportedly diverted up to 707 cfs from the River, leaving flows of less than 10 cfs in the River at the present site of McPhee Dam throughout most of the late irrigation season (Figure 3). There was little or no base flow in the Lower Dolores River below McPhee during much of the summer and fall as a result of MVIC’s diversions. MVIC’s diversions had a more limited impact on the duration and size of peak Dolores River runoff flows given that only about 700 cfs could be diverted from peak flows that ramped up and down from an average of about 3,000 cfs.

The Dolores River has an average annual runoff of about 351,000 AF into McPhee. About 130,000 AF is diverted from the Dolores River by MVIC for irrigation around Cortez. Approximately 99,000 AF is diverted for Project water supplies. An average of about 72,000 AF per year is spilled from McPhee. McPhee has provided municipalities, industry, and farmers north and south of the Town of Cortez, in Dolores County and on the Ute Mountain Ute Tribe’s Reservation with a more plentiful and reliable supply of water. McPhee also releases year-round flows for the downstream fishery, mitigating the pre-Project impacts of direct, trans-basin diversions by MVIC.

Figure Four displays three dimensional hydrograph of Dolores River discharge at Bedrock from 1972 to 2013 illustrating the decreased duration, magnitude, and frequency of peak discharge following construction of McPhee Dam and full operation of the Project. Figure Five displays three dimensional hydrograph of the Dolores River at the Town of Dolores from 1972 to 2013 illustrates similar discharges and allows for a comparison between the two stream gages.
Figure 3. Photograph of the Dolores River below the McPhee Dam site in late summer (source: Dolores Project DPR)
Figure 4. Three-dimensional hydrograph of Dolores River discharge at Bedrock from 1972 to 2013
Figure 5. Three-dimensional hydrograph of Dolores River at the Town of Dolores from 1972 to 2013
3 WATER RIGHTS AND WATER RESOURCES ON THE
DOLORES RIVER AND ALLOCATIONS OF PROJECT WATER

The European settlement of Colorado, with its arid climate, required the development of a new legal
document to govern the development and use of water resources. The pre-existing “riparian” doctrine
provided only that landowners adjacent to a stream could divert its water for use. What became the prior
appropriation doctrine provided for water rights to be granted, in priority, to divert water from streams
across lands not owned by the appropriator and to use water on lands not adjacent to a stream. The holder
of a water right with a senior appropriation date that is not receiving its full court-decreed diversion amount
can “call out” junior rights until the full decreed amount is available, as long as the calling right is put to its
decreed beneficial use. This “first in time, first to court, first in right” approach also gave water developers
certainty that they would have the right to use available water prior to investing in new water projects.
Those who wish to invest in water projects are guaranteed a water right with a certain priority, as long as
the owner of the right develops the project with reasonable diligence. But a conditional water right can be
granted only if the applicant demonstrates a non-speculative purpose and that the appropriation will be
perfected within a reasonable time.

As discussed in § 2.2.4, above, since MVIC has some of the most senior rights in the Dolores River, its
participation was needed to make the Project a reality. Other senior rights in the Dolores River are used by
Cortez, Montezuma Water Company (MWC) and water users downstream of McPhee. Water within
McPhee, which has a relatively junior Dolores River water right, is allotted through various contracts
executed by DWCD, BOR, MVIC, the Ute Mountain Ute Tribe and Project Full Service irrigators, among
others.

3.1 DWCD WATER RIGHTS

3.1.1 Original Project Water Rights
SWCD was awarded the original water rights for the Project by the Montezuma County District Court,
Water District 34, Division 7, in Civil Action #967, on July 19, 1962, applied for in 1947. The SWCD
transferred the rights to DWCD. In 1995 DWCD obtained a decree making the water rights for the major
Project facilities, McPhee Reservoir and Inlet, absolute in Case No. 94CW44. DWCD retains the
conditional water rights for Monument Creek Reservoir and Inlet.

3.1.1.1 McPhee Reservoir
The water right for McPhee, with a priority date of September 10, 1940, is for an initial storage capacity of
400,000 AF, with an annual storage right of 250,000 AF, and a right to an annual refill of 100,000 AF. The
source for McPhee is the Dolores River and its tributaries, including Beaver, Dry Canyon and House Creeks
and “other tributaries which flow in to Dolores River at points which [are] inundated by McPhee Reservoir.”
The decreed uses are irrigation, domestic, municipal, industrial, recreation, fish and wildlife; flood control,
and other beneficial purposes. Water rights decreed for certain Project conveyance facilities that do not
actually divert or store water directly from a natural stream, including South Canal, Hovenweep Canal,
Cahone Canal, Dove Creek Canal, Towaoc Lateral, Monument Creek Lateral, and Great Cut Lateral, have
been allowed to lapse.
3.1.1.2 McPhee Reservoir Inlet

The McPhee Inlet was decreed in CA 967 and made absolute in Case No. 94CW44 for 585 cfs, with the same point of diversion, uses and appropriation date as McPhee. This is a direct flow, as opposed to a storage, water right by which water travels through McPhee directly to the T/HC and Dove Creek Canals, without being stored. CDWR administers this right, which, occasionally reaches 250 cfs, but generally has been used for less than 200 cfs in May and June.

Monument Creek Reservoir was decreed in CA 967 for 5,100 AF, with a refill of 2,700 AF, conditional, with sources of Monument Creek and the Dolores River via the Dove Creek Canal; an appropriation date of September 10, 1940 (1962) and for the uses of irrigation, stock, domestic, municipal, industrial, recreation, and fish and wildlife. It may also be used as a re-regulating reservoir for water stored in McPhee when capacity is available. In Case No. 10CW58, DWCD was decreed a finding of reasonable diligence for Monument Creek Reservoir. Monument Creek Inlet was decreed in CA 967 for 40 cfs from Monument Creek, using Monument Creek Reservoir and other Project facilities as a direct use conduit. In Case No. 10CW58, DWCD was also decreed a finding of reasonable diligence for the Inlet.

These water rights decrees do not detail a specific amount of water in McPhee for the specific decreed uses, only the purposes are included in the decree. The amounts of Project water for the McPhee purposes are set forth in various contracts. (See § 3.4, below)

3.1.2 Water Rights Transferred to DWCD from MVIC

As required by the 1977 District/MVIC Contract, pursuant to the T/HC Contract, MVIC transferred to the District water rights determined to be “Excess” to its irrigation needs as of 1989. These include the following conditional water rights: 505 cfs for MVIC’s Main Canals 1 & 2; Beaver, Bear Creek and Dawsson Reservoirs; and Beaver Canal. Well prior to the deadlines noted below, the DWCD Board will need to consider the activities needed to demonstrate reasonable diligence toward perfecting these rights and whether to file applications for diligence.

As a benefit to both MVIC and DWCD, DWCD purchased 6,000 AF of water from MVIC as 1,500 Class “B” MVIC shares under a Purchase Agreement dated December 2, 2002, (Purchase Agreement). Pursuant to the MVIC Agreement, DWCD also purchased Totten Reservoir and its water rights from MVIC. For the last two years, DWCD has leased Totten water on an annual basis to provide a supplemental water supply to various McElmo Creek irrigators. DWCD’s “B” share water is available to irrigate approximately 3,000 acres of full service land, which was originally designated to be irrigated by MVIC’s senior Dolores River water rights, but for which MVIC never provided irrigation water. (See also, § 1.3.2, above)

505 CFS - Main Canals #1 and #2. As set forth in the DWCD/MVIC 1977 Contract, MVIC owned 1,300 cfs of surface Main Canal Nos. 1 and 2 irrigation water rights decreed in CA 473. Of the 1,300 cfs, 592.3 cfs remains conditional and 707.7 cfs is absolute (64.6 cfs was decreed absolute in CA 473). On May 23, 1994, MVIC deeded to the District 505 cfs of the 592.3 cfs conditional rights. MVIC still owns 87.3 cfs of the conditional rights and was granted a finding of reasonable diligence in Case No. 11 CW 77. DWCD was decreed diligence for the 505 cfs in Case No. 08CW93. The next filing for diligence is due by December 31, 2015. The use of the 505 cfs may need to be changed in type and/or place of use and the point of diversion for the 505 cfs will need to be changed.

Beaver Reservoir. Beaver Reservoir was decreed for 27,296 AF, conditional, for irrigation use in CA 967 on December 18, 1933. The Reservoir has an appropriation date of October 24, 1929. Also, in Case 967, but in 1963, 11,086 AF was transferred from Beaver Reservoir to Groundhog Reservoir, leaving only 16,210 AF at Beaver Reservoir. Beaver Reservoir was to be filled in part by Beaver Ditch, with a filling
rate of 150 cfs, also decreed in Case 967 (1933). The last reasonable diligence filing for Beaver Reservoir was in Case 10CW24, to which MVIC objected. A decree was entered in that case on December 16, 2011 after DWCD agreed to deed the Beaver Ditch water right to MVIC. **The next application for diligence is due by December 31, 2017.**

**Bear Creek Reservoir.** In CA 967, 7,261.49 AF of conditional storage, decreed for irrigation was transferred from Dawson Reservoir to Bear Creek Reservoir. The Reservoir has an appropriation date of August 17, 1922. The last diligence finding was decreed in Case No. 10CW24. **The next application for diligence is due by December 31, 2017.**

**Dawson Reservoir.** Dawson Reservoir was decreed for 54,424 AF, conditional, in CA 967 with an appropriation date of August 17, 1922. 11,527 AF of the right was changed to Narraguinnep Reservoir and 7,261 AF was transferred to Bear Creek Reservoir in CA 967 in 1963. The last diligence finding was decreed in Case No. 10CW24. **The next due diligence application for the remaining 35,636 AF is due by December 31, 2017.**

**Totten Reservoir.** Totten was decreed in CA 967 for 3,000 AF (made absolute in Case W-27), with an appropriation date of February 1, 1951, for irrigation, domestic and stock. Totten had been decreed in CA 967 for 400 AF (absolute), with an earlier appropriation date, April 25, 1907, for irrigation use only. DWCD is a successor party to an agreement with the Colorado Parks and Wildlife, pursuant to which there currently is a 521.56 AF Conservation Pool in Totten Reservoir and the public may access Totten and fish in the Reservoir. A 2011 USGS bathymetric survey shows that Totten holds approximately 3,000 AF, including a dead pool, instead of 3,400 AF. But the final control elevations (outlet to spillway) have not been settled upon and discussions are ongoing concerning the accuracy and significance, if any, of that estimate.

3.1.3 **DWCD Water Rights Acquired Through Water Court Adjudications**

**McPhee Reservoir Power Plant.** A water right for 78 cfs was made absolute in Case 90CW77 on September 16, 1993, for power generation.

**T/HC Power Plant.** This water right for power generation was decreed in Case 90CW77 on September 16, 1993, for 375 cfs absolute (irrigation season) and 50 cfs, conditional, also during the irrigation season. Reasonable diligence for the 50 cfs was decreed in Case 08CW29. **The next diligence application is due by December 31, 2016.** No filing may be needed because the Canal is part of the Project and does not divert directly from a stream.

**Plateau Creek Dam – Afterbay.** Pump back storage uses, but also for irrigation, stock, domestic, municipal, industrial, recreation, fish and wildlife, flood control and other beneficial purposes. The Afterbay has two rights: a new conditional storage right decreed in Case 86CW19 for 14,900 AF with a 14,900 AF refill, and a storage right initially decreed in CA 967 to Ruin Canyon Reservoir for 17,200 AF with a refill of 12,800 AF, changed to the Afterbay in Case 86CW19. The last diligence finding was decreed in Case No. 10CW58. **The next application for diligence is due by February 28, 2019.**

**Campbell Dam and Forebay.** The reservoir also has two rights for the same uses as the Afterbay: a new storage right decreed in Case 86CW19 for 9,000 AF, conditional, with a refill for 9,000 AF and a storage right decreed to Cahone Reservoir in CA 967 for 7,100 AF with a refill of 6,700 AF, changed to the Forebay

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1 CA (Civil Action) 967 has decree dates of 1892, 1933 and 1963. Civil Action cases were general stream adjudications.
in Case 86CW19. A finding of reasonable diligence for the Forebay and the Afterbay was entered in Case 10CW58. **The next application for diligence will be due by February 28, 2019.**

**Totten Reservoir, 03 CW 112.** DWCD applied for two alternate DWCD Simon Draw rights for 15 cfs (reduced to 10 cfs) and DWCD Ritter Draw Diversion for 10 cfs. The new DWCD diversions are for both direct use and use after storage in Totten for (1) irrigation of up to 1,000 Acres (Fairgrounds Land); (2) supplemental irrigation, via Project facilities, of 20 acres of the Simon Draw Wetlands Area, together with up to 100 acres of uplands operated by the BOR (“Wetlands/Uplands”), located one-half mile east of Totten; up to 1,434 acres of McElmo Land and up to 7,800 Acres of Tribal land; and (3) storage in Totten Reservoir for irrigation of the Fairgrounds Land and supplemental irrigation of the Tribal land; the Wetlands/Uplands and the McElmo Land; fishery use within Totten and below Totten; municipal; industrial; domestic; augmentation; exchange as decreed in Case 99CW46; wetlands; incidental wildlife watering; fire protection; stock watering; and commercial uses. Sources for filling Totten in these applications, in addition to the Dolores River, and return flows from transbasin District and MVIC use of irrigation water from MVIC and District irrigated land, via various draws above Totten and spills from the MVIC system. The amount applied for the new uses includes a 3,400 AF Totten initial fill and two refills of 3,400 AF each all uses and from all sources. CDWR is the only opposer in this case. (MVIC attempted to intervene, but DWCD opposed and the Court denied MVIC’s motion.) It is anticipated that DWCD will reach a settlement on a final decree soon.

**Totten Reservoir, 04CW46.** In Case 04CW46, the District applied for a new 10 cfs water right out of Hartman Draw. The other sources, uses and refill rights from Hartman Draw for Totten Reservoir are the same as for Simon and Ritter Draws in Case 03CW112. MVIC and CDWR are opposers in this case. DWCD is negotiating with the CDWR in the two Totten cases, regarding the following issues, among others: actual locations of the new diversion points; older sources for Totten; and priority date for new uses under older Totten rights. Because DWCD has only a few issues remaining with CDWR, it is anticipated DWCD will reach a settlement on a final decree in this matter, which also provides a number of new uses for Totten Reservoir.

**Rico Underground Reservoir, 06 CW 125.** The application seeks a new water right for a DWCD Underground Reservoir (“DWCD UR”) as a new augmentation source on the West Fork under Case 95CW104. The DWCD UR is intended to have a delayed impact on the Dolores River because the DWCD UR is below a “Confining Layer”. Appropriation Date: Summer 1996. Objectors include: USFS, CWCB, and the State and the Division Engineers.

The DWCD UR, to be located on USFS land, for which a land use permit is needed, is to be filled during the high flow period from the Dolores River, Marguerite Creek, and other tributaries to the Dolores River upstream of DWCD UR. DWCD will construct “Augmentation Well(s)” to pump water from the DWCD UR to the Dolores River to augment out-of-priority depletions from 95CW104 Authorized Diversions (ADs) on the West Fork, pursuant to augmentation procedures under that decree. Out-of-priority depletions may include all uses under 95CW104. Augmentation water from the DWCD UR is not needed until the De Minimis Depletion under 95CW104 is reached and CWCB places a valid call for its ISF right.

To ensure DWCD UR pumping does not impact the Dolores River during call periods, DWCD must demonstrate that Augmentation Well(s) replace out-of-priority depletions without injury to vested water rights. Therefore, monitoring well(s) between the DWCD UR and the Dolores River may need to be installed, which could be monitoring wells constructed by Rico. The USFS has provided data that it believes show that the DWCD UR is connected directly to the Dolores River, without any lag time, and cannot, therefore, be used for augmentation. With Rico’s installation of its production well, new tests at
the two existing monitoring wells can be conducted to better assess the lag between well pumping and the impact on the Dolores River. DWCD will need to provide and install appropriate measuring devices for the two monitoring wells at a cost of about $2,000 each.

Plateau Creek Reservoir. The storage right for the Reservoir was decreed in Case 00CW97 on October 30, 2002, for 21,000 AF of storage, with one refill, for recreation, domestic, municipal, industrial and piscatorial. The District purposefully did not request irrigation as a use because of the concerns of Trout Unlimited and Environmental Defense, which were objectors in the matter, but withdrew their objections. A finding of diligence was decreed in Case 08CW91, with the next filing for diligence due by December 31, 2015.

Case 05CW44. The new upstream irrigation exchange plan (“New EX Plan”), applied for on August 31, 2005, will augment diversions from the West and East Eder, and Rogers Ditches on the Dolores River, the West Fork of the Dolores River and their tributaries, upstream of McPhee (“Three Ditches”).

The original owners of certain water rights in the Three Ditches did not execute an Upstream Water Users’ Agreement. When the properties served by the Three Ditches changed hands, the new Ditch owners wanted protections for their ditch rights similar to those for ditch rights under Case 96CW49. The New EX Plan has the same purpose as 96CW49, but only for the Three Ditches, up to the HCU from the Three Ditches to be released from Groundhog, in addition to releases under Cases 96CW49 and 95CW104. When the District does not have a sufficient physical supply of Groundhog storage to augment uses under Cases 96CW49 and 95CW104, Groundhog water cannot be released for the Three Ditches. In addition, should Project full service irrigators experience a shortage of water greater than 25% in a water year, the HCU credit in Groundhog for the Three Ditches is to be similarly reduced for that water year. A decree in this matter is expected to be entered in late 2014.

3.1.4 DWCD Exchange/Augmentation and Replacement Plans – Downstream and Upstream of McPhee

Totten Reservoir Downstream Exchange Plan: San Juan River System (“SJR EX”). Under Case 99CW69, SJR EX, DWCD can provide exchange water for authorized uses within the District from wells, surface water structures, and for reservoir evaporation, tributary to the San Juan drainage, including, but not limited to, McElmo Creek and its tributaries. At the time of the SJR EX filing, it was thought that some junior McElmo irrigation rights would want to divert water out-of-priority and, therefore, would need augmentation water. It was also believed that the parties wanting new wells in this over appropriated stream would need augmentation water. Since Totten had not yet been decreed for augmentation use, the SJR EX filing was decreed as an exchange plan for those uses. Some parties have requested Totten Reservoir water, but no contracts have yet been executed, pending District evaluation of all potential uses for Totten. The SJR EX was decreed with an appropriation date of June 15, 2003. The District is to consult the CDWR as to how each AU will be administered pursuant to the process whereby each water use becomes an AU. Diversions into Totten are limited to 3,400 AF under the Totten water rights decreed in CA 967, and 5,120 AF from McPhee, minus any transit losses assessed by the CDWR.

The SJR EX may involve up to 2,800 AF, to come from Totten Reservoir to support the following AUs by exchange: livestock watering; irrigation; domestic; municipal; industrial and commercial; firefighting;

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2 The application was originally irrigation uses to allow, in addition to those for the Three Ditches, to be added to the new EX Plan as new uses are added to 95CW104.
recreation and piscatorial, (firefighting, recreation, piscatorial uses, and losses from pond evaporations).³

Annually, by May 15 of each year, or more frequently, the District is to prepare a release plan for an updated list of AUs⁴ for the current water year. The SJR EX may operate in McElmo Creek only when there is a live stream between the point of delivery and the point of diversion.

Case 95CW104. Under this exchange/augmentation plan (“E/A Plan”), DWCD augments the out-of-priority depletions from ADs approved by the Water Court under the E/A Plan, from tributary wells, surface water diversions and pond evaporation within the District, as it currently exists and may be expanded upstream of McPhee within the drainage of the Dolores River and the West Fork of the Dolores River and their tributaries, utilizing water stored in Groundhog Reservoir (“Groundhog”) for augmentation. CWCB was an objector in the case and required certain terms and conditions to protect its ISF water rights. The decree has been amended a number of times to authorize new ADs under the E/A Plan. New ADs may be added to the Plan.

- Amount of Exchange: 400 AF annually from Groundhog Reservoir
- Rate of Delivery: 20 cfs
- Priority Date: 25 AF Absolute, August 1985
- 75 AF Conditional, August 1985
- 300 AF, April 1991
- Source: Dolores River System
- MVIC will furnish the District with this water from Groundhog Reservoir pursuant to the provisions included in the District/MVIC Contract.
- The E/A Plan may augment water utilization for: stock watering; irrigation; domestic; municipal; industrial and commercial use; evaporation, firefighting, recreational and piscatorial use.

The general operation of the E/A Plan is as follows:

1) Releases from Groundhog of up to 400 AF replace the out-of-priority consumptive use of ADs for stock watering, irrigation, domestic, municipal, industrial, commercial, recreation, and piscatorial use, evaporation and firefighting. The E/A Plan includes a chart of estimated theoretical depletions for ADs for various uses.⁵
2) MVIC receives up to 400 AF of M&I water from McPhee
3) Upper Dolores Basin water users, covered by the E/A Plan, must have their property with water uses under the E/A Plan included in the District and must contract for District M&I Water, and

³ Totten may only be used for exchange for its decreed purposes, irrigation under the most senior decree, and irrigation, domestic and livestock watering under the original junior decree. Water for wells and irrigation ditches would be exchanged on a one-for-one (“1/1” basis plus transportation loss; but pond evaporation would be on a 2/1 exchange basis, plus a transportation loss.

⁴ AU Applicants must submit an application and appropriate fees and supplemental information to the District on forms approved by the District and CDWR.

⁵ An applicant for an AD may use different engineering assumptions from those in 95CW104 under a separate Plan for Augmentation.
4) The E/A Plan does not protect the beneficiaries of the E/A Plan from the valid call of water rights senior to MVIC’s Main Canal (D-16) and MVIC’s D-16 water rights if MVIC cannot obtain the water to which it is entitled from McPhee.

The inclusion of additional ADs under the E/A Plan generally occurs every fall.6 Objectors7 responding to the resume notice for new E/A Plan inclusions may not object to the entire Plan -- only the new inclusions. The original decree has been amended several times for the inclusion of new ADs.

Under the E/A Plan, DWCD has no direct augmentation source on the West Fork. (See discussion of Case 06CW125, § E(3)) Because the CWCB has an ISF water right on the West Fork, West Fork AD depletions could impact the CWCB ISF right. Under a “De Minimis Rule,” included in the E/A Plan decree, AD depletions of up to one per cent (1%) of the CWCB water right for an ISF reach do not constitute injury to a CWCB ISF water right for that reach.

After the cumulative total of un-replaced AD depletions affecting an ISF reach reaches 80% of the CWCB ISF, CWCB reviews all new AD Applications that may impact that CWCB ISF reach. DWCD has used up almost all of the De Minimis depletions on certain portions of the West Fork, pursuant to the settlement of Case 06CW110, in which the Town of Rico applied for a new well on the West Fork, which needs augmentation water under 95CW104 but for which there is no direct augmentation source. After the total depletions from ADs affecting an ISF reach total 90% of the allocated De Minimis Depletions, the CWCB has agreed to negotiate with DWCD regarding ways to mitigate the impact of additional proposed ADs. DWCD must submit reports to the Division Engineer containing pertinent use information.

Case 96 CW 49. This Exchange/Augmentation Plan (“EX Plan”) implements the Upstream Water Users Agreement (“UWUA”) to benefit particular upstream Dolores River irrigation ditch users, junior to the MVIC Main Canal water rights. The UWUA was developed to seek to maintain the pre-Project flow regime on the Dolores River System and avoid an administrative call by MVIC of its Main Canal No. 1 and No. 2 water rights, by releasing from Groundhog Reservoir the Historical Consumptive Use (“HCU”) of each UWUA ditch.8 The total HCU exchanged from Groundhog to McPhee for the benefit of MVIC each year is now about only 1,609.9 AF (“Exchange AF”) since upstream water rights senior to MVIC’s Main Canal irrigation water rights do not need to be augmented under the EX Plan and some upstream rights have been abandoned.9 The Priority Date of the EX Plan is August 1985 for 2,300 AF (under the 1989 T/HC Contract) and May 1997 for 200 AF (under a contract between DWCD and MVIC, dated October 28, 1998).

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6 DWCD holds a land inclusion hearing, for land on which an AD is used, and the Board issues a land inclusion order, which is filed with the District Court under the original DWCD case. DWCD then files an amendment to 95CW104 with resume notice to include new lands/uses under the E/A Plan.

7 The three objectors in original Case 95CW104, including the Colorado Water Conservation Board, receive special notice of new E/A Plan inclusions prior to the publication of resume notice.

8 It was originally intended under the 1989 T/HC Contract (Article 10(b)) that 124.6 cfs of Main Canal rights would be changed to other Upstream PODs in addition to MVIC granting DWCD 2,300 AF storage in Groundhog Reservoir.

9 The HCU of water rights was determined by Tipton & Kalmbach Engineers (“T&K”) in a major study paid for by DWCD. DWCD agreed to accept that HCU as final through the date of the T&K Study. That amount is accepted for any change of place of irrigation use until 2016. For any change to other than irrigation use, no HCU will continue to be released from Groundhog.
CDWR determines the total HCU release from Groundhog, up to the Exchange AF, based on the HCU of ditch rights under the EX Plan actually diverting and beneficially using water\(^{10}\) for irrigation.

Pursuant to the UWUA and the MVIC-DWCD Agreement, MVIC will not call its conditional Main Canal 87.3 cfs and will not call its 707.7 cfs D-16 Main Canal absolute Rights to the extent the District can physically and legally provide MVIC with the water to which it is entitled from McPhee. If the District cannot provide MVIC with water from McPhee under the EX Plan, MVIC may place the Dolores River under administration and the UWUA ditch water rights could be placed on call.

### 3.2 Major Water Rights on the Dolores River Other Than DWCD’s

**3.2.1 The City of Cortez (Cortez)**

Cortez owns 4.2 cfs of M&I water rights senior to the rights for McPhee. Cortez changed the point of diversion of these irrigation rights to the Dolores Project Inlet and the use of the rights to M&I in Case No. 12CW21.

**3.2.2 Montezuma Water Company (MWC)**

MWC owns approximately 11.0 cfs of M&I water, senior to the rights for McPhee and 0.587 cfs of water rights from wells, junior to McPhee’s rights. These MWC water holdings include the right to 10 cfs of MVIC’s 100 cfs domestic water right decreed in 1963, with an 1885 appropriation date, plus sufficient storage water from MVIC in Groundhog to increase the supply to 10 cfs, if not available in the stream.

**3.2.3 Montezuma Valley Irrigation Company (MVIC)**

As described in the Recitals to the 1937 DWCD/MVIC Contract, MVIC owns the following 19\(^{th}\) and early 20\(^{th}\) century surface and storage water rights senior to the water rights for McPhee.

- **Main Canals 1 & 2:**
  - 707.7 cfs, absolute, rank 17, adjudicated 2/1/1892 and appropriation date 11/25/1885 for irrigation;
  - 592.3 cfs, conditional rank 17, adjudicated 2/1/1892, appropriation date 11/25/1885 for irrigation and domestic (refer to Contract #9-07-40-R0730, Article 10, for full amount transferred) (505 cfs transferred to DWCD)
  - 100.0 cfs, absolute, rank 101, adjudicated 3/22/1963, appropriation date 11/25/1885 for domestic, industrial, stock water and other, of which MWC now owns 10 cfs.
- **Narraguinnep Reservoir, Total 20,710 AF:**
  - 5,969 AF, absolute, rank 44, adjudicated date 12/18/1933, appropriation date 3/15/1888 for irrigation and domestic;
  - 3,306 AF, absolute, rank 74, adjudicated 12/18/1933, appropriation date 10/28/1907 for irrigation;
  - 9,782 AF, absolute, rank 86, adjudicated 12/18/1933, appropriation date 8/17/1922 for irrigation;
  - 1,653 AF, absolute, refill rank 131, adjudicated 3/22/1963, appropriation date 5/1/1956 for irrigation, domestic and stock water.
- **Groundhog Reservoir, Total 21,709 AF:**

\(^{10}\)Such releases occur when the Exchange AF is physically and legally available and when, at the conclusion of the spring runoff, the Dolores River flow falls below 300 cfs as measured at the Dolores River at Dolores, Colorado gauge within a reasonable period after release from Groundhog.
- 10,623 AF, absolute, rank 69, adjudicated 12/18/1933, appropriation date, 8/1/1905 for irrigation;
- 11,086 AF, absolute, rank 90, adjudicated 12/18/1933, appropriation date 10/24/1929 for irrigation.
  ➢ Totten Reservoir (Total 3,400 AF) (conveyed to DWCD)

Because MVIC’s direct flow rights are senior to the water rights for the Project, the Project could not have been constructed without MVIC’s participation. The 1977 Contract includes numerous limitations on MVIC’s use of its non-Project Water rights to prevent injury to the Project from expanding the use of MVIC’s water rights. *(See § 1.2.4, above, regarding negotiations for the 1977 DWCD/MVIC Contract)*

### 3.2.4 BOR

BOR owns water rights on the Dolores River for 1.5 cfs in the Earl Hart Ditch with an appropriation date in 1946, decreed in Case 84CW166, on March 7, 1986.

The BOR also holds Decrees in Case 83CW45, Water Division 7, and 83CW14, Water Division 4, in Montezuma, Dolores and San Miguel Counties (“Paradox Augmentation Plan”).

  ➢ The Paradox Augmentation Plan provides for the augmentation of water injected by BOR into wells as part of the BOR Paradox Valley Salinity Control Unit from out of priority purposes from the Dolores River.
    ➢ Determined the historical consumptive use associated with water rights purchased by BOR that had been decreed 19.32 cfs for irrigation of land inundated by McPhee and changed the use of the rights to augmentation.
    ➢ The water released from McPhee is to be delivered to a specific point.
    ➢ The changed water can be stored only when there is space available in McPhee, i.e., non-fill and non-spill years.
    ➢ It was anticipated that the amount released from McPhee would range from 71 AF/year to 924 AF/year.
  ➢ DWCD voluntarily agreed to release 700 AF annually irrespective of the augmentation requirement in the decrees.
    ➢ The 700 AF is managed as part of the fishery pool, providing more water than required by the Plan decrees and more certainty for managing fishery releases.

### 3.2.5 Upstream Water Rights Other Than MVIC’s

To seek to maintain the pre-Project status quo of the water required in the Dolores River upstream of the Project, upstream irrigation water rights users, with rights junior to MVIC’s, are served under the terms of the Upstream Water Users Agreement among the District, MVIC and the Landowners in the Upper Dolores River Drainage for Water Operations on the Upper Dolores River. *(See section 3.1.2 above regarding that agreement and Case 95CW104)* DWCD may utilize up to 2,700 AF of water in Groundhog M&I for use under E/A Plans upstream of McPhee.

### 3.2.6 Downstream Water Rights Senior to DWCD’s Project Water Rights

There are several water rights senior to those of McPhee downstream of McPhee. BOR provided a feasibility-level analysis of the demands of those water rights in the DPR, estimating their draft at about equal 3,900 AF per year. Beginning in early 2000s, Harris Water Engineering re-quantified the draft of those water rights using more realistic assumptions concerning return flows and depletions. Based on that analysis and other considerations, DWCD now releases up to 1,274 AF annually for the purpose of ensuring that sufficient water is physically available to divert under those water rights.
3.2.7 San Juan Basin Water Rights Dependent on Trans-Basin Diversions from the Dolores River

In the Montelores area, most of the arable land lies outside of the Dolores River Valley in the Montezuma Valley. In Colorado, the demand to provide water for use on land located outside of basins with a plentiful supply led to the development of trans-basin diversion projects and new law and policy to govern them. Usually water diverted from a stream “belongs” to that stream except to the extent that it is lawfully appropriated: a diverter takes water from the river, makes the decreed beneficial use, and returns any excess to the river of origin. Excess water includes, but is not limited to, water seepage from earth lined delivery channels and water diverted, but not actually consumptively used by crops. Any water diverted, but not consumed through beneficial uses, is owed back to the river. Return flows may seep slowly through the ground or run directly back to the river via surface, to be available for other appropriators (i.e., one person’s return flow is another’s supply). This ensures an adequate supply to the first diverter while enhancing groundwater levels, which may provide a buffer against water-short periods and extend base flows later into the summer.

Water imported into a different basin, such as MVIC’s trans-basin diversions from the Dolores River to the Montezuma Valley, does not belong to the receiving basin. The importer of water diverted from the stream of origin in priority pursuant decree terms, has the right to use and re-use to extinction the imported water, regardless of priorities in the receiving stream, as long as the importer maintains dominion and control over the imported water. Once the importer loses control of the imported water, the excess imported water becomes part of the receiving stream, subject to appropriation in priority in that stream. Although water rights can be obtained for return flows of imported water when available, such appropriations have no right to the continued importation and water use practices that initially made that water available.

MVIC’s importation of water to the Montezuma Valley is intertwined with the use of MVIC return flows by farmers on McElmo creek and its tributaries. Every draw in the north MVIC system is a tributary to McElmo Creek, and most or all farms located along those draws divert and use MVIC return flows. Early on such farmers anticipated making use of return flows of imported Dolores River water. The first McElmo water rights filings were made in 1888, within a few years after construction of the tunnel and Great Cut began. Today, some farmers have adjudicated water rights for those return flows, but some do not. Further, many landowners within the MVIC service area hold both shares in MVIC and separate individual water rights for return flows. Therefore, while some McElmo Creek farmers likely do not have an enforceable right to continued reliance on trans-basin water diversions, some do own stock in MVIC and all have relied on trans-basin diversions to provide return flows for their historical irrigation practices.

Proposals by the MVIC Board of Directors in 1992 and 2011 to sell or lease MVIC water for release downstream on the Dolores River exemplify the connection between MVIC diversions and farming in the McElmo Creek drainage. A key concern of MVIC shareholders and neighboring landowners with the proposal was the impact it might have on the continued viability of their individual water rights for return flows and on their property values. Because of those concerns and others, the shareholders voted down what could have been a financially lucrative transactions in both cases.

3.3 PROTECTION OF DWCD WATER RIGHTS

Pursuant to the DWCD Repayment Contract, Article 5(c) DWCD is required to protect the Project’s water rights, which DWCD does in a number of ways:

1) Under Colorado law, the primary mechanism for asserting and protecting a water right and for ensuring a water right owner’s ability to divert or store all physically and legally available water under the terms of a decree, is to place a call when water is not available for diversion at the rate or amount decreed.
Absent a call, other water users are free to divert any physically available water for any purpose. Once a call is placed, the Division Engineer and water commissioners are required to place the river system under administration and to ensure that no out-of-priority, undecreed, or otherwise unlawful diversions are permitted.

2) DWCD files Statements of Opposition in Division 7 Water Court
   a. principally in cases on the Dolores River seeking changes of water rights, to protect DWCD’s rights against any expansion of the historical consumptive use of existing water rights, and
   b. in cases for new water rights for which DWCD does not believe there is a sufficient additional water supply to support the rights.

3) DWCD filed over 80 Statements of Opposition from 1987-2012.

4) In cases where Applicants are seeking a new water right that depends principally on trans-basin return flows (See § 3.2.7, above), to seek to avoid problems in the future, DWCD seeks to notify the Applicant that if the holder of the trans-basin right exercises dominion and control over the return flows from the right, a holder of a water right that depends on those transbasin diversions cannot force the continuation of historic practices. Initially, DWCD filed Statements of Opposition (SOOs) to have such a statement included in new decrees. This led to the filing of so many SOOs that now DWCD simply requests, through a letter, that the Division Engineer include such a statement in the decree.

3.4 ALLOCATIONS OF PROJECT WATER

McPhee’s active pool of approximately 229,000 AF has been fully allocated to specific uses and lands through contracts with BOR and Project water users. As detailed in this section, Project water is allocated by contract to (a) DWCD full service irrigators and the Tribe, who receive a full irrigation supply for their lands; (b) MVIC, which receives a supplemental irrigation supply and M&I water; (c) Cortez, Dove Creek, and other public and private entities that receive M&I water; (d) downstream release for fish and wildlife purposes; and (e) BOR, to replace its Paradox Valley salinity control project. If drought conditions do not provide for a full supply, then all allocations except M&I water share pro rata in the shortage. Any water remaining in the Reservoir at the end of a water year is treated as carry over storage to mitigate the risk that McPhee does not fill the following year and cause a shortage in the Project supply.

DWCD also estimates evaporation and seepage from Project facilities to project and account for those water losses prior to allocating annual deliveries of available Project water supplies. The DPR estimated annual McPhee pan evaporation at 47 inches (42 inches from April through October; 5 inches through the winter) which would equate to reservoir evaporation 32.9 inches (2.74 feet) based on a 70% adjustment. DWCD has tracked evaporation for 12 years seasonally from April through October and has measured an average of 45.3 inches, very close to original Reclamation estimates. The DWCD measured low has been 29.3 inches and ranged up to a maximum of 56.3 inches. The loss in acre feet varies greatly with the elevation of the reservoir, which varies from approximately 2,200 surface acres at elevation 6856 feet, the minimum elevation for irrigation diversions, up to approximately 4,500 surface acres at elevation 6924 feet, a full reservoir. Actual evaporative losses have varied from 7,500 AF to 11,500 AF.

3.4.1 Full Service Irrigators

Full Service irrigators are those Project water users who obtain the full irrigation water supply from the Project, not individually owned adjudicated water rights. Full Service irrigators obtain a lease of Project water through the execution of a Petition for an Allocation of Project water, approved by DWCD and BOR. Originally, Full Service irrigators were allocated 55,282 AF through the issuance of Block Notices (DPR average annual, 55,200 AF without shortages). Water available for allocation to Full Service irrigators has been increased to 62,267 AF through the purchase of Class “B” shares from MVIC and the reallocation of
some of the water originally allocated for release for use by downstream senior water rights holders. Full Service irrigators currently divert approximately 50,000 AF annually to deliver about 48,000 AF. Full Service water users include individual landowners, each operating under contract with the District, irrigating around 26,000 of the 28,934 allocated acres. The 300 individual irrigated land holdings are combined into approximately 113 operator pools (per 2014) and separated into seven pumping plant “Blocks.” Full Service land is allocated a maximum annual supply of 1.96 AF per acre on all Project lands except the Hovenweep area, where 2.15 AF per acre are allocated. Those allocations are delivered and accounted for at particular Project facilities (e.g., at Great Cut) with all users sharing transportation losses to their metered delivery boxes (historically about 6 percent) and individual users subject to transportation losses from there on. As described in WETPACK, the District had planned to irrigate an additional 4,000 acres, adjacent to the existing Full Service lands, but the cost of the delivery system proved unfeasible, and the new full service lands would have demanded a maximum of 7,840 AF per year.

3.4.2 Ute Mountain Ute Tribe
The Tribe’s Ute Farm and Ranch Enterprise (Tribe's FRE) was originally allocated approximately 23,300 AF (DPR average annual 22,900 AF, with shortages). Through reallocation of water for downstream water rights and the allocation of water for San Juan Basin fish and wildlife purposes, the Tribe is now allocated 24,517 AF. The Tribe’s FRE reportedly irrigates up to 7,700 acres. Because the Tribe’s FRE grows alfalfa, the Tribe is seeking an additional permanent supply of 4,000 AF of Project or other water. The Tribe received its allocation of Project water pursuant to the Final Ute Indian Water Rights Settlement Agreement of 1986; P.L. 100-585, the Act implementing the Settlement Agreement, Division 7 Water Court; decree implanting the Settlement Agreement in Case W-1603-76H and the Tribe’s Repayment Contract with BOR (See § 1.3.2, above).

3.4.3 MVIC
MVIC, from the Project, uses supplemental irrigation water originally estimated to require approximately 13,700 AF, DPR average annual, 13,900 AF without shortages. MVIC’s Project Water allocation varies annually based on MVIC’s non-Project supply under its direct flow and other water rights. In the ten years from 2004 to 2013, MVIC’s annual Project water allocations ranged from 0 (2004) to 32,807 (2009) AF and averaged 13,160 AF. Pursuant to contracts, MVIC has 26,300 acres of land defined as irrigable and therefore eligible for Project Water. The supplemental irrigation water from the Project is provided to MVIC to provide a late season supply under the terms of the DWCD/BOR Repayment, the 1977 DWCD/MVIC Contract, and the Settlement of the MVIC v. DWCD Federal court case (Case 09CV1307, U.S. District Court, District of Colorado, filed by MVIC against DWCD and BOR (See § 1.3.2 above). In settlement of this case, the parties, including the Tribe, resolved the issues before the Court through an agreed-upon calculation sheet, Exhibit “A” to the Settlement Agreement, to determine the amount of Project Water MVIC is entitled to each year. The Exhibit “A” calculation sheet provides a process for determining MVIC’s required annual Project Water.

3.4.4 Municipal and Industrial (M&I) Project Water
A total of 8,700 AF of M&I water is allocated to DWCD (5,120 AF), Dove Creek (280 AF), Cortez (2,300), and the Ute Mountain Ute Tribe (1,000 AF). In 1995 Dove Creek and Cortez successfully petitioned the District to relinquish a portion of their original Project M&I allocations. (See §1.2.6) The DWCD’s M&I water allocation now provides untreated Project water to individual land and garden users located along the Dove Creek Canal and Lateral system.

DWCD leases M&I water to water users upstream of McPhee who need an “augmentation/exchange” supply of water in order to be legally entitled to drill wells or obtain stream water rights. The decree in
Case 95CW104 DWCD also contracts with industrial users who require augmentation water. (See section 3.1.4)

3.4.5 Downstream Fishery
Originally, 25,400 AF was allocated for release downstream for fish and wildlife purposes based on anticipated average annual requirements for flows of 20, 50, and 78 cfs. Following the 1996 change in Project operation from a “fishery flow” approach to a “managed pool” approach for downstream releases, see § 1.2.6, the specific Project fishery pool allocation is 29,300 AF. The de facto allocation included in the managed pool now totals 31,798 AF based on water released for downstream senior water rights (1,274 AF), re-allocation of the former amount allocated for that purpose (524 AF), and Paradox Salinity Unit augmentation releases (700 AF). The downstream senior water rights and augmentation release portion of the managed pool is not subject to shortage. Further, downstream releases are not accounted for against the managed pool during managed spills.

3.4.6 BOR Salinity Project Augmentation Water
DWCD reached agreement with BOR and the CWCB to provide an annual set amount of 700 AF of Project Water to augment water for BOR’s salinity works in the Paradox Valley. (See sections 1.2.6 and 3.2.4)

3.5 ANNUAL PROJECT OPERATING PLAN (AOP)
Under Contract Number 99-WC-40-R-6100, between BOR and DWCD, Reclamation and the District will jointly develop AOP for the upcoming water year. The AOP is a series of documents and information that help estimate the runoff, and subsequently projects the amount of water which may be available to each type of user (full service irrigators, MVIC, etc.). The AOP serves as a planning tool and facilitates the District in assuring all contractual obligations are met. The AOP is updated monthly during the winter into runoff season, roughly January to May, as needed for the current hydrologic conditions. The District’s water accounting, represented by the Inflow/Outflow sheets are the most common documentation of the AOP and its results.

These data include:

- CBRFC Forecasts
- Reservoir elevation, which translates into reservoir AF and is, in turn, converted to cfs.
- Inflows (the Dolores, tributaries to the Dolores and rainfall) are measured by the Dolores gauge and calculated by pool elevation using a stage/volume table as compared to outflows.
- Outflows (M&I, fishery flow, spill, wetland, supplemental and full service irrigation) are measured at the Dam, the Great Cut Dike and the Dolores Tunnel. Evaporation is calculated based on data from an evaporation pan at the Great Cut weather station.

Figures Seven, Eight and Nine are yearend summaries for wet (2005), average (2010) and dry (2013) years, since 1999 when the Project became fully on line, are found at the end of this section. The yearend summary graphs summarize the inflow/outflow tabulation sheet generated by the District. The graphs are combination charts that present the daily inflow and release (cfs) and the change in storage (AF) on the left side y-axis while right side y-axis presents the daily change in reservoir elevation (feet). The x-axis is a single water year. The data described on this graph is:

- Observed Inflow (cfs) – This is the daily sum of the Dolores River and Lost Canyon inflows into the reservoir.
- Downstream (cfs) – This is the daily release of water downstream of the reservoir.
- Change in Storage (AF) – This is the daily change in reservoir storage. This is determined by the difference between the reservoir’s pool elevation from day to day and the known acre-feet capacity at the said elevations.
- Pool Elevation (ft) – This is the daily pool elevation of the reservoir.
- Dove Creek (cfs) – This is the daily flow at the Dove Creek Canal.
- MVIC Demand (cfs) – This is the daily diversion amount of water used by MVIC. This is determined by subtracting the total amount diverted to the Dolores Tunnel by daily diversion amounts the other users of the tunnel’s capacity (BOR, UMUT FR&E, Quest, MWC, Cortez, UMUT Project Water, Forebay balance) plus the outflow to the Lone Pine and Ute Lateral.
- Other Project Users Demand (cfs) – This is the sum of the daily diversions for the M&I demands and UMUTE FR&E demands.

### 3.5.1 Forecasting Water Availability for Project Purposes

To forecast water resources for the current year, the District uses the official NOAA/NWS Colorado River Basin Forecast Center inflow forecasts. Managed releases are estimated by BOR form the forecast input to the annual operating plan spreadsheet.

Stream gauging stations measure runoff throughout the year. The primary basin stream gauging station is the “Dolores River at Colorado, 09166500: gauge, with a continuous period of record from 1938 to the present and an intermittent record from 1888 to 1938. The only other gauging stations above McPhee at Lost Canyon, near the Town of Dolores, and the mainstem of the Dolores near Rico, which have shorter period of records.

### 3.5.2 Managed Spills

Managed Spills were expected to average about 76,000 AF annually, but not occur every year per the DPR. From 1986 to 2013, McPhee has spilled 19 of 28 years with an annual average of 106,000 AF. This reflects wetter than average 1980s – 1990s snowpack and low Project use; water supply has lessened significantly from 2000 to 2014. During the development of the Project, it was determined that boating opportunities would be maintained to the extent consistent with other Project purposes. If Project inflows are greater than McPhee storage capacity, they are gradually released throughout the spring to avoid using the McPhee spillway for extremely large releases. These releases are considered as Managed Spills. Any Managed Spills are scheduled to seek to enhance downstream boating and protect the downstream natural fishery. In some years, no Managed Spills are possible because of low inflows causing failure to fill McPhee.

Project documents planned for the spring runoff to be captured and released using a “fill then spill” approach. Because of high natural variability and limitations in the ability to forecast runoff volumes each year, this would help to insure that a full Project water supply could be stored before risking the release of appreciable volumes of water downstream. It was understood that both the storage of water itself and this operational approach would have an unavoidable impact on recreational boating opportunities downstream. To mitigate this expected loss of boating days, the FEIS recommended managing McPhee releases such that the availability of boating water would be more predictable and opportunities for boating on the lower Dolores would continue to the extent compatible with Project purposes. McPhee releases, in anticipation of spring inflows, would be made on a scheduled basis with advance public notice of intended releases so that white-water boaters could plan their use of the river. Project operators have been engaged in efforts to refine that approach through improved snowpack measurement and runoff forecast modeling, as well as improved communication of planned Managed Spills.
Figure 6. 2005 “Wet” Year End Summary

- Observed Inflow (cfs)
- MVIC Demand (cfs)
- Other Project Users Demand (cfs)
- Down Stream (cfs)
- Pool Elevation (ft)
- Change in Storage (AF)
- Dove Creek (cfs)
Figure 7. 2010 “Average” Year End Summary
Figure 8. 2013 “Dry” Year End Summary
4 FACILITIES

4.1 DISTRIBUTION FACILITIES
In summary, the Project distribution facilities include: 7 pump plants with 42 pumps, two canal systems running 82.2 miles, 3 lateral systems containing 125.74 miles of pipe, 1 M&I pipeline running 19.5 miles and two power plants powered by irrigation flows or minimum stream flows producing approximately 12.7 megawatts. DWCD is responsible for the 80.9 miles of laterals from the DCC, while MVIC is responsible for the 13.8 miles of Rocky Ford laterals and the UMUT F&RE is responsible for their 31.1 miles of laterals. Total DWCD allocated acres are 28,934.8 as of December 2014.

Figure Ten, at the end of this section, illustrates the Distribution Facilities. Following is a detailed summary of the Project’s facilities, listed in order of general location (counterclockwise around the McPhee starting at the dam verified by plans & field inspection in November 2014):

- McPhee Dam
- McPhee Power Plant, annual average - 5,000 megawatt-hours
- Great Cut Pump Plant, 659 cfs total pumping capacity serves:
  - U-Lateral 165 cfs capacity (MVIC), and
  - Dove Creek Canal, 494 cfs capacity 32.5 miles to supply 101.1 allocated acres directly and the following:
    - Fairview Pump Plant, 105 cfs serves
      - Fairview Laterals, 20.9 miles, 7,994.6 allocated acres
    - South Canal, 6.9 miles to supply:
      - Pleasant View Pump Plant, 48 cfs serves
        - Pleasant View Laterals, 7.0 miles, 3,411.9 allocated acres
      - Sandstone Pump Plant, 22 cfs, (District owned)
        - Sandstone Laterals, 2.9 miles, \(1,075.8\) allocated acres
    - Ruin Canyon Pump Plant, 65.2 cfs serves
      - Ruin Canyon Laterals, 13.7 miles, 4,364.5 allocated acres
      - Hovenweep Laterals, 10.6 miles, 2,688.0 allocated acres, gravity fed
    - Cahone Pump Plant, 78.5 cfs serves
      - Cahone Laterals, 17.3 miles, 5,946.0 allocated acres including Delivery 23 a standalone single pump plant for one pivot one mile north on CR R & DCC
    - Dove Creek Pump Plant, 49.5 cfs serves
      - Dove Creek Laterals, 11.3 miles, 3,352.9 allocated acres
- Dolores Tunnel, approximately 1.3 mile, maximum capacity of 520 cfs to supply:
  - Dolores Canal, 0.6miles, normal full capacity of 475 cfs, with minimum free board at 520 cfs serves
    - West and East Laterals (MVIC)
    - Cortez-Towaoc Pipeline (State), 19.5 miles of Domestic M&I water to Towaoc at 17.3 cfs
    - Domestic M&I water to Towaoc, Cortez and MWC
    - Towaoc Power Plant, annual average – 15,700 megawatt-hours
    - Towaoc/Highline Canal, 40.1 miles, 420 cfs serves
      - Rocky Ford Laterals (MVIC)
      - Towaoc Laterals, 31.1 miles, 7,634 acres
The District owned facilities include Sandstone pump and pipeline. The District built the Sandstone system in order to serve interested customers with water for 636 acres from the 1,061 acres that reverted to the District to settle the *Holland v. DWCD* lawsuit. The remaining water for 425 acres from the lawsuit was re-distributed to existing deliveries. An additional 440 acres were added to Sandstone later as a result of WETPACK water. The rest of the facilities are owned by BOR and operated under Contract #7-07-40-W0470 by the District, including the hydropower operations.

The full service water supply system is a state of the art pressurized system with all deliveries measured. Each farm turnout has a delivery box. As each individual full service irrigator needs a change in the amount of water being delivered, they merely turn on or off the valve in their delivery box. The system records the change of each box and adjusts the reservoir releases, head gates and check structures appropriately for smaller flow needs. However, MVIC and the Tribe notify the District operations center each day of the amount of water needed to minimize waste.

### 4.2 WATER FLOW

Following is a description of how the water flows through Project facilities. The water flow is described per type of water use, fishery flow, full service irrigation, etc... and listed in the same order as the facilities are above.

- Fishery flow is released from McPhee Dam through the McPhee Power Plant to the Dolores River.
- Full service irrigation water exits the McPhee at the Great Cut Pump Plant and is distributed to the irrigated lands through the Dove Creek Canal and South Canal Lateral Systems detailed above. Full service irrigators utilize sprinkler irrigation.
- MVIC supplemental irrigation water (project and non-project) exits the McPhee at the Great Cut Pump Plant and is distributed through the U-Lateral. MVIC irrigators primarily utilize gravity flow irrigation. Water is also able to exit McPhee and be stored downstream in Narraguinnep Reservoir for use later in the season.
- MVIC supplemental irrigation water (project and non-project) also exits the McPhee at the Dolores Tunnel, flows through the Dolores Canal into the West and East Laterals and T/HC.
- Towaoc, Cortez and MWC M&I water exits McPhee at the Dolores Tunnel, flows through the Dolores Canal and into the Cortez-Towaoc Pipeline for further distribution from non-District facilities.
- Ute full service irrigation water exits McPhee at the Dolores Tunnel, flows through the Dolores Canal, powers the Towaoc Power Plant then into the T/HC for distribution through the Towaoc Laterals. The Tribe utilizes center pivot sprinkler irrigation.

### 4.3 HYDROELECTRIC POWER FACILITIES

Hydroelectric power production is a supplemental use of the Project. Through this power production, the Project provides power to the Western Area Power Administration and the revenue is credited to the Colorado River Storage Project account, which helps to pay for irrigation construction costs.

There exist two power plants on the Project, the McPhee Plant located at the dam and the Towaoc Power Plant located at the beginning of the T/HC, four miles north of Cortez. The McPhee Dam facility operates year round from fishery releases into the Dolores River. The Towaoc Power Plant operates from April to October on the irrigation water supply conveyed through the canal to MVIC and the Tribe with a maximum rated output of 11.5MW at 375 CFS though it generally operates from 50 cfs to just over 300 cfs. The McPhee Plant capacity is 0.43 megawatt-hours (MWH) at 25 cfs, 0.86 MWH at 50 cfs and 1.283 MWH
when running together at 75 cfs. McPhee produces approximately 5,000 MWH on an average year, but can be vary widely based on hydrology. Towaoc Power Plant produces from 10,000 to 25,000 MWH, averaging about 16,000 MWH in recent years, but varies widely on hydrology and irrigation demand. The two power plants are owned by the BOR and power is marketed by the Western Area Power Administration. Together, the two plants can produce up to 150% of the Project’s usage on better than average years. The District operates the plants under Contract #95-07-40-P0240.

### 4.4 Fish, Wildlife and Recreation Facilities

As part of the required environmental impact mitigation of the Project, the BOR acquired land for wildlife conservation, creating habitat for a variety of wildlife species. To compensate for land lost due to the inundation of the reservoir basin, 4,700 acres of wildlife habitat and wildlife management area were purchased north of the Great Cut Dike and on the east side of McPhee along House Creek. The land purchased was both private and BLM land. Habitat improvements on the purchased land included partial chaining of pinion-juniper woodland and replanting of species that provide desirable elk and deer forage. Fencing was also erected to minimize domestic grazing.

In addition, 215 of the 689 acres purchased along the Dolores downstream of the dam are to replace wildlife wetlands habitat lost as a result of Project modifications. The remaining 474 acres are primarily to allow fishermen access to the river; however, they serve as riparian habitat for wildlife, as well. Additional efforts, the construction of fencing, crossover ramps and escape structures, have been made to minimize impact to wildlife by the canals.

In response to the need for additional outdoor recreation opportunities, recreational facilities were constructed at McPhee. The facility types range from picnicking and fishing sites to boat launches and campgrounds. Following is a list of the recreation facilities located at McPhee and managed by the USFS (listed in order of general location counterclockwise around McPhee starting at the dam):

- **McPhee Recreation Site**
  - Group and Family Camping including: fee station, toilets, RV hookups, tent pads, picnic tables and shelters, garbage disposal, campfire circles, fire rings/grills, playground, volleyball court, and ball field
  - Boating including: anchor and regulatory buoys, boat ramp, fish cleaning station, garbage disposal, and
  - Picnic Site including: Campfire circles, fire rings/grills, pedestal grills, picnic tables and shelters, and garbage disposal

- **Ridge Point Observation Site**
  - Picnic Site including: fire rings/grills, picnic tables, benches, garbage disposal, and concrete pathway to observation site

- **House Creek Recreation Site**
  - Group and Family Camping including: fee station, picnic tables and shelters, garbage disposal, campfire circles, fire rings/grills, and pedestal grills
  - Boating including: floating dock, boat ramp, regulatory buoys, benches, and garbage disposal
  - Picnic Site including: campfire circles, pedestal grills, picnic tables, and garbage disposal

- **Dry Canyon Fishing Site** including: regulatory buoys and parking barrier

Recreational sites were also developed along the Dolores River below the dam. Three recreation facilities are located between McPhee Dam and Bradfield Bridge and are administered by the USFS. Four more recreation facilities that include boat launches are located along the Dolores River and administered by
BLM. These sites support both fishermen and boaters and are located both within the river recreation area and further along the river for boater support. The river recreation area consists of 474 acres that were purchased from private landowners for fisherman access to the river.

In addition to providing recreation opportunities, the 474 acres purchased along the river serve as wetland and riparian habitat mitigation for the areas disturbed by canal construction. An additional 120 acres, located just east of Totten Reservoir, also serve as wetland mitigation.
Figure 9. Distribution Facilities
5 DISTRICT WATER BUDGET

The District’s water delivery system was constructed as a state of the art system circa 1987-1997, with essentially all inflows, diversions, deliveries, and spills measured. With weather station data at Great Cut, evaporation loss is estimated and compared against daily McPhee elevations. This information is examined daily in order to properly manage McPhee, and has been compiled into the following water budget for purposes of this report. The water budget is a comparison of water inflows to water outflows and can serve as a tool for determining system operational and irrigational efficiencies and identifying water needs.

Table Four - Full Service Facilities - Water Budget (found at the end of this section) shows a water budget for the Project Full Service Facilities. System efficiency will only be determined for the DWCD full service lands serviced by the Dove Creek Canal and South Canal delivery systems. The water budget for the full service system was developed for an average water year and is based on diversion data from 1991-2013.

The following sections describe how the water budget was developed.

- **Great Cut Diversions** – From 1986 to 1998 the Great Cut diversions for full service irrigation varied from 460 AF to 54,717 AF. This large fluctuation resulted from the full service lands and delivery systems not being fully developed until 1998. From 1998 to 2013 the Great Cut diversion for full service irrigation varied from 16,681 AF to 62,090 AF. After the lands and delivery systems were fully developed in 1998, the fluctuations in water use were due, in large part, to drought, either low snow pack and/or lack of rain during irrigation season. The full service irrigators do not use their full allocation if much of the crop consumptive use is being met from precipitation. The remainder of the full service allocation is left in the reservoir until the following year as carry over storage which supports drought protection in subsequent years.

- **Delivery Losses** – Delivery losses include canal evaporation, canal seepage and water used by vegetation along the canals. For the purpose of this plan, the canal evaporation calculations described in the Project’s DPR, April 1977, Appendix B are used. Canal losses, including seepage, water used by vegetation, spills and unused diversions, are calculated by subtracting farm deliveries and canal evaporation from the Great Cut diversion. Farm delivery meters are go through a 3 year re-build cycle while Great Cut is functionally checked by electrical staff and periodically measured by DWR. The delivery loss is approximately 6% of the full service allocation or an average of 2,076 AF per year. As per the DPR Appendix B, the operational loss was estimated to be 5% of the net farm delivery requirement for both the Dove Creek and Towaoc areas.

- **On-Farm Delivery** – The DP full service area delivery system equips each farm delivery box with a meter. The recorded deliveries are tallied together and used to compile a “Block Summary Report” identifying water quantities delivered to each irrigator for billing use charges, as well as the delivery system efficiency. The water budget shows the delivery system efficiency is approximately 94% on average and can be significantly higher, 12 - 15% in drought shortened supply years.

- **Crop Requirements** – The BOR originally calculated crop consumptive use using 28,000 irrigable acres and the Jensen-Haise method for the period of 1952-1973. For the purpose of this plan, the crop consumptive use calculations described in the Project DPR, April 1977, Appendix B are used. Current irrigated acres were used for the years 1991 – 2013. Using the years 1999 – 2103 for full build out, the average crop distribution for these years includes 20,670 acres in hay (82%), 1,729
acres in small grains (78%), 1,779 acres in beans (7%), and 1,023 acres in pasture or other (4%). Table Five - Crop Requirements/Consumptive Use based on DPR values (found at the end of this section) shows the average monthly crop requirements.

- **Efficiencies** – A valuable aspect of the water budget is the means to calculate efficiencies to identify potential areas for irrigation improvements. As displayed in Table Four, the following efficiencies were calculated.
  - **Overall efficiency** = Crop requirements / Total diversions.
    - Overall efficiency of the full service irrigation delivery system is estimated to be 82%.
  - **Delivery efficiency** = Farm deliveries / Total diversions.
    - Delivery efficiency is estimated to be 97% percent.
  - **Farm efficiency** = Crop requirements / Farm deliveries.
    - Farm efficiency is estimated to be 84% percent. So 84% percent of the water delivered to the farms is actually used by the crops, according to the DPR crop consumptive use and effective precipitation calculations. The BOR originally estimated 70% percent farm efficiency for the system; therefore, farm efficiency is 14% greater than originally estimated.

Irrigation requirements and efficiencies are summarized in Figure Eleven – Full Service Facilities Average Diversion & Diversion Requirements and Figure Twelve – Full Service Facilities Efficiencies, found at the end of this section.

- **Water Budget Results** – The following conclusions have been made through review of the water budget.
  - Overall, the DWCD is doing a good job matching diversions with crop demands with a high efficiency.
  - Although water is being supplied to match crop demand, a more thorough understanding of crop consumptive use and irrigation requirements will provide improved irrigation techniques on the individual farms.
  - Evaporation is a minor contributor to delivery losses.

- Delivery losses are extremely low for the Project’s compacted earth canals. The District is able to deliver 97% of the full service releases.
Table 4. Full Service Facilities – Water Budget (acre-feet)

<table>
<thead>
<tr>
<th>Year</th>
<th>Great Cut Dike Diversions</th>
<th>(1) Delivery Losses</th>
<th>Farm Delivery</th>
<th>(2) DPR Crop Requirements</th>
<th>Efficiencies</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(3) Overall</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4) Delivery</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(5) Farm</td>
</tr>
<tr>
<td>1991</td>
<td>30,469</td>
<td>1,503</td>
<td>28,966</td>
<td>24,563</td>
<td>81%</td>
</tr>
<tr>
<td>1992</td>
<td>26,415</td>
<td>1,122</td>
<td>25,293</td>
<td>26,829</td>
<td>98%</td>
</tr>
<tr>
<td>1993</td>
<td>30,150</td>
<td>1,034</td>
<td>29,116</td>
<td>27,290</td>
<td>91%</td>
</tr>
<tr>
<td>1994</td>
<td>40,902</td>
<td>1,286</td>
<td>39,616</td>
<td>30,219</td>
<td>74%</td>
</tr>
<tr>
<td>1995</td>
<td>32,678</td>
<td>1,624</td>
<td>31,054</td>
<td>30,667</td>
<td>94%</td>
</tr>
<tr>
<td>1996</td>
<td>54,718</td>
<td>1,692</td>
<td>53,026</td>
<td>34,113</td>
<td>62%</td>
</tr>
<tr>
<td>1997</td>
<td>34,571</td>
<td>1,317</td>
<td>33,254</td>
<td>34,800</td>
<td>99%</td>
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<tr>
<td>1998</td>
<td>47,206</td>
<td>3,691</td>
<td>43,515</td>
<td>36,063</td>
<td>76%</td>
</tr>
<tr>
<td>1999</td>
<td>35,561</td>
<td>-</td>
<td>35,737</td>
<td>38,982</td>
<td>91%</td>
</tr>
<tr>
<td>2000</td>
<td>57,284</td>
<td>2,208</td>
<td>55,076</td>
<td>38,613</td>
<td>67%</td>
</tr>
<tr>
<td>2001</td>
<td>55,111</td>
<td>2,038</td>
<td>53,073</td>
<td>38,030</td>
<td>69%</td>
</tr>
<tr>
<td>2002</td>
<td>16,978</td>
<td>2,284</td>
<td>14,694</td>
<td>33,652</td>
<td>NA</td>
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<tr>
<td>2003</td>
<td>27,953</td>
<td>644</td>
<td>27,309</td>
<td>35,772</td>
<td>NA</td>
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<td>2004</td>
<td>49,582</td>
<td>1,913</td>
<td>47,669</td>
<td>35,106</td>
<td>71%</td>
</tr>
<tr>
<td>2005</td>
<td>42,869</td>
<td>-</td>
<td>43,581</td>
<td>35,294</td>
<td>82%</td>
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<tr>
<td>2006</td>
<td>46,203</td>
<td>-</td>
<td>49,036</td>
<td>36,618</td>
<td>79%</td>
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<tr>
<td>2007</td>
<td>49,427</td>
<td>-</td>
<td>50,842</td>
<td>38,267</td>
<td>77%</td>
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<tr>
<td>2008</td>
<td>55,933</td>
<td>-</td>
<td>56,438</td>
<td>38,668</td>
<td>69%</td>
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<tr>
<td>2009</td>
<td>57,129</td>
<td>1,841</td>
<td>55,288</td>
<td>38,338</td>
<td>67%</td>
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<tr>
<td>2010</td>
<td>49,545</td>
<td>2,237</td>
<td>47,308</td>
<td>38,389</td>
<td>77%</td>
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<tr>
<td>2011</td>
<td>55,655</td>
<td>2,180</td>
<td>53,475</td>
<td>38,964</td>
<td>70%</td>
</tr>
<tr>
<td>2012</td>
<td>62,090</td>
<td>3,125</td>
<td>58,965</td>
<td>37,710</td>
<td>61%</td>
</tr>
<tr>
<td>2013</td>
<td>16,681</td>
<td>2,291</td>
<td>14,390</td>
<td>32,536</td>
<td>NA</td>
</tr>
<tr>
<td>Totals</td>
<td>975,110</td>
<td>34,030</td>
<td>946,721</td>
<td>799,481</td>
<td>82%</td>
</tr>
<tr>
<td>Average (1999-2013)</td>
<td>45,200</td>
<td>2,076</td>
<td>44,192</td>
<td>36,996</td>
<td>73%</td>
</tr>
<tr>
<td>Median (1999-2013)</td>
<td>49,545</td>
<td>2,194</td>
<td>49,036</td>
<td>38,030</td>
<td>71%</td>
</tr>
</tbody>
</table>

1 – Losses would include evaporation, seepage, canal chargers in early spring, instant mass shutdown of headgates due to weather, etc... Cells with “-“ denote years were insufficient data was collected to determine losses.

2 – Crop consumptive requirements is the irrigation water requirement minus the effective precipitation based on averages in the DPR

3 – Crop consumptive requirements divided by Great Cut Dike diversions*

4 – Farm delivery divided by Great Cut Dike diversions

5 – Crop consumptive requirements divided by farm deliveries*

6 – GC Meter misreading, 2 of 4 probes out, these years not included in summary statistics

7 – Cool temperatures combined with rain lowered all McPhee diversions. Forecast was +/- 30% low compared to actual runoff.

Above average inflows including highest recorded July – October Dolores inflows combined to an ending McPhee elevation 6923, or 1’ below full at end of season, which led to a fall “spill”. 2000 ran an early spill based on high April 1 forecast early and then fell 2.5’ short of full and then the multi-year drought set in.

8 – Drought shorted supply

*100% indicates available precipitation to meet crop requirements.
### Table 5. Crop Requirements/Consumptive Use based on DPR Values (acre-feet)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Acreage</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Irrigation Water Requirement</th>
<th>DRP Crop Consumptive Use*</th>
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<tr>
<td>1991</td>
<td>18,216</td>
<td>803</td>
<td>3,369</td>
<td>7,375</td>
<td>9,714</td>
<td>6,532</td>
<td>3,994</td>
<td>1,702</td>
<td>33,489</td>
<td>24,563</td>
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<td>1992</td>
<td>19,815</td>
<td>877</td>
<td>3,696</td>
<td>8,081</td>
<td>10,554</td>
<td>7,086</td>
<td>4,381</td>
<td>1,865</td>
<td>36,538</td>
<td>26,829</td>
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<tr>
<td>1993</td>
<td>20,335</td>
<td>893</td>
<td>3,736</td>
<td>8,114</td>
<td>10,867</td>
<td>7,361</td>
<td>4,407</td>
<td>1,877</td>
<td>37,254</td>
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<td>1994</td>
<td>21,130</td>
<td>972</td>
<td>4,137</td>
<td>8,518</td>
<td>11,541</td>
<td>8,142</td>
<td>5,112</td>
<td>2,149</td>
<td>40,572</td>
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<td>21,793</td>
<td>992</td>
<td>4,224</td>
<td>8,922</td>
<td>11,768</td>
<td>8,119</td>
<td>5,147</td>
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<td>23,876</td>
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<td>4,830</td>
<td>10,092</td>
<td>12,775</td>
<td>8,772</td>
<td>5,807</td>
<td>2,437</td>
<td>45,813</td>
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<td>12,893</td>
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<td>6,008</td>
<td>2,515</td>
<td>46,491</td>
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<td>13,153</td>
<td>9,387</td>
<td>6,323</td>
<td>2,630</td>
<td>47,852</td>
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<td>5,553</td>
<td>10,909</td>
<td>13,912</td>
<td>10,013</td>
<td>6,943</td>
<td>2,873</td>
<td>51,439</td>
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<td>2,861</td>
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<td>5,910</td>
<td>2,465</td>
<td>44,659</td>
<td>33,652</td>
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<td>2,569</td>
<td>47,860</td>
<td>35,772</td>
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<td>4,749</td>
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<td>13,746</td>
<td>9,638</td>
<td>5,810</td>
<td>2,456</td>
<td>47,460</td>
<td>35,106</td>
</tr>
<tr>
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<td>25,617</td>
<td>1,184</td>
<td>3,369</td>
<td>10,159</td>
<td>14,132</td>
<td>10,109</td>
<td>6,263</td>
<td>2,631</td>
<td>47,846</td>
<td>35,294</td>
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<td>25,749</td>
<td>1,229</td>
<td>3,369</td>
<td>10,707</td>
<td>14,176</td>
<td>10,175</td>
<td>6,762</td>
<td>2,817</td>
<td>49,235</td>
<td>36,618</td>
</tr>
<tr>
<td>2007</td>
<td>25,989</td>
<td>1,226</td>
<td>5,426</td>
<td>11,130</td>
<td>14,019</td>
<td>9,765</td>
<td>6,656</td>
<td>2,779</td>
<td>51,002</td>
<td>38,267</td>
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<td>5,504</td>
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<td>6,769</td>
<td>2,816</td>
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<td>6,618</td>
<td>2,763</td>
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<td>14,321</td>
<td>10,119</td>
<td>6,598</td>
<td>2,758</td>
<td>51,289</td>
<td>38,389</td>
</tr>
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<td>26,973</td>
<td>1,253</td>
<td>5,615</td>
<td>11,499</td>
<td>14,390</td>
<td>9,959</td>
<td>6,678</td>
<td>2,788</td>
<td>52,181</td>
<td>38,964</td>
</tr>
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<td>25,558</td>
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<td>5,280</td>
<td>10,541</td>
<td>13,972</td>
<td>9,996</td>
<td>6,523</td>
<td>2,718</td>
<td>50,233</td>
<td>37,710</td>
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<td>21,967</td>
<td>1,039</td>
<td>4,573</td>
<td>9,189</td>
<td>11,975</td>
<td>8,511</td>
<td>5,656</td>
<td>2,357</td>
<td>43,300</td>
<td>32,536</td>
</tr>
</tbody>
</table>

| Average (1999-2013) | 25,201 | 1,190 | 4,973 | 10,541 | 13,740 | 9,737 | 6,466 | 2,698 | 49,344                       | 36,996                    |

*The Irrigation Water Requirement is based on actual irrigated acres with associated crop types as reported. (See Table 3 Crop Distribution). Using predetermined coefficients found in the DPR, Table 11 on page 67, the monthly acreage for a crop type was multiplied by its monthly coefficient. The sum for all crop types per a given month and year are presented in the above table. The Irrigation Water Requirement is the sum of the entire year’s requirement based on total acreage. The Crop Consumptive Use is equal to the Irrigation Water Requirement minus Effective Precipitation. This value is the same as column “DPR Crop Requirements” presented in the previous table.

The Irrigation Water Requirement is the required amount of the water that must be delivered from the irrigation diversion to the crop. While the Crop Consumptive Use is the amount of water the plant could consume.
Figure 10. Full Service Facilities – Average Diversion & Diversion Requirements
Figure 11. Full Service Efficiencies

<table>
<thead>
<tr>
<th>Year</th>
<th>Overall</th>
<th>Delivery</th>
<th>On Farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>81%</td>
<td>95%</td>
<td>85%</td>
</tr>
<tr>
<td>1992</td>
<td>98%</td>
<td>96%</td>
<td>100%</td>
</tr>
<tr>
<td>1993</td>
<td>91%</td>
<td>97%</td>
<td>94%</td>
</tr>
<tr>
<td>1994</td>
<td>74%</td>
<td>97%</td>
<td>86%</td>
</tr>
<tr>
<td>1995</td>
<td>94%</td>
<td>95%</td>
<td>94%</td>
</tr>
<tr>
<td>1996</td>
<td>62%</td>
<td>97%</td>
<td>99%</td>
</tr>
<tr>
<td>1997</td>
<td>99%</td>
<td>96%</td>
<td>96%</td>
</tr>
<tr>
<td>1998</td>
<td>76%</td>
<td>96%</td>
<td>92%</td>
</tr>
<tr>
<td>1999</td>
<td>91%</td>
<td>96%</td>
<td>86%</td>
</tr>
<tr>
<td>2000</td>
<td>67%</td>
<td>87%</td>
<td>100%</td>
</tr>
<tr>
<td>2001</td>
<td>69%</td>
<td>98%</td>
<td>72%</td>
</tr>
<tr>
<td>2002</td>
<td>71%</td>
<td>96%</td>
<td>100%</td>
</tr>
<tr>
<td>2003</td>
<td>82%</td>
<td>98%</td>
<td>100%</td>
</tr>
<tr>
<td>2004</td>
<td>79%</td>
<td>95%</td>
<td>70%</td>
</tr>
<tr>
<td>2005</td>
<td>77%</td>
<td>96%</td>
<td>83%</td>
</tr>
<tr>
<td>2006</td>
<td>69%</td>
<td>96%</td>
<td>100%</td>
</tr>
<tr>
<td>2007</td>
<td>67%</td>
<td>81%</td>
<td>74%</td>
</tr>
<tr>
<td>2008</td>
<td>77%</td>
<td>96%</td>
<td>81%</td>
</tr>
<tr>
<td>2009</td>
<td>70%</td>
<td>95%</td>
<td>75%</td>
</tr>
<tr>
<td>2010</td>
<td>61%</td>
<td>95%</td>
<td>69%</td>
</tr>
<tr>
<td>2011</td>
<td>70%</td>
<td>96%</td>
<td>69%</td>
</tr>
<tr>
<td>2012</td>
<td>61%</td>
<td>95%</td>
<td>81%</td>
</tr>
<tr>
<td>2013</td>
<td>61%</td>
<td>86%</td>
<td>73%</td>
</tr>
</tbody>
</table>
6 COMPLETED AND DISCONTINUED WATER MANAGEMENT MEASURES

As was stated in the introduction, this WMCP serves as a source of information about the District including the history of the Project and descriptions of operations, contracts, agreements and water rights. Primarily, the WMCP is to provide the District with a framework for the future by identifying water management and conservation measures that can be implemented within the District. In the discussion of these new water management measures, a review of the District’s past water management efforts is provided in this section. Please review Table Four – Completed and Discontinued Water Management Measures; for further detail and the narrative descriptions of each measure.

6.1 A: WATER MANAGEMENT


A2: Interfacing Microsoft Access and GIS. The 2002 plan proposed an interfacing of Microsoft Access, where water usage and crop census data by delivery box for the full-service lands is stored, and GIS. This would allow for analysis of crop data in specific regions of the Project and could assist in identifying areas where irrigation efficiency might be increased. This was not completed due to the necessity of keeping private specific information of individual full-service farmers. Each program is still utilized independently for annual billing and mapping of the Project.

A3: Revision of the runoff prediction model SOP and develop a user’s guide and training program. In 2002, the District experienced a change in the staff position of the General Manager. The District had planned to include a user’s guide and training program as a sub section of the Water Operations Manual. However, after staff changes happened the runoff prediction model was no longer utilized. Instead, the Colorado River Basin Forecast Center provides monthly predictions used by the District for managing the water supply.

A4: Acquired water rights from existing users. The District has purchased a water supply from MVIC in the form of Class B shares. These 1,500 Class B shares at 4 AF/share, subject to shortage similar to Project water, have been used to provide irrigation expansion into Ruin Canyon and Sandstone and supplement FSA irrigation pool. Within historic MVIC water rights, the Class B is delivered to specific lands in the Project Fairview Block and results in freeing up Project water. The total amount of irrigated lands served by these shares is approximately 3,000 acres. Any water available (in any given year) by use of the Class B shares in the full service area is included in full service irrigators pool of water.

A5: Investigate non-firm water supply and uses. To date no work has been performed on this specific task relating to use of excess water in spill years from McPhee. However, in general work was conducted to investigate the existing water supply and uses to determine potential for water savings and identify other uses for the water.
A6: Coordinate with CDPHE in developing the TMDL for McPhee. In order to protect the Project users, the District has worked closely with Colorado Department of Public Health and Environment (CDPHE) to monitor water quality in McPhee. To date the only restrictions enforced pertain to human fish consumption.

6.2 B: INFRASTRUCTURE
B1: Installation of 2 new SNOTEL devices. The District is always attempting to improve runoff predictions. One method of improvement is the installation of two new SNOTEL devices within the Dolores Basin. The first installation was completed in October of 2004 located near Sharkstooth Mountain at an elevation of 10,720 feet. The second installation occurred in July of 2012 located within the Black Mesa at an elevation of 11,600 feet. The additional data generated is used by the Colorado River Basin Forecasting Center to provide the District with forecasting predictions for the upcoming water year.

B2: Purchase Totten Reservoir. The District purchased Totten dam and reservoir from MVIC in 2002. A pilot study was conducted using Totten Reservoir to provide irrigation water for McElmo users during the 2013 and 2014 water year. Improvements to the dam are required (to satisfy Division of Water Resources dam safety regulations) prior to using the full 3,000 AF capacity of Totten. Currently, Totten is restricted to maximum fill of 5 feet below full by CDWR with an approximate capacity of 1,840 AF.

B3: Enlarge Groundhog Reservoir. A hydrology analysis was conducted to determine if a water supply exists in excess of the existing capacity of the reservoir. The HWE analysis determined there is no additional runoff available within the watershed to utilize additional capacity.

B4: Determine if the upper end of McPhee is experiencing sedimentation. No was conducted towards the Dolores River, but in 2013 DWCD staff sounded the Great Cut Channel and showed approximately 13,000 cubic yards (8 AF) of sediment deposited above the design invert.

6.3 C: CONSERVATION
C1: Design Field Days and/or Workshops for the Irrigators in cooperation with CSU – The proposed field days were intended to provide irrigators with updates on new techniques or new crop types. They could also help introduce new landowners to the water supply, Project operations and water conservation techniques. To date, no work has been conducted specific to this task and the development of field days. The District has developed the Farmer Advisory Committee consisting of farmers to provide a setting for exchange of information between the District and their customers.

C2: Installation of additional flumes – The DWCD staff has determined that there is no current need for installation of additional flumes in the canal system for data verification.

C3: Convert canal communication system controls from analog to digital – The District completed this conversion task. It was necessary due to aging SCADA system, the market converting to digital systems, and lack of available technicians to troubleshoot analog systems. Digitizing the system has enhanced water conservation, Project and delivery efficiencies along with lower long term costs.
<table>
<thead>
<tr>
<th>ID</th>
<th>Measure</th>
<th>Action</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Water Operations Manual</td>
<td>The manual describes the key elements of water administration through 15 sections of directive steps.</td>
<td>Completed. Available at DWCD office upon request.</td>
</tr>
<tr>
<td>A2</td>
<td>Interfacing Microsoft Access and GIS</td>
<td>Analyze the data for better crop and water management.</td>
<td>Incomplete. Due to the privacy of individual farmers this interfacing was never completed. Each component is used separately for billing and mapping annually.</td>
</tr>
<tr>
<td>A3</td>
<td>Revision of the runoff prediction model SOP and development of a user's guide and training program</td>
<td>Develop a written explanation of the relationship and use of all runoff prediction models.</td>
<td>Incomplete. The Colorado River Basin Forecast Center (CRBFC) now provides this information.</td>
</tr>
<tr>
<td>A4</td>
<td>Acquired water rights from existing users</td>
<td>Increase water conservation efforts and management efficiency.</td>
<td>Purchased class B shares that were previously used by MVIC. Class B shares allowed for expansion into Ruin Canyon and Sandstone and increase of full service water supply.</td>
</tr>
<tr>
<td>A5</td>
<td>Investigate non-firm water supply and uses</td>
<td>Utilize non-firm project water, namely spills that are not appropriated for any purpose.</td>
<td>No work was performed on this task, but does fill Totten.</td>
</tr>
<tr>
<td>A6</td>
<td>Coordinate with the CDPHE in developing the TMDL for McPhee</td>
<td>Monitor the CDPHE water quality study, verify water quality with BOR data and protect Project users.</td>
<td>Completed. Restrictions on human consumption of fish have been implemented.</td>
</tr>
<tr>
<td>B1</td>
<td>Installation of 2 new SNOTEL devices</td>
<td>Additional data generated which is utilized by forecasting center to provide informative runoff predictions.</td>
<td>Both SNOTEL installations have been completed; Sharkstooth online on 10/13/2004 and Black Mesa online on 10/01/2012.</td>
</tr>
<tr>
<td>B2</td>
<td>Purchase Totten Reservoir</td>
<td>Purchase of Totten could potentially provide additional irrigation water to be used by full-service lands or fishery below McPhee.</td>
<td>Purchased in 2002 but at this time is only available to provide water downstream in McElmo Canyon.</td>
</tr>
<tr>
<td>B3</td>
<td>Enlarge Groundhog Reservoir</td>
<td>To increase supply from existing facilities.</td>
<td>Hydrology analysis has shown there is no additional runoff to utilize additional capacity.</td>
</tr>
<tr>
<td>ID</td>
<td>Measure</td>
<td>Action</td>
<td>Status</td>
</tr>
<tr>
<td>----</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>B4</td>
<td>Determine if the upper end of McPhee is experiencing sediment filling</td>
<td>McPhee may be experiencing sediment filling which would ultimately result in a reduction of the available stored water supply.</td>
<td>No investigation was conducted. Great Cut Inlet Channel was sounded in 2013 and showed approximately 13,000 cubic yards (8 AF) of sediment build up.</td>
</tr>
<tr>
<td>C1</td>
<td>Design Field Days and/or Workshops for the Irrigators in cooperation with CSU</td>
<td>These field days can be used to update current irrigators with new techniques or new crop types, or introduce new landowners to the water supply, project operations and water conservation techniques.</td>
<td>No work was conducted specific to this task and the development of field days.</td>
</tr>
<tr>
<td>C2</td>
<td>Installation of additional flumes</td>
<td>Determine need for flumes and install for data verification.</td>
<td>No new flumes have been installed to date. The project began with 2 permanent canal flumes.</td>
</tr>
<tr>
<td>C3</td>
<td>Convert computerized metering system from analog to digital</td>
<td>Perform conversion.</td>
<td>Completed.</td>
</tr>
</tbody>
</table>
7 EXISTING WATER MANAGEMENT MEASURES

The District is proceeding with water management measures initially identified in the 2002 plan. A review of the District’s current efforts is included herein. These efforts include measures described in the 2002 plan as well as new measures implemented since 2002. Please see the narrative descriptions of each measure for explanation (in no particular order).

7.1 A: WATER MANAGEMENT

Development of Annual Crop Reports (ID-A21). Annual crop reports are generated yearly by District staff. The reports were once a requirement of BOR. Today, full service farmers are required to complete reports prior to water delivery. This information is only as accurate as the reporting and is encouraged to be updated yearly by farmers for their irrigated lands. The annual reports provide valuable information to identify and possibly adjust to trends. The record also documents Dolores Project economic impacts and crop consumptive use.

Continue to Practice Precipitation Augmentation (ID-A25). The District provides annual funding to cloud seeding programs sponsored by SWCD, CWCB, Lower Colorado River Basin and other local interests. Yearly monitoring of the program is necessary to gage effectiveness of cloud seeding, quantify efforts and determine best locations and technologies that should be used.

Conduct a Study to Determine the Possibility of Utilizing the Rico Alluvium for Up-stream Storage (ID-A27). The Rico alluvium is a potential development site for small underground storage to meet the CWCB ISF as the basin population increases. The Town of Rico installed a production well in 2013 which in combination with the two monitoring wells will provide more test data to evaluate underground storage. Continued work is needed to develop ways to meet the CWCB ISF and increase domestic needs in the Dolores Basin. Potential action item is to install water level monitoring equipment into the existing two monitoring wells.

Participate with the State and Other Governmental Entities (ID-A7). The District is committed to protecting the Dolores River and its tributaries for local use. Since water resources are a critical component of land use planning or zoning, they concern many types of governmental entities. The District is committed to continual involvement with local governments to assure that overlapping issues are resolved with mutual benefit to all users of the Project. The District’s participation at the State level is continual involvement in and support of western Colorado water issues. The District is also committed to remaining informed of national water, agricultural and environmental issues and trends.

Continue as Business Partners with Users (ID-A6). Continue cooperation between users is paramount to the success of the Project. The original operating contracts have worked well since the Project was constructed and serve as a valuable asset and guidance to the operation of the Project. However, partnering between these organizations is critical in the continued education and adjustments to future Dolores Project water management.

CSU Experimental Farms’ Investigations (ID-A24). Alfalfa is the primary crop grown in the District full service area. Alternative cash crops are continually investigated that are suitable to the District’s growing climate, in the event the alfalfa market decreases. The District coordinates with the NRCS, BOR, full service irrigators and the Tribe to identify alternatives and promote and support interest in different, suitable and economically feasible crops. Research may indicate that irrigation scheduling could be cost effective and water efficient for the full service irrigators. If so the District would work with the irrigators to develop
an irrigation scheduling program. The District will also work with full service farmers on identifying their needs/areas of concern and where improvements can be made to the CSU research to better relate to local farmer’s needs. The District currently supports the CSU Experiment Farm with annual donations of $5,000.

Promote Dolores Basin Water Quality (ID-A14). The District will continue to coordinate and participate in work conducted by the Tribe, Cortez, Dove Creek, Montezuma and Dolores Counties to monitor water quality parameters in the basin. Major water quality issues and or projects will require additional funding by the stakeholders involved. The District will continue coordination and participation in monitoring water quality parameters and standards, source water protection planning, development of 319 plans on the Dolores River, and respond to triennial reviews as necessary.

Interim and Permanent Utilization of M&I Water (ID-A18). The District owns 5,120 AF of M&I water from the Project of which approximately 4,500 acre-feet is not contracted. Although the water is not committed to a specific contracted user, the District is repaying the cost of the water to the federal government through a property tax mill levy approved by the voters of the District. The contracted water is utilized by providing 318 lawn and garden taps, augmenting 155 upstream users and truck haulers for various stock and construction purposes. Uncommitted supplies are often leased to the UMUT F&RE or used to supplement the FSA irrigation pool.

Conduct Bi-Annual Farmer Advisory Committee Meetings (ID-A1). The District is constantly improving efficiency measures and is interested in irrigator input. The Farmer Advisory Committee meetings offer a chance for the irrigators to provide valuable feedback, voice concerns or simply be introduced to other irrigators and practices. The Committee has provided a forum to encourage communication between farmers and DWCD. These meetings are held on a bi-annual basis; typically prior to and after summer farming irrigation season. Topics include water supply, budgets, rates, infrastructure and other pertinent District activities.

Participate in the Dolores River Dialogue (ID-A17). The Dolores River Dialogue (DRD) is a “coalition of diverse interests, whose purpose is to explore management opportunities, build support for and take action to improve the ecological conditions downstream of McPhee while honoring water rights, protecting agricultural and municipal water supplies and the continued enjoyment of rafting and fishing” (DRD; website overview). The District has representation on the Legislative Subcommittee and participated in the completion of a Watershed Based Plan (completed in 2013). The District continues to participate in the Dolores Implementation Team, Lower Dolores Working Group, and Steering Committee.

Continue Joint Board Meetings with MVIC (ID-A10). DWCD and MVIC regularly hold joint board meetings. The joint meetings allow for relationship development between board members and provide a platform for discussion of topics relating to both entities.

Energy Dissipating Structure (EDS) Hydropower Development (ID-A4). The District is interested in additional hydropower development on existing Project facilities. An outcome from a joint study conducted with the Tribe was a Hydropower Feasibility Study of Potential Sites within the Dolores Project Water Delivery System (Harris Water Engineering, December 2010). This report evaluated six potential hydropower sites with the EDS as the most feasible site. The feasibility is based upon the projected yearly income from the generated power relative to the combined cost of OM&R, and the loan payment to finance the facility. The EDS site is located on the T/HC at the transition from Reach 2 into Reach 3. The water available at this location is the water delivered to the Tribe’s FRE throughout the irrigation season (typically April through October). Negotiations have begun between the District and Tribe on pursuing the EDS hydropower development jointly. Once these are complete, the lease of power privilege agreement with BOR may begin that precedes final design and construction. That process takes a minimum of 39 months.
7.2 **B: INFRASTRUCTURE**

**Maintain/Enhance website to serve as informational resource (ID-B7).** The District maintains a website that provides pertinent information to the public. Updates to the website are done when appropriate with seasonally increased interest during “managed spills” (managed releases) downstream for boating.

**Plateau Creek Pump Storage Project (ID-B10).** The District is investigating the development of the 500 MW Plateau Creek Pump Storage Project which is adjacent to the Project. An Investment Information Memorandum (IIM) was prepared that provides a preliminary analysis of designs/costs, environmental issues and permitting, transmission options, need for the project, regulatory considerations, current and future power markets, financing options, and the results of the financial analysis. Due to current and future power markets in the southwest, as well as plans for future development of renewable wind and solar energy, it is apparent that the availability of a balancing facility such as the proposed Pump Storage Project could be of great value to the region and its utilities in the future. The District is seeking entities to jointly pursue the Project as power purchasers and/or investors/owners.

**Construct Upper Plateau Storage Reservoir (ID-B8).** Upper Plateau Reservoir, if constructed, could yield an estimated 3,300 AF a year from a potential storage capacity of 20,000 AF. The supply could be used for the Dolores River fishery and meet M&I demand. Upper Plateau Reservoir would allow some of the runoff, in years that McPhee spills, to be stored and used later in the year to increase the Project benefits. This reservoir could be a component of the Plateau Pump Storage Project (described in the above measure).

**Full Service Farmers meter education (ID-B2).** During the recent drought of 2013, DWCD staff provided assistance to full service farmers on reading their own water usage at their meters. This allowed for more accurate applications of the limited water supply while encouraging communication between farmers and staff. DWCD staff will continue this education effort into the coming years.

**Utilization of Totten Reservoir (ID-B3).** The District purchased Totten dam and reservoir from MVIC in 2002. The reservoir is a potential source of water to meet Project demands as well as community demands. Potential uses of the water are: lease to McElmo users, lease to the Tribe’s Farm and Ranch Enterprise, and augmentation water for water critical areas (such as the McElmo basin in the early irrigation season). A pilot project was conduct in 2013 to provide release downstream to McElmo users; if the supplemental irrigation supply to McElmo users is to be made a permanent lease multiple steps must be completed (such as inflows into Totten measured, CDWR Dam Safety Requirement satisfied, as well as contracts set in place with users).

**Focused Crew Training Programs (ID-B6).** Identify opportunities where DWCD staff can receive training on specific programs related to the Project’s operations, maintenance and replacement of facilities. Potential courses would be identified, a schedule developed for crews members to attendance upcoming training session and funds budgeted for these efforts.
8 IDENTIFICATION OF ISSUES, OPPORTUNITIES, WATER MANAGEMENT AND CONSERVATION MEASURES

The District facilities are still relatively new and District administration and operations are time proven; therefore, the District is not experiencing immediate operational problems beyond the persistent drought beyond our control. The water users are putting their water allocation to beneficial use and water is being delivered where and when users need it, with few exceptions. Since 2001 the Dolores River basin and the entire Colorado River basin has been in a drought cycle that has resulted in irrigation water shortages in 2002, 2003, 2013 and 2014. These shortages have caused the irrigators to be even more careful with use of the available water supplies.

To identify water management and conservation measures, District staff conducted extensive outreach to the Board members (past and present), Project water users, and the public. Based on this input, an initial list was drafted and presented to the District Board. The Board conducted an all day workshop where the initial list was discussed, revised, and increased to the present version. Further examination of the issues allowed the District staff to categorize the list by water management, infrastructure or conservation activities. The candidate measures are described herein (in no particular order) and presented in Table Eight in Section 9.

8.1 WATER MANAGEMENT

Diligence Activities and filings (ID-A2). Activities demonstrating reasonable diligence are necessary every 6 years to maintain conditional water rights. The District holds multiple conditional water rights that require applications based upon a predetermined schedule. The District will continue and expand the efforts for diligence. The Board will provide staff guidance on prioritizing conditional water rights, which water rights should have expanded effort and other direction as necessary to comply with diligence requirements.

(1) **Install stream gages.** The installation of stream gages is one method of preforming diligence. The Board will give direction on which conditional water rights should have stream gages to provide stream flow data. Once the equipment is installed, District staff will operate and maintain the gages.

De-Brucing/Tabor (ID-A3). The District operates under Taxpayer Bill of Rights (TABOR) regulations which restricts revenues collected under property tax mill levy. These restrictions limit the District’s flexibility when it comes to budgeting and maintaining mill levy funds. De-Brucing is a process of voters removing TABOR caps on revenues collected. With direction from the Board, District staff will investigate possibilities and benefits of de-Brucing. This would be a large undertaking requiring extensive outreach and education to the tax payers prior to becoming a ballot measures requiring a vote.

Replenish Reserve Accounts (ID-A5). Due to recent droughts, the District’s reserve accounts have been depleted due to reduced income from irrigation water sales. A long term strategy should be developed to replenish the reserves. This strategy could outline replacement cycles, potential payment amounts and provide a decision tree for the Board to review annually to determine within a specific year if deposits could be made into reserve accounts.

A Way Forward 9 Management Opportunities (ID-A8). The District participates in the DRD along with other subgroups formed from these efforts. The “A Way Forward” process was designed as a transparent scientific inquiry using all available existing data to help stakeholders better understand the status of the roundtail chub, the bluehead sucker, and the flannelmouth sucker in the lower Dolores River and to identify
tools that could potentially help improve the status of each species” (Lower Dolores River Implementation, Monitoring and evaluation Plan for Native Fish; June 2014). After its completion an Implementation Team was formed and tasked with translating opportunities into management strategies. The summarized 9 opportunities are below. The District’s Board has adopted the Implementation Plan.

1) Spill management;
2) Base flow management;
3) Geomorphic process – sediment flushing flows;
4) Geomorphic process – habitat maintenance flows;
5) Thermal regime modification;
6) Reduce coldwater invasive effects – discontinue stocking;
7) Reduce coldwater invasive effects – reduce brown trout reproductive success
8) Reduce warmwater invasive effects – disadvantage smallmouth bass reproductive success
9) Supplement adult native fish.

The District will annually monitor the efforts and review reports generated by the team.

Conservation Pricing (ID-A9). Conservation pricing involves implementation of conservation structured rates which would increase water sales income. A predetermined cap on the individual irrigator water supplies, at or above the contracted amount (i.e. inches of water provided to farmers) would be set prior to the start of irrigation season. The water in years where the available water supply is greater than the predetermined cap could provide increased water sales or potentially save water, but would encourage end user conservation.

Control Room Emergency Response for M&I (ID-A11). Municipal providers receive their raw water from McPhee through the Dolores Tunnel into the Dolores Canal to “Well House 2” intakes above the Towaoc Power Plant penstock for Cortez, Towaoc & Montezuma Water. During the irrigation season, Dove Creek receives raw water through a pipe connected to the Dove Creek Pumping Plant lateral system. To date no emergency response action plan exists to provide water supply protection. The District could develop a water supply emergency action plan specific to municipal water supply intakes.

Drought Planning and Assessment Tool (ID-A12). Development of drought planning and assessment tools are needed to be used in conjunction with other water management tools. The recent hydrology of the Dolores Basin has led to multiple years of inadequate water supply for Project users. Planning tools are necessary to forecast water use and manage existing supplies efficiently. Based on the knowledge learned from these less than average water supply years, water supply protection and management is crucial. These tools could include potential triggers that would have direct management activities associate with them.

Increase Auxiliary Enterprise Offsets (ID-A13). The District staff provides services for the Project that are funded by outside sources. An example of this offset is the work done for the T/HC Committee. The revenues from these projects are able to offset employee costs incurred that would normally be paid by the full service irrigators. The District staff will investigate enterprise opportunities such as: hydropower management, contracted work by other Project users, and similar work that falls into employee skill sets.

Maximum Utilization of Existing MVIC Reservoirs (ID-A15). Groundhog and Narraguinnep reservoirs are owned and operated by MVIC. Since 2000, the water management of these reservoirs has been to fill and drain the reservoirs in the same year with minimal carry over storage. One option to maximize the use of these reservoirs is to designate pools within each that are to be used only in drought situations to increase water supply when needed the most. These drought situations would be determined by specific triggers set by MVIC and the District. This measure is a possible deliverable of the Optimization Study (ID-A20).
MVIC Water Rights Options (ID-A16). A joint study effort between the Tribe and DWCD (Reconnaissance Study to Evaluate Potential Water Needs and Supplies for the Ute Mountain Ute Tribe and Dolores Water Conservancy District; Harris Water Engineering, January 2012) was conducted to identify water needs and alternatives to meet the needs for users of the Project. Discussions with MVIC are recommended to consider if MVIC water supply might be available for additional decreed purposes within the Project’s service area. MVIC irrigation return flows are a potential source of water to meet additional water demands. This measure is a possible deliverable from the Optimization Study (ID-A20).

Leasing Between Project Water Users (ID-A19). The potential exists in the contracts and physically for Project allocations to an individual or group of individuals being leased to another Project user on a voluntary and compensated basis. This would require approval by the District Board and concurrence by BOR.

Optimization Study (ID-A20). An Optimization Study is being considered to review the available water supplies to evaluate whether the water is being used as effectively as possible using the existing facilities. The study would then determine if there are additional management methods and/or facilities that may improve the effectiveness. A draft scope of work for the study has been developed and is included at the end of this section. Maybe other measures presented in this plan could be outcomes from such a study; however, these measures may be pursued separately or concurrently with the study and remain itemized as individual measures.

District Places a Call on the River (ID-A22). The District has the right to place a call on the river, utilizing McPhee as the calling structure, to curtail upstream junior users. Since no calls have been placed recently on the Dolores upstream of the reservoir, un-decreed or lower priority uses may be occurring. When a call is placed, CDWR has the authority to curtail users who are not complying with the Colorado water law. Prior to placing a call, the District may want to investigate possible unintended consequences of placing a call.

Education Outreach (ID-A23). The District will continue education outreach and Dolores Project promotion by participating in the DRD, Water 101, local water festivals, etc… The District provides annual funding to the Water Information Program, which is a program sponsored by local water districts, organizations and agencies to provide information to the public and community on water topics and water related issues. The District will participate whenever possible and feasible in these outreach efforts.

8.2 INFRASTRUCTURE

Capital Replacement and Improvement Plan (ID-B1). The development of a Capital Replacement and Improvement Plan is necessary for budgeting and future planning efforts for the District’s facilities and equipment. This plan will be incorporated into the existing OM&R efforts. Many improvements and replacements will be necessary in the upcoming years of the Project due to aging infrastructure. Potential items of inclusion into the plan could be: upgrading the SCADA system, pumping plant upgrades, installation of riprap where available along with investigation of other canal lining options, development of regulating reservoirs along the South Canal and Dove Creek Canal, and improvement of water storage for Tribe’s FRE winter time water use. Other infrastructure to continue monitoring that will eventually need work include the guard gates, siphons, laterals, penstocks, delivery boxes and other Dolores Project infrastructure.

Class “B” Stock Water (ID-B4). Acquiring of water rights was a measure from the 2002 plan with the acquisition of Class “B” stock water as an outcome. The Class “B” stock water has been put to beneficial use. In 2011, the Board took official action and now delivers the MVIC water to specific lands served by
the Fairview laterals. The replaced DP project water has landed on Sandstone and Ruin Canyon parcels and in the total FSA pool.

**Hydropower Development (ID-B5).** The District is interested in additional hydropower development on existing Project facilities. An outcome from a joint study conducted with the Tribe was a *Hydropower Feasibility Study of Potential Sites within the Dolores Project Water Delivery System* (Harris Water Engineering, December 2010). This report evaluated six potential hydropower sites with the EDS as the most feasible site (please reference measure ID-B13). The feasibility is based upon the projected yearly income from the generated power relative to the combined cost of OM&R, and the loan payment to finance the facility. The remaining five sites will be pursued after the EDS site development has been completed.

**Regulating Reservoirs (ID-B8).** The need for regulating reservoirs within the Dove Creek Canal and South Canal system should be investigated. Regulating reservoirs would provide a means to handle water fluctuations within the delivery system that are caused by individual’s changing of side roll sprinkler systems (on/off). These reservoirs would provide better spill management at the end of the delivery system.

**Protection of McElmo’s Flume (ID-B11).** The District supports protection of historic agricultural infrastructure as well as historical water use. McElmo Creek Flume is the only wood flume that remains of the 104 that were constructed to deliver water to irrigate crops within MVIC. The flume is in serious disrepair, damaged by flash flood events and wind storms. The flume will be rehabilitated with funds raised locally and statewide.

### 8.3 CONSERVATION

**Exchanging of Ideas Forum (ID-C1).** The District provides a platform for the local community to exchange irrigation methods, lessons learned and other information beneficial to agricultural producers. These forums provide networking between new and old generations, facilitate discussions of crop diversification, and introduce full service farmers to other users of the Project.

**Sponsor Farmers to Conferences (ID-C2).** The District would financially sponsor farmers, perhaps two to four per year, to attend and participate in agricultural related conferences. The participants would report to the Farmers Advisory Committee regarding the conference’s outcomes and what takes ways are applicable to the local farming community.

**Water Audits (ID-C3).** An opportunity to conduct on site Water Audits for farmers interested in assessing their current irrigation practices. Potential partners include CSU Experimental Farm and/or the Dolores Conservation District. Similar to efforts underway by the Dolores Conservation District, an Irrigation Water Management Program could be developed. This Program could collect valuable information about a farmer’s irrigation practices and provide feedback on efficiency improvements. Possible Water Audit information is: crop type, water supply source, sprinkler evaluation, soils map of irrigated lands, and soil moisture tests.

**Soil Moisture Education Forums (ID-C4).** Potential opportunity to partner with other entities in the area (i.e. CSU Experimental Farms or Dolores Conservation District) to educate farmers about soil moisture. Dolores Conservation District has developed a Water Audit that demonstrates how to measure one’s soil moisture capacity using everyday tools or equipment. By learning about soil moisture in irrigated fields, a farmer can determine the quality of water needed for the crop. This could prevent excess watering, encourage conservation and possibly increase available water supply for other users. Education could be done by visiting a farmer’s fields, presented at the Agricultural Expo, and conducting an open house, etc…
<table>
<thead>
<tr>
<th>ID#</th>
<th>Measure</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Management Candidate Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Conduct bi-Annual Farmer Advisory Committee Meetings</td>
<td>Meetings held 2 to 3 times a year to inform irrigators of Project status</td>
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<td>Continue diligence activities and filings for existing water rights</td>
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<td>A3</td>
<td>De-Brucing/Tabor</td>
<td>Investigate possibility of de-Brucing and outcomes if achieved</td>
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<td>A4</td>
<td>Energy Dissipating Structure Hydropower Development</td>
<td>Negotiations have begun with the Tribe on a joint facility</td>
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<td>A5</td>
<td>Replenish Reserve Accounts</td>
<td>Develop a long term plan and strategy to increase income to reserve account</td>
</tr>
<tr>
<td>A6</td>
<td>Business Partners with Users</td>
<td>Continue as business partners with all users of the Project</td>
</tr>
<tr>
<td>A7</td>
<td>Participation with the State and Other Governmental Entities</td>
<td>Continued participation with local, state and federal governmental entities; Remain informed of state and national water issues</td>
</tr>
<tr>
<td>A8</td>
<td>&quot;A Way Forward“ 9 Management Opportunities</td>
<td>Support appropriate management opportunities</td>
</tr>
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<td>A9</td>
<td>Conservation Pricing</td>
<td>Enforcing a predetermined cap on the full service water supply yearly; implement conservation structure rates to increase water sales income</td>
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<td>Develop a water supply emergency action plan</td>
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<td>A12</td>
<td>Drought Planning and Assessment Tool</td>
<td>Build on the drought tools learned and utilized in 2013; potential deliverable of the Optimization Study</td>
</tr>
<tr>
<td>A13</td>
<td>Increase Auxiliary Enterprise Offsets</td>
<td>Investigate enterprise opportunities within the basin</td>
</tr>
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<td>A14</td>
<td>Promote Dolores Basin Water Quality</td>
<td>Coordinate and participate in monitoring water quality parameters and standards, source water protection planning, 319 Plan on the Dolores, respond to triennial review as necessary</td>
</tr>
<tr>
<td>A15</td>
<td>Maximum Utilization of Existing MVIC Reservoirs</td>
<td>Designated pools in Groundhog and Narranginump to be used during a drought situation (determined by specific triggers); Management plan of said reservoirs could be a deliverable of the Optimization Study</td>
</tr>
<tr>
<td>A16</td>
<td>MVIC Water Right Options</td>
<td>Discussions with MVIC are recommended to consider if MVIC water might be available for additional decreed purposes within the Project area; Could be a deliverable of the Optimization Study</td>
</tr>
<tr>
<td>A17</td>
<td>Participate in the Dolores River Dialogue (DRD)</td>
<td>The District has representation on the Legislative Subcommittee, participated in the completion of a Watershed Based Plan (completed 2013), and participation in the Dolores Implementation Team, Lower Dolores Working Group, and Steering Committee</td>
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</tr>
<tr>
<td><strong>Water Management Candidate Measures Continued…</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A18</td>
<td>Interim and Permanent Utilization M&amp;I Water</td>
<td>Currently the District utilizes the water by providing 318 lawn and garden taps. Augmenting 155 upstream users, meeting municipal needs, temporarily leasing to the Tribe and providing surplus to irrigators</td>
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<tr>
<td>A19</td>
<td>Leasing Project Water</td>
<td>This could include individual Project allocations leased to other Project uses</td>
</tr>
<tr>
<td><strong>Infrastructure Candidate Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>Capital Replacement and Improvement Plan</td>
<td>Development of plan based guidance from the Board and staff input</td>
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<td>B3</td>
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<td>Class B Stock Water</td>
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<td>Identify course, establish crew schedule and budget</td>
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<tr>
<td>B9</td>
<td>Construct Upper Plateau Storage Reservoir</td>
<td>Continue consideration through water right diligence; pursue as a proposed component of the Plateau Pump Back Project</td>
</tr>
<tr>
<td>B10</td>
<td>Plateau Pump Back Project</td>
<td>Currently being pursued; 2014 Investment Information Memo</td>
</tr>
<tr>
<td>B11</td>
<td>Protection of McElmo’s Flume</td>
<td>Support protection of historic agricultural infrastructure and historical water use story</td>
</tr>
<tr>
<td><strong>Conservation Candidate Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>Exchanging of Ideas Forum</td>
<td>Bring FSA farmers together, Tribe FRE, MVIC also</td>
</tr>
<tr>
<td>C2</td>
<td>Sponsor Farmers to Conferences</td>
<td>Sponsor FSA farmers to participate in conferences; Report back to committee</td>
</tr>
<tr>
<td>C3</td>
<td>Water Audits</td>
<td>Development of an Irrigation Water Management Program</td>
</tr>
<tr>
<td>C4</td>
<td>Soil Moisture Education Forums</td>
<td>Open houses teaching methods of soil moisture testing</td>
</tr>
</tbody>
</table>
8.4 Optimization Study of Water Supplies in the Dolores River and McElmo Creek Basins

The Dolores Project, operated by the DWCD, has now been in full operation for nearly 15 years during which there have been three very dry years (2002, 2003, 2012, 2013) that resulted in significant water shortages to irrigators and the fishery. These shortages have shown that every drop of water available in the Dolores River and McElmo Creek basins is needed. This optimization study is to review the available water supplies within the Dolores and McElmo drainages, especially during droughts, using the existing facilities. Then determine if there are additional management methods and/or facilities that may improve the effectiveness. Figure Thirteen is a map depicting the study area. For a schematic of existing facilities please see Figure Ten in Chapter 4.

8.4.1 Scope of Work

The Optimization Study (Study) shall include the following tasks not necessarily to be completed in the order shown.

1. Inventory and assemble stream flow, water conveyance, climate, and irrigated land data in the Dolores and McElmo basins. This data already exists from sources such as:
   a. CDSS
   b. DWCD Daily Inflow/Outflow Worksheets (includes all project delivery data)
   c. Exhibit A from the DWCD and MVIC settlement
   d. DWR administration
   e. USGS and DWR stream gages
   f. Climate data from DWCD, CSU Experimental Station, NOAA, Tribe, etc.
   g. Irrigated land for Dolores and McElmo Basins from CDSS, DWCD, MVIC
   h. Rectify discrepancies that may exist

2. StateMod is expected to be an adequate modeling tool with modifications to specifically address the Dolores River and McElmo Creek. Issues to be determined in the modeling include:
   b. Determine the period to model Dolores Project: (1) as if the Project had been in place since 1929 (or some other pre-1985 date); or (2) since the dam was completed in 1985, or (3) just use actual data since 1999 when all users were on line.
   c. Operation of the MVIC irrigation system as experienced from 1986 to present.
   d. Options for operation of Totten, Groundhog and Narraguinnep Reservoirs.

3. Inventory additional water needs by entity and/or purpose.

4. Implement the model to replicate the existing water usage within the Dolores and McElmo basins and within the Dolores Project which will include:
   a. Incorporate legal and institutional constraints from contracts, agreements, court settlements, water rights, Colorado water law, Reclamation Law, etc.
   b. Replicate historic operation of Totten, Groundhog and Narraguinnep Reservoirs.
   c. Quantify the amount of water into McPhee Reservoir: Dolores River, Lost Canyon, ungauged tributaries.
   d. Develop modeling routine to determine MVIC supplies according to Exhibit A from the settlement.
   e. Replicate the operation and distribution of water that flows through or is stored in McPhee to the various users and purposes including excess water used for downstream boating.
f. Estimate the historic consumptive uses by category (e.g. irrigation, M&I, conveyance losses, induced wetlands/vegetation, etc.) in the Dolores and McElmo basins.
g. Develop a McElmo Basin water balance of diversions from Dolores River into McElmo basin versus consumptive uses and outflow from McElmo Creek at the Colorado stateline.
h. Develop an estimate of overall efficiency of water delivered versus consumed. Also estimate efficiency of sub-areas such as: Dolores basin, McElmo basin, MVIC, DWCD, lower McElmo lands, UMUT, Summit.
i. The output would be both modeled numeric output and a general “Where the Water Goes” type of visual presentation.

5. Using the findings of the modeling of existing conditions, determine if there are alternatives to improve the water efficiency to better meet currently unmet needs. The alternatives may include, but not limited to:
   a. Incorporate the significant work that has already been developed in past studies and the joint DWCD/UMUT study to investigate potential facilities.
   b. Modified operations of Groundhog and/or Narraguinnep Reservoirs.
   c. Incorporation of Totten Reservoir to provide water supplies.
   d. Investigate options for potentially better ways of utilizing the available water supplies during droughts.
   e. Investigate options for potentially better ways of utilizing the available water supplies during spill years.
   f. Options to better utilize MVIC return flows in McElmo Creek.
   g. The output would be both modeled numeric output and a visual presentation.

6. Based on model results, identify and describe efficiency improvement alternatives.

7. Throughout the modeling and technical evaluation process, especially the task to evaluate alternatives, coordinate with and involve as appropriate the DWCD, MVIC, UMUT, Reclamation, other water users, and interested parties.

8. In cooperation with the involved entities, develop a priority list of tasks to be implemented as a result of the study findings that might include, but not be limited to, water quality, regulatory issues, water contract issues, and cost estimates. Establish a schedule to complete the Study.
9 PLAN ELEMENTS

To identify future measures, District staff presented an initial list of proposed measures to the District Board. The Board reviewed and revised the list multiple times. Table Six contains the water management and conservation measures addressed by this WMCP (found at the end of Section 9). The measures are separated by categories: water management, infrastructure, and conservation.

9.1 PRIORITY OF MEASURES
The measures are separated into three priority categories: high, medium and low. The high priority measures will be pursued with diligence to be completed. The medium priority measures generally will be scheduled after the high priority measures are initiated. Some of the specific items are situational such that multiple priorities are implemented concurrently depending on changing conditions, budgets, ongoing OM&R obligations and staffing. The low priority measures will only be pursued after completion of the high and medium measures. Table Seven – Prioritized Measures can be found at the end of this section.

9.2 MONITORING PROGRAM
The DWCD WMCP will achieve the following:

- Improvement of the District full service agriculture by coordinating efforts between irrigators and continually examining potential new cash crops, new practices and technologies,
- Improvement the District water supply by developing new storage structures and new, efficient uses for the available water,
- Improvement of the District efficiencies by coordinating efforts with irrigators, continually monitoring releases, and delivery system improvements.
- Improvement and maintenance of the fish and recreation resources by supporting Dolores River Dialog and the CPW’s efforts,
- Continuation of the District as the water management coordinator in the Dolores and Montezuma Valleys by sustained cooperation and involvement with local and state water issues, and
- Continued maintenance and improvement of the Project facilities, by replacing facilities with new technology.

To determine the effectiveness of the District’s WMCP, a monitoring program is essential. A monitoring program will assist in identifying measures that are successfully implemented or measures that need additional investigation or effort, as well as further opportunities for water management.

The District Manager has been designated as the Water Management Coordinator and will be charged with initiating measures and monitoring the program. When necessary, District Board and staff will refine issues and goals, add or delete measures, adjust schedules, or refine budgets. The entire plan will be updated in five years.
Table 6. Prioritization of Measures

<table>
<thead>
<tr>
<th>ID</th>
<th>Priority &amp; Measure</th>
<th>Action</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Priority</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>A1</td>
<td>Conduct bi-Annual Farmer Advisory Committee Meetings</td>
<td>Meetings held 2 to 3 times a year to inform irrigators of Project status</td>
<td>Relationship development; Education on water availability</td>
</tr>
<tr>
<td>B1</td>
<td>Capital Replacement and Improvement Plan</td>
<td>Development of plan based guidance from the Board and staff input</td>
<td>Maintain infrastructure; Improve water management; potential water savings</td>
</tr>
<tr>
<td>A2</td>
<td>Diligence Applications/Filings</td>
<td>Continue diligence activities and filings for existing water rights</td>
<td>Maintain conditional water rights</td>
</tr>
<tr>
<td>A3</td>
<td>De-Brucing/Tabor</td>
<td>Investigate possibility of de-Brucing and outcomes if achieved</td>
<td>Increase budget flexibility</td>
</tr>
<tr>
<td>A4</td>
<td>Energy Dissipating Structure Hydropower Development</td>
<td>Negotiations have begun with the Tribe on a joint facility</td>
<td>Auxiliary income; Green power production</td>
</tr>
<tr>
<td>B2</td>
<td>Full Service Farmers Meter Education</td>
<td>Continue teaching Full Service Farmers how to read their own meters</td>
<td>Education; Relationship development; Wise water users</td>
</tr>
<tr>
<td>A5</td>
<td>Replenish Reserve Accounts</td>
<td>Develop a long term plan and strategy to increase income to reserve account</td>
<td>Replenish reserves</td>
</tr>
<tr>
<td>B3</td>
<td>Utilization of Totten Reservoir</td>
<td>Potential source of water to meet Projects demands and community demands</td>
<td>Increase Project water supplies</td>
</tr>
<tr>
<td>A6</td>
<td>Business Partners with Users</td>
<td>Continue as business partners with all users of the Project</td>
<td>Education; Relationship development</td>
</tr>
<tr>
<td>B4</td>
<td>Class B Stock Water</td>
<td>Find a permanent use for Class B stock water</td>
<td>Protect water supplies</td>
</tr>
<tr>
<td>B5</td>
<td>Hydropower Development</td>
<td>Pursue options for hydropower development based on the recommendations presented in the Hydropower Study</td>
<td>Auxiliary income</td>
</tr>
<tr>
<td>A7</td>
<td>Participation with the State and Other Governmental Entities</td>
<td>Continued participation with local, state and federal governmental entities; Remain informed of state and national water issues</td>
<td>Relationship development; Networking; Education</td>
</tr>
</tbody>
</table>
Table 6. Continued…

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<tr>
<th>ID</th>
<th>Priority &amp; Measure</th>
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<tr>
<td><strong>Medium Priority</strong></td>
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</tr>
<tr>
<td>A8</td>
<td>&quot;A Way Forward&quot; 9 Management Opportunities</td>
<td>Support appropriate management opportunities</td>
<td>Improve water management downstream of reservoir; fisheries benefit; Water rights protection</td>
</tr>
<tr>
<td>A9</td>
<td>Conservation Pricing</td>
<td>Enforcing a predetermined cap on the full service water supply yearly; implement conservation structure rates to increase water sales income</td>
<td>Increase water sales revenue; Conservation; Saved water</td>
</tr>
<tr>
<td>A10</td>
<td>Continue Joint Board Meetings with MVIC</td>
<td>Regularly hold joint board meetings</td>
<td>Relationship development</td>
</tr>
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<td>A11</td>
<td>Control Room Emergency Response for M&amp;I</td>
<td>Develop a water supply emergency action plan</td>
<td>Water supply protection</td>
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<td>A12</td>
<td>Drought Planning and Assessment Tool</td>
<td>Build on the drought tools learned and utilized in 2013; potential deliverable of the Optimization Study</td>
<td>Water supply protection; Improve water management</td>
</tr>
<tr>
<td>A13</td>
<td>Increase Auxiliary Enterprise Offsets</td>
<td>Investigate enterprise opportunities within the basin</td>
<td>Increase auxiliary income</td>
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<td>A14</td>
<td>Promote Dolores Basin Water Quality</td>
<td>Coordinate and participate in monitoring water quality parameters and standards, source water protection planning, 319 Plan on the Dolores, respond to triennial review as necessary</td>
<td>Water supply protection; Water rights protection</td>
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<td>B6</td>
<td>Focused Crew Training Programs</td>
<td>Identify course, establish crew schedule and budget</td>
<td>Education; Improve OM&amp;R</td>
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<tr>
<td>B7</td>
<td>Maintain Website</td>
<td>District maintains the website and updates when appropriate. Continue adding information based on feedback from users and Board</td>
<td>Provides continued communication with the water users and customers</td>
</tr>
<tr>
<td>A15</td>
<td>Maximum Utilization of Existing MVIC Reservoirs</td>
<td>Designated pools in Groundhog and Narraguninpep to be used during a drought situation (determined by specific triggers); Management plan of said reservoirs could be a deliverable of the Optimization Study</td>
<td>Improved water management; Farmers benefit in a single low water year; Protection water supplies</td>
</tr>
<tr>
<td>A16</td>
<td>MVIC Water Right Options</td>
<td>Discussions with MVIC are recommended to consider if MVIC water might be available for additional decreed purposes within the Project area; Could be a deliverable of the Optimization Study</td>
<td>Increased Project water supplies; Improved water management; Conservation of water</td>
</tr>
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<td></td>
<td><strong>Medium Priority</strong></td>
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<td>A17</td>
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<td>Relationship development; Education; Promoting appropriate balance of water use and environmental needs</td>
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<td></td>
<td>Dialogue (DRD)</td>
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<td>A19</td>
<td>Leasing Project Water</td>
<td>This could include individual Project allocations leased to other Project uses</td>
<td>Revenue for leasor and District; Increase water supply for lessee</td>
</tr>
<tr>
<td>A20</td>
<td>Optimization Study</td>
<td>A Study to review the available water supplies to evaluate whether the water is being used as effectively as possible using the existing facilities. Then determine if there are additional management methods and/or facilities that may improve the effectiveness</td>
<td>Improve water management</td>
</tr>
<tr>
<td>B8</td>
<td>Regulating Reservoirs</td>
<td>Potential within the Dove Creek Canal and South Canal for spill management</td>
<td>Save water; Improve water delivery</td>
</tr>
<tr>
<td>B9</td>
<td>Construct Upper Plateau Storage</td>
<td>Continue consideration through water right diligence; pursue as a proposed component of the Plateau Pump Back Project</td>
<td>Increase water supplies to fisheries</td>
</tr>
<tr>
<td></td>
<td>Reservoir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A21</td>
<td>Development of Annual Crop Reports</td>
<td>Generated yearly</td>
<td>Education on yearly water use</td>
</tr>
<tr>
<td>A22</td>
<td>DWCD Places a Call on the River</td>
<td>DWCD places a call on the river to curtail upstream junior users</td>
<td>Undecreed water users removed; determine water rights priorities and existing decreed water uses</td>
</tr>
<tr>
<td>A23</td>
<td>Education Outreach</td>
<td>Continue education outreach by participating in the DRD, Water 101, local water festivals, etc…</td>
<td>Education; Relationship development</td>
</tr>
<tr>
<td>ID</td>
<td>Priority &amp; Measure</td>
<td>Action</td>
<td>Benefits</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>A24</td>
<td>CSU Experimental Farm's Investigations</td>
<td>Continue to assist funding CSU experimental farm’s investigations</td>
<td>Education</td>
</tr>
<tr>
<td>A25</td>
<td>Participate in Precipitation Augmentation</td>
<td>Continue funding cloud seeding programs sponsored by SWCD</td>
<td>Increase Project water supplies</td>
</tr>
<tr>
<td>B10</td>
<td>Plateau Pump Back Project</td>
<td>Currently being pursued; 2014 Investment Information Memo</td>
<td>Revenue; Green power production</td>
</tr>
<tr>
<td>B11</td>
<td>Protection of McElmo's Flume</td>
<td>Support protection of historic agricultural infrastructure and historical water use story</td>
<td>Education</td>
</tr>
<tr>
<td>C2</td>
<td>Sponsor Farmers to Conferences</td>
<td>Sponsor FSA farmers to participate in conferences; Report back to committee</td>
<td>Education; Economical benefits</td>
</tr>
<tr>
<td>A26</td>
<td>Water Marketing</td>
<td>Leasing water to 3rd parties; Policy development for requests</td>
<td>Increase water sales income</td>
</tr>
<tr>
<td>C3</td>
<td>Water Audits</td>
<td>Development of an Irrigation Water Management Program</td>
<td>Relationship development; Improve water management</td>
</tr>
<tr>
<td>A27</td>
<td>Conduct a Study to Determine the Possibility of Utilizing the Rico Alluvium for Upstream Storage</td>
<td>Potential install water level monitoring equipment in two existing wells</td>
<td>Increase Project water supplies; Improve water management; Conservation of water</td>
</tr>
<tr>
<td>C4</td>
<td>Soil Moisture Education Forums</td>
<td>Open houses teaching methods of soil moisture testing</td>
<td>Education; Economical benefits; Improve water management; Conservation of water</td>
</tr>
</tbody>
</table>
10 ENVIRONMENTAL REVIEW

The selected measures differ in the amount of impact they will have on the environment, if any. Most components of the WMCP can be implemented without environmental compliance activities because they are not structural. Moreover, environmental permitting will be addressed for each adopted measure deemed a “Federal Action” prior to commencement of such action. Following, in Table Seven – Environmental Review (found at the end of this section), is a summary of general environmental effects and benefits expected of various measures.
### Table 7. Environmental Review

<table>
<thead>
<tr>
<th>ID</th>
<th>Measure</th>
<th>General Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>High Priority</strong></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Conduct bi-Annual Farmer Advisory Committee Meetings</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>B1</td>
<td>Capital Replacement and Improvement Plan</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A2</td>
<td>Diligence Applications/Filings</td>
<td>Minimum impact during stream gage installations; permitting may be required during development of water sources</td>
</tr>
<tr>
<td>A3</td>
<td>De-Brucing/Tabor</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A4</td>
<td>Energy Dissipating Structure Hydropower Development</td>
<td>Will require environmental review for impacts</td>
</tr>
<tr>
<td>B2</td>
<td>Full Service Farmers Meter Education</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A5</td>
<td>Replenish Reserve Accounts</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>B3</td>
<td>Utilization of Totten Reservoir</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>A6</td>
<td>Business Partners with Users</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>B4</td>
<td>Class B Stock Water</td>
<td>No further environmental review</td>
</tr>
<tr>
<td>B5</td>
<td>Hydropower Development</td>
<td>Probably will require environmental review for impacts</td>
</tr>
<tr>
<td>A7</td>
<td>Participation with the State and Other Governmental Entities</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A8</td>
<td>&quot;A Way Forward&quot; 9 Management Opportunities</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>A9</td>
<td>Conservation Pricing</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A10</td>
<td>Continue Joint Board Meetings with MVIC</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A11</td>
<td>Control Room Emergency Response for M&amp;I</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A12</td>
<td>Drought Planning and Assessment Tool</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A13</td>
<td>Increase Auxiliary Enterprise Offsets</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A14</td>
<td>Promote Dolores Basin Water Quality</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>B6</td>
<td>Focused Crew Training Programs</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>B7</td>
<td>Maintain Website</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A15</td>
<td>Maximum Utilization of Existing MVIC Reservoirs</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>A16</td>
<td>MVIC Water Right Options</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>A17</td>
<td>Participate in the Dolores River Dialogue (DRD)</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>C1</td>
<td>Exchanging of Ideas Forum</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A18</td>
<td>Interim and Permanent Utilization M&amp;I Water</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>A19</td>
<td>Leasing Project Water</td>
<td>Probably no environmental impact or permitting required</td>
</tr>
<tr>
<td>A20</td>
<td>Optimization Study</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>ID</td>
<td>Measure</td>
<td>General Effects and Benefits</td>
</tr>
<tr>
<td>----</td>
<td>---------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>B8</td>
<td>Regulating Reservoirs</td>
<td>Probably no environmental impact or permitting</td>
</tr>
<tr>
<td>B9</td>
<td>Construct Upper Plateau Storage Reservoir</td>
<td>Will require extensive environmental review and permitting</td>
</tr>
<tr>
<td>A21</td>
<td>Development of Annual Crop Reports</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A22</td>
<td>DWCD Places a Call on the River</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A23</td>
<td>Education Outreach</td>
<td>No environmental impact or permitting required</td>
</tr>
<tr>
<td>A16</td>
<td>MVIC Water Right Options</td>
<td>If new structure is included in an option, will require</td>
</tr>
<tr>
<td>A17</td>
<td>Participate in the Dolores River Dialogue (DRD)</td>
<td>No environmental impact or permitting required</td>
</tr>
</tbody>
</table>

**Low Priority**

| A24| CSU Experimental Farm's Investigations      | No environmental impact or permitting required                         |
| A25| Participate Precipitation Augmentation      | No environmental impact or permitting required                         |
| B10| Plateau Pump Back Project                   | Will require environmental review and permitting                      |
| B11| Protection of McElmo's Flume                | No environmental impact or permitting required                         |
| C2 | Sponsor Farmers to Conferences              | No environmental impact or permitting required                         |
| A26| Water Marketing                             | No environmental impact or permitting required                         |
| C3 | Water Audits                                | No environmental impact or permitting required                         |
| A27| Conduct a Study to Determine the Possibility of Utilizing the Rico Alluvium for Upstream Storage | No environmental impact or permitting required                         |
| C4 | Soil Moisture Education Forums              | No environmental impact or permitting required                         |